GFPHS 2025

3RD GFPHS

PROGRAM BOOK

20
25

The Role of Pharmaceutical Sciences in Drug Discovery, Development, and Scale-Up Process

UAD | FARMASI

ASEAN University Network

GFPHS at a Glance

The Global Forum on Pharmaceutical and Health Sciences (GFPHS) was established in 2023 by the Faculty of Pharmacy at Universitas Ahmad Dahlan in Yogyakarta, Indonesia. This annual gathering is more than just an event; it's a meeting of minds where academics, researchers, students, professionals, and industry experts come together to share their insights, discuss issues, and create collaborations in the pharmacy and health science aspects.

GFPHS embraces an interdisciplinary approach by exploring topics such as clinical pharmacy, pharmaceutical technology, natural products, pharmaceutical analysis, and public health. It's a place where you can discuss current trends, share innovative ideas, and address challenges such as pharmacogenetics, nanotechnology, herbal medicine, halal analysis, and global health.

Every year, GFPHS chooses a theme that resonates with the current pulse of the industry, addressing the latest developments and challenges. The program is a blend of inspiring keynote speeches, engaging oral presentations, and interactive sessions that spark dialogue and professional connections.

GFPHS also supports the dissemination of scientific knowledge through peer-reviewed conference proceedings and curated journal publications, which provide participants with the opportunity to share their research with a wider audience. By offering a platform for discussion, publication, and collaboration, GFPHS is dedicated to driving scientific progress and developing real-world solutions in pharmacy and healthcare.

With sessions held in multiple languages, GFPHS rolls out as the welcome mat for both national and international participants, making it accessible for all those passionate about advancing pharmaceutical and health sciences.

Welcome message from the chair of the committee of the 3rd GFPHS

Ladies and Gentlemen,
Distinguished Guests,
Esteemed Speakers, and Participants

Assalamualaikum Warahmatullahi wabarakatuh

Good morning, and welcome at the Global Forum on Pharmaceutical and Health Sciences on the Role of Pharmaceutical Sciences in Drug Discovery, Development, and Scale-Up Process.

It is my great honor and privilege to serve as the chairman of this important event, which brings together an exceptional group of scientists, practitioners, and innovators from around the world. Today, we gather to explore the pivotal contributions of pharmaceutical sciences—from the earliest stages of drug discovery, through rigorous development, to the complex and essential process of scaling up for real-world application.

Pharmaceutical science encompasses more than laboratory work; it is a collaborative endeavour that transcends disciplines and ultimately determines the safety, efficacy, and accessibility of medications that enhance humanity on a global scale. There are numerous obstacles to overcome, including the identification of promising compounds, the translation of these compounds into effective formulations, the negotiation of regulatory obstacles, and the guarantee of successful manufacturing at a large scale. This conference offers a forum for the examination of those obstacles and the exchange of strategies and knowledge that can facilitate progress.

We are deeply honored to welcome our Keynote Speaker, Prof. Dr. Michael Keusgen, a distinguished Professor in Institute of Pharmaceutical Chemistry and Dean of The Department of Pharmacy Philipps-Universität Marburg Germany whose insights have significantly advanced our understanding about Medicine Plant of Afghanistan.

We are also pleased to welcome our Invited Speakers:
apt. Syarifatul Mufidah, M.Sc., Ph.D, from our institution Faculty of Pharmacy, Universitas Ahmad Dahlan and apt. Christian Karol Saputra, M.Biotek— from Etana Biotechnologies Indonesia, both of whom bring unique perspectives and expertise that will enrich our discussions today.

I sincerely thank each of you for your participation and commitment. May this conference inspire new ideas, foster valuable collaborations, and contribute to the shared goal of advancing health through pharmaceutical science.

Let us begin this exciting journey together.
Welcome, and let the conference begin.

Wassalamualaikum Warahmatullahi wabarakatuh

Dr. apt. Iis Wahyuningsih M.Si

OUR SPEAKERS' PROFILE

Prof. Dr. Michael Keusgen

Professor in Institute of Pharmaceutical Chemistry
and Dean of The Department of Pharmacy
Philipps-Universität Marburg Germany

apt. Syarifatul Mufidah, M.Sc., Ph.D

Department of Pharmaceutical Biology
Faculty of Pharmacy
Universitas Ahmad Dahlan

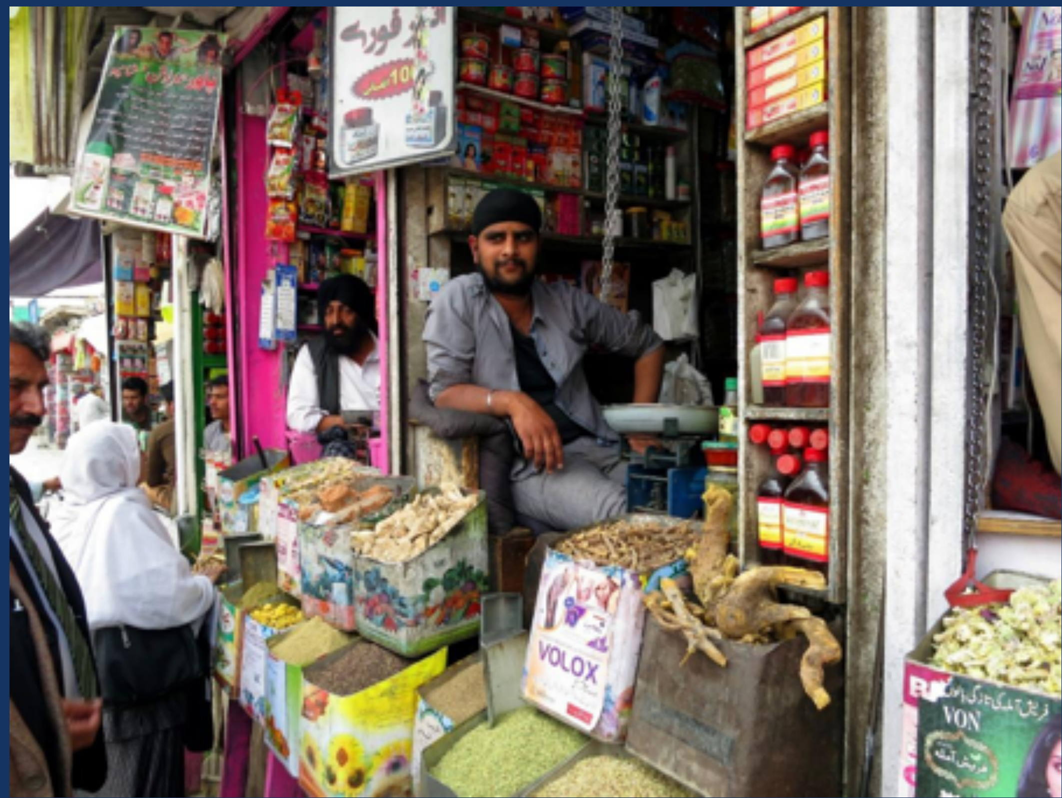
apt. Christian Karol Saputra, M.Biotek

Research and Development Manager
PT. Etana Biotechnologies Indonesia

INSIGHTS FROM OUR KEYNOTE SPEAKER

MEDICINAL PLANTS OF AFGHANISTAN

Afghanistan is a fascinating country with thousands of amazing facets reaching from fertile banks along Amu Darya up to the glaciated tops of Hindukush. This complex geography favours a huge diversity of biotopes with about 5,000 thousand species of vascular plants, many of them endemic. However, because of the inaccessibility of many areas, even more species can be expected, probably most of them are also endemic. Especially in these remote areas, population is obliged to use natural medicines. Until now, there are only very few reports about medicinal use of Afghan plants beside that what is offered for sale on bazars in Kabul and further important cities.



Market for traditional medicines in the city centre of Kabul, Afghanistan © Keusgen

This lack of knowledge was the reason to start a comprehensive investigation of medicinal plant usage in Afghanistan. Starting from 2013, cooperation with the Balkh University in Mazar-e Sharif, faculties of pharmacy and agricultural science, and Kabul University, faculty of pharmacy, was started. Additionally, Pamir Botanical Garden in Khorog, Tajikistan, has been included into the project. During a period of now 11 years, numerous field trips were performed resulting in more than 11.000 structured reviews all over Afghanistan as well as at the border region between Afghanistan and Tajikistan. All information has been assembled in a comprehensive database.

This tremendous work resulted in monographing about 250 of the most important medicinal plants, most of them as individual monographs. Imported medicinal plants, which are not native or cultivated in Afghanistan, were described briefly by a comprehensive table. However, it must be pointed out that in total about 400 plants were medicinally used in Afghanistan, many of them only in restricted areas. Interviews showed that the 250 most important medicinal plants display huge regional variations in terms of indications. Because of limited space in this book, not all records about medicinal use could be respected. If numerous reports (e.g., 252 data set for *Glycyrrhiza uralensis*) were archived for a species, the common medicinal use is summarized in the individual monograph.

Prof. Dr. Michael Keusgen, University of Marburg
Department of Pharmacy
Wilhelm-Roser Str. 2, D-35032 Marburg, Germany

INVITED SPEAKERS

SYARIFATUL MUFIDAH

Faculty of Pharmacy
Universitas Ahmad Dahlan, Indonesia.

Rational Design of PPARγ Modulators:
A Molecular Approach to Antidiabetic Drug Discovery

The escalating prevalence of type 2 diabetes mellitus (T2DM) underscores the urgent need for innovative therapeutic strategies that enhance insulin sensitivity with minimal adverse effects. Peroxisome proliferator-activated receptor gamma (PPARγ), a key regulator of glucose and lipid homeostasis, has long been recognized as a strategic target in antidiabetic drug discovery. However, full agonists of PPARγ, such as thiazolidinediones, exert their effects through strong interactions with the activation function-2 (AF-2) region on helix 12, a mechanism often associated with significant side effects. In contrast, partial agonists or selective PPARγ modulators (SPPARγMs) achieve beneficial metabolic outcomes while avoiding engagement with the AF-2 domain, offering a safer pharmacological profile. Structurally, PPARγ possesses an unusually large and flexible ligand-binding cavity, capable of accommodating more than one small molecule simultaneously.This unique structural feature forms the foundation of our rational design strategy, which seeks to combine two small molecules capable of co-occupying the PPARγ ligand-binding pocket while deliberately avoiding interaction with the AF-2 region. To guide this effort, GW9662, an irreversible antagonist known to bind outside the AF-2 domain, was employed as a molecular anchor for the identification of synergistic partners. Primary screening was performed using a high-throughput, cell-based assay to identify hit compounds that exhibit cooperative activation of PPARγ in the presence of GW9662. The screening library comprised selected natural products and low-molecular-weight fragment compounds, offering structural diversity and pharmacophoric richness. Promising combinations were then subjected to chemical synthesis to generate dual-ligand constructs, which were subsequently evaluated for their agonist activity in vitro. Molecular docking served as a complementary tool to elucidate plausible binding orientations and to support mechanistic interpretations of the observed bioactivity. This integrated approach not only advances our understanding of selective PPARγ modulation but also establish a rational framework for the discovery of next-generation SPPARγMs with enhanced safety and therapeutic potential in the treatment of T2DM.

EVENT SCHEDULE AND ROOM INFORMATION

ROOM	TIME	SCHEDULE
Main Room	07.30-07.45	Participant registration Video profile playback
Main Room	07.45-08.10	Opening ceremony Welcome speech by Dean of Faculty of Pharmacy UAD Dr.apt. Iis Wahyuningsih, M.Si.
Main Room	08.10-08.50 08.50-09.10	**Speaker 1** apt. Syarifatul Mufidah, M.Sc., Ph.D Faculty of Pharmacy, Universitas Ahmad Dahlan Topic : “Rational Design of PPAR-γ : A Molecular Approach to Antidiabetic Drug Discovery” Question and Answer Session
Breakout room	09.15-12.00	**Oral Presentation** **Room 1 : Pharmacy sciences** OR-01 : Dr. apt. Dwi Utami, M.Si._Rahma Anasya Safitri
		Room 2- 4 : Pharmaceutical Biology OR-02 : Dr.rer.nat.apt. Sri Mulyaningsih, M.Si_ Tsafrilla Ummu Riyadi OR-03 : apt. Hardi Astuti Witasari, SF., M.Sc._ Ezzati Zulmarwah Kenamon OR-04 : Prof. Dr. apt. Laela Hayu Nurani, M.Si_ Aurel Fidelia Faust
		Room 5 : Pharmacology OR-05 : apt. Lolita, M.Sc., Ph.D._ Ika Yussia Mayla Cahyani Effendie
		Room 6- 12 : Clinical Pharmacy OR-06 : apt. Susan Fitria Candradewi, S.Farm., M.Sc._ Fadilla Oktavia Pribadi OR-07 : apt. Faridah Baroroh, S.Far., M.Sc._ Adelliana Khusnul Oktaviasari OR-08 : apt. Ginanjar Zukhruf Saputri, M.Sc._ Dela Yolanda Daurin OR-09 : apt. Hendy Ristiono, S.Far., MPH._ Amelia Isnina Ahmad OR-10 : Dr.rer.nat. apt. Endang Darmawan, S.Si., M.Si._ Epril Yoge Nugraheni OR-11: apt. Lalu Muhammad Irham, M.Farm., Ph.D._ Meisya Shafa Putri Nabila OR-12: Dr. apt. Adnan, M.Sc._ Aliya Nauf Rahmawati

		Room 13-17 : Pharmaceutical Technology and Pharmaceutics OR-13: apt. Azis Ikhsanudin, M Sc._ Aldiyanti Mila Damayanti OR-14: apt. Lina Widiyastuti, M.Sc._ Iqbal Baihaqi Riofiandi OR-15: apt. Citra Ariani Edityaningrum, M.Si._ Yusron Umar OR-16: apt. Annas Binarjo, S.F., M.Sc._ Adelia Rahmawati OR-17: Dr. apt. Siti Fatmawati Fatimah , M.Sc._ Alya Nurhasanah
		Room 18- 20 : Pharmaceutical Chemistry OR-18: Dr. apt. Warsi, M.Sc._ Wahyu Agustina Saputri OR-19: Mustofa Ahda, S.Si., M.Sc._ Wulan Syifa Najiha OR-20: Prof. apt. Nurkhasanah, S.Si., M.Si., Ph.D._ Difa Pramesti Rasendriya
	12.00-13.00	Lunch break The participants join to Main room
Main Room	13.00-13.40 13.40-14.00	**Speaker 2 :** apt. Christian Karol Saputra, M. Biotek Etana innovation centre, PT Etana Biotechnologies Indonesia Topic : "Process Development and Scale-up of Biotechnology Products" Question and Answer Session
Main Room	14.00-15.00 15.00-15.20	**Keynote Speaker** Prof. Dr. Michael Keusgen Faculty of Pharmacy, Philipps-Universität Marburg, Germany Topic : Medicinal Plants of Afghanistan Question and Answer Session
Main Room	15.20-15.30	Closing

Oral Presentation Groups and Room Information

ROOM 1
MODERATOR Dr. apt. Dwi Utami, M.Si.

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Emeralda Pradipta Ratri	Association Between Polypharmacy And Potential Drug Interactions In Patients With Chronic Kidney Disease and Hypertension Undergoing Hemodialysis at Prof. Dr. Margono Soekarjo Regional Hospital
2	09.40-09.50	Makhabbah Jamilatun	Antioxidant Activity of Bay (Syzygium polyanthum (Wight) Walp) Leaf Extract Toner
3	09.50-10.00	Apt.Dhian Budiharti Solihah, S.Farm	Analysis of Factors Affecting The Absorption of BPJS Prescriptions for The Referarral Back Program (PRB) at The PRB Pharmacy In Cirebon City
4	10.00-10.10	Dina Rahmawanty	Polymer-Based Microarray Patches, A Novel Strategy to Bypass The Skin Barrier for Sustained-Delivery of Ramipril, A Poorly Soluble Antihypertensive Drug
5	10.10-10.20	Dina Anggraeni	The Effect of Polypharmacy on The Effectiveness and Medication Adherence of Hypertension Patients at The Outpatient Clinic of Private Hospital X in Majenang
6	10.30-10.40	Ichwan Ridwan Rais	The Effect of Different Extraction Methods of Java Bark (Lannea Coromandelica (Houtt.) Merr) on Antibacterial
7	10.40-10.50	Kartika Ayu Lestari	Evaluation of Pharmaceutical Service Quality Standards on Patient Satisfaction at Kimia Farma Pharmacy in Cirebon City
8	10.50-11.00	Yayat Wijayanto	The Satisfaction Level of Pharmacy Staff and Inpatient Nurses toward The Unit Dose Dispensing (Udd) System at RSI Fatimah Cilacap
9	11.00-11.10	Hesti Nursari Putri	The Influence of Service Quality on Customer Retention at Kimia Farma Pharmacy in Cirebon City
10	11.10-11.20	Pradea Indah Lukito, M.Farm.	Potential of Antibacterial Agent for Diabetic Wounds from Ethyl Acetate Extract of Patikan Kebo (Euphorbia Hirta L.) Leaves
11	11.20-11.30	Dr. apt. Renny Amelia	The Stability and Effectiveness of Chitin Extract Patch on Incision Wounds and Acute Irritation Test in Rat (Rattus novergicus)

OPERATOR **Rahma Anasya Safitri**

ROOM	**2**
MODERATOR	**Dr.rer.nat.apt. Sri Mulyaningsih, M.Si**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Muhammad Anung Danang Syarifuddin	Aktivitas Antibakteri Kulit Batang Kayu Jawa (*Lannea coromandelica*)
2	09.40-09.50	Wiwin Herlina Puji Astuti	Aktivitas Antibakteri pada *Staphylococcus aureus*: Kajian In Silico
3	09.50-10.00	M. Ikhsan Syarlendra	*Narrative Review* : Antibakteri Daun Pepaya (*Carica papaya*) Terhadap *Escherichia coli*
4	10.00-10.10	Sitta Istiqomah Said	Fitokimia dan Aktivitas Farmakologis *Vitaceae*: Mekanisme Antibiofilm Sebagai Strategi Mengatasi Resistensi Bakteri
5	10.10-10.20	Mei Mudaleni	*Narrative Review*: Potensi Antioksidan Tanaman Senggugu (*Clerodendrum serratum* (L.) Moon.): Penangkapan Radikal Bebas DPPH
6	10.30-10.40	Nadira Alta Salsabila	Aktivitas Antioksidan pada Tanaman Lidah Buaya (*Aloe vera*)
7	10.40-10.50	Pandu Adji Ramadhan	Potensi Tanaman *Family Vitaceae* sebagai Antibakteri
8	10.50-11.00	Rifdati Luthfia	Aktifitas Antibakteri Ekstrak Tanaman Alpukat (*Persea americana*) terhadap Bakteri
9	11.00-11.10	Nouval Andimas Surya	Potensi Ekstrak Tanaman Kayu Jawa (*Lannea cormendalica*) sebagai Antibakteri
10	11.10-11.20	Wiwin Herlina Puji Astuti	Aktivitas Antibakteri pada *Staphylococcus aureus*: Kajian In Silico
OPERATOR	**Tsafrilla Ummu Riyadi**		

ROOM	**3**
MODERATOR	**apt. Hardi Astuti Witasari, SF., M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Ersalia Citra Khoirunnisa	Potensi Aktivitas Antibakteri Ekstrak Buah Salak (*Salacca zalacca*) terhadap Bakteri Patogen Saluran Pencernaan : *Narrative Review*
2	09.40-09.50	Ardi Bangkit Prasojo	Study Etnomedisin Tanaman sebagai Obat Diabetes Di Indonesia: Tinjauan Naratif
3	09.50-10.00	Rahma Amelia Izzaty	Aktivitas Antibiofilm Ekstrak Bawang Merah (*Allium cepa* L.) terhadap Berbagai Bakteri Patogen: *Review* Literatur
4	10.00-10.10	Adn Nanda Eryn Talianti	Etnomedisin Sebagai Obat Hipertensi oleh Masyarakat Jawa Tengah dan Yogyakarta : Tinjauan *Review*
5	10.10-10.20	Laudza Azzahra Hafsari	Potensi Aktivitas Antibakteri Ekstrak Etanol 96% Kulit dan Buah Pisang Kepok (*Musa paradisiaca*) sebagai Antibakteri Penyebab Jerawat
6	10.30-10.40	Khrisna Rangga Anugrah	Efektivitas Fitokimia Tanaman Stevia (*Stevia rebaudiana*) sebagai Pemanis Alami terhadap Penurunan Glukosa Darah
7	10.40-10.50	Serlynda Lailatul Awalin	Kajian Literatur : Efektivitas Antibakteri Ekstrak Lempuyang Wangi (*Zingiber zerumbet* L. sm) dan Kandungan Kimianya
8	10.50-11.00	Galuh Okta Ramadhan	Optimasi Konsentrasi Pelarut Etanol Pada Ekstrak Daun Kersen (*Muntingia calabura*) Terhadap Aktivitas Antibakteri
9	11.00-11.10	Adindha Bintang Rizquna Ariestyani	Aktivitas Antibakteri Dan Penetapan Kadar Flavonoid Total Daun Murbei (*Morus alba* L.)
10	11.10-11.20	Tifa Wardani	Aktivitas Antioksidan Dan Kadar Fenol Total Ekstrak Murbei (*Morus alba* L.)
14	11.50-12.00		
OPERATOR	**Ezzati Zulmarwah Kenamon**		

ROOM **4**
MODERATOR **Prof. Dr. apt. Laela Hayu Nurani, M.Si**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Alila Prita Prameswara	Perspektif Budaya dan Praktik Etnomedisin Dalam Pengelolaan Hipertensi Di Jawa Barat : Sebuah Tinjauan Review
2	09.40-09.50	Zaki Pratomo	Nanoemulgel Sereh Wangi (*Cymbopogon nardus* L.) : Komponen Kimia, Formulasi, dan Aktivitas Antibakteri
3	09.50-10.00	Nur Faizaturrohmah	Aktivitas Antibakteri Tanaman Alpukat terhadap Bakteri Asidogenik
4	10.00-10.10	Alyya Kusdaiva Affandi	Aktivitas Antioksidan Ekstrak Kayu Manis (*Cinnamomum burmannii*) dan Kayu Secang (*Caesalpinia sappan* L.)
5	10.10-10.20	Audreylya Nikita V.Hutabarat	Aktivitas Ekstrak Daun Seledri (*Apium graveolens*) sebagai Penumbuh Rambut
6	10.30-10.40	Rendha Setya Novalia	Aktivitas Perlindungan Ultraviolet dari Ekstrak *Family Zingiberaceae*
7	10.40-10.50	Firyal Hanifa Athaya	Aktivitas Antibakteri Kulit Pisang Kepok (*Musa garadisiaca* L.) Terhadap *Porphyromonas gingivalis*
8	10.50-11.00	Nur Aisyah Fitriana	*Narrative Review* : Aktivitas Antibakteri Pada Biji Anggur (*Vitis vinifera* L.) dengan Jenis Pelarut Berbeda
9	11.00-11.10	Kader Risnawati	Potensi Aktivitas Antioksidan dari Ekstrak Bunga Mawar (*Rosa damascena* Mill), Bunga Melati (*Jasminum sambac*), dan Bunga Telang (*Clitoria ternatea*).
10	11.10-11.20	Dzakiyyah Aulia Yasmin Al Aziz	*Narrative Review:* Potensi Tanaman Jeruk Sebagai Tabir Surya
OPERATOR	**Aurel Fidelia Fausta**		

ROOM	**5**
MODERATOR	**apt. Lolita, M.Sc., Ph.D.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Reyhan Ramadhan	Potensi Rumput Mutiara (*Hedyotis corymbosa*) sebagai Obat Terapi Antiinflamasi : *Narrative Review*
2	09.40-09.50	Syaharani Agustin	Efektivitas Resveratrol sebagai Agen Antihipertensi: Kajian Literatur
3	09.50-10.00	Aulia Ayu Kusumaningrum	Perlindungan Ginjal melalui Senyawa Polifenol Resveratrol
4	10.00-10.10	Shalu Anameci Lestari	Potensi Aktivitas Berbagai Tanaman dalam Meningkatkan Kadar Dopamin sebagai Terapi Alternatif Antiparkinson
5	10.10-10.20	Amellia Nur Alifah	*Narrative Review* : Aktivitas Tanaman Herbal Nusantara sebagai Terapi Antidepresan
6	10.30-10.40	Ridha Rahmatul Azizah	Aktivitas Antioksidan Tanaman Herbal sebagai Terapi Antiparkinson
7	10.40-10.50	Alifa Salsabila Wardio	*Narative Review*: Potensi Ekstrak Tanaman dari *Family Araliaceae* sebagai Penyembuh Luka
8	10.50-11.00	Raja Nadiyah Zaharatun Nisyak	Aktivitas *Black Garlic* sebagai Antidiabetes pada Model Hewan Uji
9	11.00-11.10	Givtry Nisa Lovina	Aktivitas Bawang Putih (*Allium sativum* L.) sebagai Anti Kanker: *In Vivo*
10	11.10-11.20	Nurlita Syaharani Tsabita Dinnul Haq	*Narrative Review* : Pengaruh Ekstrak Bawang Putih (*Allium sativum* L.) sebagai Antikolesterol
11	11.20-11.30	Azzahra Windhana Andari	Eksplorasi Metodologi Uji Praklinik Senyawa Antidepresan
12	11.30-11.40	Ma'ruf Bayu Aji	Evaluasi Aktivitas Antihipertensi dari Ekstrak Etanol Bawang Dayak (*Eleutherine palmifolia*)
13	11.40-11.50	Hasna Tsamarah	Potensi Antioksidan *Black Garlic* terhadap Radikal Bebas
OPERATOR	**Ika Yussia Mayla Cahyani Effendie**		

ROOM	**6**
MODERATOR	**apt. Susan Fitria Candradewi, S.Farm., M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Hana Fatriya Salma	Implementasi Prinsip Syariah dalam Pelayanan Kesehatan : *Narrative Review*
2	09.40-09.50	Anggi Fitri Novita	Evaluasi Strategi Pencegahan dan Pengobatan Penyakit Kusta Di Indonesia
3	09.50-10.00	Balqis Amalia Putri	Efektivitas Karbamazepin Monoterapi dan Kombinasi dalam Mengatasi Gangguan Bipolar pada Remaja dan Dewasa
4	10.00-10.10	Rastra Pratidina Arsyafitra Sujono	Penggunaan Obat pada Pasien Stroke Iskemik
5	10.10-10.20	Aisyah Nabila Putri	Financial performance analysis of Pharmacies in Indonesia
6	10.30-10.40	Tri Wulandari	Tingkat Pengetahuan Remaja terhadap Perilaku Pencegahan Diabetes Melitus
7	10.40-10.50	Rifa Rihadatul Ais	Evaluasi Kinerja Keuangan Apotek di Indonesia
8	10.50-11.00	Sabrina Awallinda Meryana	Analisis Biaya Sakit pada Pasien Diabetes Mellitus Tipe 2
9	11.00-11.10	Megi Dwi Syahrani Waimury	Pengaruh Kepatuhan Penggunaan Obat Psikiater terhadap Perubahan Perilaku pada Pasien Skizofrenia
10	11.10-11.20	Ziyad Razan Alfawwazy	Respons Klinis Dan Kepatuhan Terapi Antidepresan SNRI dan SSRI pada Populasi Usia Muda: Suatu Tinjauan Naratif
11	11.20-11.30	Raynor Bimantara Ariyanto	Efektivitas Minyak Lavender terhadap Gejala Kecemasan dan Gangguan Tidur: Kajian Literatur Naratif
OPERATOR	**Fadilla Oktavia Pribadi**		

ROOM **7**
MODERATOR **apt. Faridah Baroroh, S.Far., M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Azra Hafidza Fadhilatuzzayn	Penggunaan Litium dalam Pengobatan Gangguan Bipolar pada Lansia
2	09.40-09.50	Fitriani Ismail	Switch Terapi Antibiotik pada Pasien Rawat Inap dengan Pneumonia Di Rumah Sakit
3	09.50-10.00	Ichsanul Amal	Pengaruh Media Edukasi Berbasis Video terhadap Peningkatan Pengetahuan Pasien Diabetes Melitus Tipe 2
4	10.00-10.10	Putri Nadhila	Hubungan Kepatuhan Minum Obat dengan Penurunan Tekanan Darah pada Pasien Hipertensi
5	10.10-10.20	Devita Nely Agustin	Implementasi Nilai-Nilai Syariah dalam Praktik Kefarmasian
6	10.30-10.40	Irawati Agustina	Evaluasi *Switch Therapy* Antibiotik pada Pasien Rawat Inap Di Rumah Sakit
7	10.40-10.50	Anggi Septiani Rosdiana	Edukasi Farmasi Berbasis Promosi Kesehatan dalam Pencegahan dan Penanganan Dislipidemia
8	10.50-11.00	Cindi Fatikhasari	Gambaran Kualitas Hidup Pasien Kanker Payudara yang Menjalani Kemoterapi
9	11.00-11.10	Prasha Ibnu Thoriq	Potensi *Ulva lactuca* Sebagai Agen Antiinflamasi: Tinjauan Literatur terhadap Aktivitas Bioaktif dan Mekanisme Molekuler
10	11.10-11.20	Aziza Anyah Diani	Hubungan dntara Kepuasan dan Kepatuhan Pasien TBC Terhadap Pengobatan: Kajian Naratif
11	11.20-11.30	Hamizagha Nur Abid Widyasmoko	Pengaruh Kepatuhan Minum Obat terhadap Kejadian Hipertensi pada Pasien Dewasa

OPERATOR **Adelliana Khusnul Oktaviasari**

ROOM	**8**
MODERATOR	**apt. Ginanjar Zukhruf Saputri, M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Kinan Majid Arifin	Perbandingan Efektivitas dan Keamanan Penggunaan Metformin Monoterapi vs Kombinasi Metformin-Acarbose pada Pasien Diabetes Mellitus Tipe 2
2	09.40-09.50	Damayanti Iklashul Utami	Pengaruh Variasi Genetik CYP3A4 terhadap Respon Terapi Statin pada Pasien dengan Risiko Kardiovaskular
3	09.50-10.00	Natasha Tilla Putri Dewi	Evaluasi Peran Apoteker dalam Pelayanan Informasi Obat (PIO) Di Rumah Sakit
4	10.00-10.10	Ince Shatia Nisrina Haryono	Efektivitas Asam Valproat pada Remaja dengan Gangguan Bipolar
5	10.10-10.20	Vera Nur Indah Sari	Efektivitas Penggunaan Obat Antihipertensi pada Pasien Ibu Hamil dengan Preeklamsia
6	10.30-10.40	Rike Fitriyani	Pengaruh Konsumsi Makanan Tinggi Garam Akibat Gaya Hidup Tidak Sehat terhadap Risiko Hipertensi
7	10.40-10.50	Cristian Cindhy Prayoga	Tinjauan Naratif: Metode-Metode yang Digunakan dalam Peningkatan Pengetahuan Swamedikasi Obat di Masyarakat
8	10.50-11.00	Nurjanna	*Narrative Riview*: Evaluasi Pola Penggunaan Antibiotika pada Pasien Peumonia Rawat Inap di Rumah Sakit
9	11.00-11.10	Farah Fadillah	*Narrative Review:* Evaluasi Profil Penggunaan Antibiotika pada Pasien Infeksi Saluran Kemih (ISK) di Rumah Sakit Indonesia
10	11.10-11.20	Dhea Ardelia Choirunnisa	Analisis Rasionalitas pada Pasien Bedah Dengan Metode Kualitatif dan Kuantitatif
11	11.20-11.30	Halimah Almas	Hubungan Kepatuhan Penggunaan Obat terhadap Kualitas Hidup pada Pasien Skizofrenia
OPERATOR	**Dela Yolanda Daurin**		

ROOM	**9**
MODERATOR	**apt. Hendy Ristiono, S.Far., MPH.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Najmi Savitri	Hubungan Terapi *Eryhtropoietin* terhadap Kualitas Hidup Pasien PGK dengan Hemodialisis
2	09.40-09.50	Raisha Fadhilla Gofari	Pengaruh Polimorfisme Hipoglikemia terhadap Gen CYP2C9 pada Pengobatan Sulfonilurea
3	09.50-10.00	Tia Natalia	Pola Penggunaan Obat Sitostatika dan Terapi Suportif pada Pasien Kanker Payudara yang Menjalani Kemoterapi di Rumah Sakit
4	10.00-10.10	Allysha Khansa Rahmadina	Studi Biaya Penggunaan Imunosuppresan pada Transplantasi Ginjal
5	10.10-10.20	Raissa Hasna Salsabilla	*Narrative Review:* Analisis Kelengkapan Resep Secara Administratif, Farmasetis, dan Klinis
6	10.30-10.40	Kania Dwi Rifani	Hubungan Pengetahuan Penderita Diabetes Melitus Tipe 2 Terhadap Kepatuhan Pengobatan
7	10.40-10.50	Resti Novita Sari	Faktor – Faktor yang Mempengaruhi Kepuasan Pengobatan pada Pasien Transplantasi Ginjal
8	10.50-11.00	Brigita Permata Sari	Faktor - Faktor yang Mempengaruhi Kualitas Hidup pada Pasien Transplantasi Ginjal
9	11.00-11.10	Muhammad Ardian Daniswara	Pengaruh Edukasi Penggunaan Obat pada Peningkatan Kepatuhan Pasien Diabetes Melitus Tipe 2
10	11.10-11.20	Dwi Anisa	Tingkat Pengetahuan dan Sikap Remaja Putri terhadap Anemia serta Peran Farmasis dalam Upaya Pencegahannya
11	11.20-11.30	Raissa Sahda Adiska	Analisis Prevalensi, Insidensi, dan Strategi Pencegahan Penyakit Kusta di Indonesia: Tinjauan Epidemiologis dan Implikasi Kesehatan Masyarakat
OPERATOR	**Amelia Isnina Ahmad**		

ROOM	**10**
MODERATOR	**Dr.rer.nat. apt. Endang Darmawan, S.Si., M.Si.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Reynita Anneke Putri	Analisis Ketepatan *Switch* Antibiotik pada Pasien Bedah Apendisitis
2	09.40-09.50	Dwi Putriana Azzahra	Penggunaan Obat-Obatan Psikotropika pada Pasien Psikogeriatri
3	09.50-10.00	Risa Sholihah	Perbandingan Edukasi Swamedikasi Obat Melalui CBIA dan Tanya 5-O: Tinjauan Naratif
4	10.00-10.10	Afdalul Khalidah	Penggunaan Imunosupresan pada Pasien Transplantasi Ginjal
5	10.10-10.20	Dhecita Arifani Azzahra	Identifikasi Parameter Gaya Hidup Berisiko Tertinggi dalam Perkembangan Hipertensi pada Populasi Lansia
6	10.30-10.40	Dita Marshanda Elva Jelita	Gambaran Monitoring Efek Samping Obat Sitostatika pada Pasien Kanker Payudara yang Menjalani Kemoterapi di Rumah Sakit
7	10.40-10.50	Anisa Terisani	Pengaruh Edukasi terhadap Pengetahuan dan Sikap dalam Penggunaan Kosmetika yang Aman pada Remaja
8	10.50-11.00	Nur Eka Lestari	Pemberian Suplemen Penambah Darah sebagai Terapi Anemia pada Remaja Putri
9	11.00-11.10	Salsabila Putri Prasetya	Kajian Literatur: *Medication Error* pada Tahap *Prescribing* Resep Pasien Diabetes Melitus di Fasilitas Pelayanan Kesehatan
10	11.10-11.20	Aliyyah Putri Kinanti Danar	Efektivitas Pengobatan Tradisional Berdasarkan Tingkat Kepercayaan Masyarakat Gunung Kidul
11	11.20-11.30	Doni Chandra	Efektivitas Penggunaan Antibiotik Profilaksis pada Pasien Bedah terhadap Kejadian Infeksi Daerah Operasi
OPERATOR	**Epril Yoge Nugraheni**		

ROOM	**11**
MODERATOR	**apt. Lalu Muhammad Irham, M.Farm., Ph.D.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Utin Meisya Resima	Analisis Efektivitas Tenofovir sebagai Antivirus pada Pasien Hepatitis B
2	09.40-09.50	Natahira Fitri	Antibiotik dalam Praktik Bedah: Kajian Literatur Rasionalitas Penggunaan Berdasarkan Metode DDD
3	09.50-10.00	Winanda Septiana A	Kajian Interksi Obat pada Pengobatan DM dengan Hipertensi
4	10.00-10.10	Pingkan Mulya Azzahra	Kualitas Hidup Pasien Diabetes Melitus Tipe II Di Indonesia
5	10.10-10.20	Muhammad Irfan Andra Sukma	Pengaruh Polimorfisme Terjadinya Pendarahan terhadap Gen VCORC1 pada Pengobatan Warfarin
6	10.30-10.40	Fitri Lestari	Analisis Kuantitatif Penggunaan Antibiotik pada Pasien Bedah Sesar (*Sectio Caesarea*) dengan Metode ATC/DDD
7	10.40-10.50	Dyah Ayu Aryani	Validasi Kuesioner *Quality of Life* (QOL) pada Populasi Generik: *Narrative Review*
8	10.50-11.00	Siti Khairinnabilatul Hikmah	Narrative Review: Pengukuran Kualitas Hidup pada Populasi Umum
9	11.00-11.10	Nasywa Maula Az Zahra	Penggunaan Asam Hialuronat pada Pasien Osteoarthritis dengan Riwayat Diabetes Melitus Tipe 2 Di Asia Tenggara : *Narrative Review*
10	11.10-11.20	Belva Rizqya Dara Laboja	Analisis Kuantitatif Antibiotik pada Pneumonia Anak Dengan Metode *Anatomical Therapeutic Chemical/Defined Daily Dose* (ATC/DDD).
11	11.20-11.30	Tifani Anggita	Hubungan Osteoartritis dengan Merokok Di Indonesia: *Narative Review*
OPERATOR	**Aliya Nauf Rahmawati**		

ROOM **12**
MODERATOR **Dr. apt. Adnan, M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Devinta Dwiyan Nitami	Kualitas Hidup Pasien Penderita Hipertensi di Puskesmas
2	09.40-09.50	Alifa Fitri Felisya	Penggunaan Metilprednisolon pada Pasien Osteoarthritis Rawat Jalan dengan Riwayat Hipertensi di Asia Tenggara: Kajian Literatur
3	09.50-10.00	Jehan Maisa Shabira	*Narrative Review:* Peran Farmakogenetik dan Farmakogenomik dalam Optimalisasi Terapi Gangguan Depresi Mayor (MDD)
4	10.00-10.10	Melya Aqilah Zahrani	Kajian Potensi Obat Tamoxifen sebagai Terapi Hormon Kanker Payudara
5	10.10-10.20	Ahnaf Zaki Fausta	Kualitas Hidup Pasien TBC
6	10.30-10.40	Ahnaf Hafidh Amrullah	Pengaruh Media Edukasi Berbasis Kesehatan dalam Peningkatan Kualitas Hidup Pasien Diabetes Melitus
7	10.40-10.50	Nabilannisa Azizah	Evaluasi Rasionalitas Penggunaan Antibiotik pada Pasien Ulkus Diabetikum dan Faktor-Faktor yang Mempengaruhinya di Rumah Sakit
8	10.50-11.00	Puti Nura Imania	Pengaruh Edukasi terhadap Pengetahuan dan Perilaku Pencegahan Hipertensi pada Lansia
9	11.00-11.10	Khairun Nisa	Hubungan Karakteristik Pasien dalam Kepatuhan Pengobatan dan Pencegahan Komplikasi pada Pasien Diabetes Melitus
10	11.10-11.20	Nasywa Putri Salsabila	Kajian Evaluasi Peran Apoteker dalam Pelayanan Informasi Obat (PIO) di Puskesmas
11	11.20-11.30	Muhammad Rizky Aulia	Pengaruh Media Edukasi terhadap Efikasi Diri Pasien Diabetes Melitus Tipe 2
OPERATOR	**Aliya Nauf Rahmawati**		

ROOM	**13**
MODERATOR	**apt. Azis Ikhsanudin, M Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Halwa Anjas Marani	Metode Pembuatan Nanopartikel pada Natural Komponding
2	09.40-09.50	Vico Alfadly	Potensi Daun Mimba (Azadirachta Indica) sebagai Antidiabetes dalam Menurunkan Aktivitas Enzim A-Gluoksidase
3	09.50-10.00	M. Dhiya Rofi' Adlan	Potensi *Azadirachta indica* sebagai Antibakteri pada Berbagai Metode Esktraksi
4	10.00-10.10	Reno Hidayati	*Narrative Review:* Tinjauan Bentuk Sediaan Farmasi Dalam Terapi Mukositis Akibat Kemoterapi
5	10.10-10.20	Salsabila Naura Nisa	Review: Evaluasi Sifat Fisik Sediaan Pasta Gigi Herbal Berdasarkan Variasi Konsentrasi Karboksimetil Selulosa Sodium
6	10.30-10.40	Berlian Setya Wulan Suci	Pemanfaatan Daun Lidah Buaya (*Aloe vera* L.) sebagai Basis Formulasi Gel Topikal Antioksidan
7	10.40-10.50	Clarissa Anastasya	Formulasi Sediaan Krim Sebagai Pelembab Wajah Dari Ekstrak Daun Kirinyu (*Chromolaena odorata*) dan Daun Kelor (*Moringa oleifera*)
8	10.50-11.00	Adelia Dyah Nugraheni	Review: Pengaruh Konsentrasi Polyvinyl Alcohol (PVA) Terhadap Sifat Fisik Masker Gel *Peel-Off* Ekstrak Tanaman Berkhasiat Antioksidan
9	11.00-11.10	Fita Eka Madhanisa	*Narrative Review:* Pengaruh Basis Pada Formulasi *Lip Balm*
10	11.10-11.20	Karizka Nurindah Safitri	*Narrative Review*: Aktivitas Antioksidan Ekstrak Kulit Putih Semangka (*Citrullus lanatus*) dalam Berbagai Konsentrasi dan Jenis Pelarut
11	11.20-11.30	Anis Fadhillah Haryanti	Efektivitas Ekstrak Tanaman Semanggi (*Marselia crenata* Presl.) dalam Proses Penyembuhan Luka
12	11.30-11.40	Rafly Khan Hakim	Ragam Metode Dalam Pengembangan Nanopartikel Lipid: Tinjauan Naratif
OPERATOR	**Aldiyanti Mila Damayanti**		

ROOM **14**
MODERATOR **apt. Lina Widiyastuti, M.Sc.**

NO	WAKTU	Nama Peserta	Judul
1	09.30-09.40	Ratnasari	Pengaruh Konsentrasi Ekstrak Daun dan *Gelling Agent* HPMC terhadap Sifat Fisik serta Aktivitas Antibakteri *Staphylococcus aureus* pada Sediaan Gel
2	09.40-09.50	Nabila Zhafira Ramadhanti	Potensi Teknologi *Plantcrystals* Untuk Meningkatkan Aktivitas Antioksidan Angkak sebagai Bahan Aktif Alam dalam Sediaan *Lip Balm*
3	09.50-10.00	Miftahul Noor Rohman	Tinjauan Naratif: Uji Iritasi Kemananan Minyak Atsiri Bunga Cengkeh (*Syzygium aromaticum* (L.) Merr. & L.M.Perry) dari Berbagai Formulasi Topikal
4	10.00-10.10	Sabina Nasywa Azzahra Pakhlevie	*Narrative Review:* Potensi Antioksidan pada Berbagai Sediaan dengan Bahan Aktif Ekstrak Daun Sukun (*Artocarpus altilis*)
5	10.10-10.20	Aprillia Restu Annisa	Pengaruh Kombinasi Natrium Karboksimetil Selulosa dan Carbopol terhadap Karakteristik Fisik Gel Topikal
6	10.30-10.40	Lutfia Savira	*Narrative Review* : Komponen Formula *Body Butter* dengan Bahan Aktif Ekstrak Tanaman
7	10.40-10.50	Vani Khatami	Pengembangan *Self-Nanoemulsifying Drug Delivery System* (SNEDDS) Tanaman Obat dari Famili *Zingiberaceae*
8	10.50-11.00	Delvia Osnaneza Pamela Dzikrillah	Optimasi Formula Minyak Atsiri Bunga Cengkeh (*Syzygium aromaticum* L.) Dalam Sediaan Gel dan Mikroemulgel
9	11.00-11.10	Luthfatun Nisa'	Formulasi Minyak Atsiri Bunga Cengkeh (*Syzygium sromaticum*) Dalam Sediaan Mikroemulsi dan Nanoemulsi
10	11.10-11.20	Thoriq Naufal Adiba	Pengaruh Variasi Minyak pada *Curcumin-Loaded* SNEDDS Terhadap Karakterisasi Fisikokimia
11	11.20-11.30	Nadrah Adinda Zahirah	Pengaruh Jenis Polimer Terhadap *Cumulative Drug Release* Tablet Teofilin *Sustained Release*

OPERATOR **Iqbal Baihaqi Riofiandi**

ROOM	**15**
MODERATOR	**apt. Citra Ariani Edityaningrum, M.Si.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Khansa Syahira Maulida	Pengaruh Variasi Suhu pada Pembuatan Dispersi Padat Nifedipin dengan Metode *Hot Melt Extrusion*
2	09.40-09.50	Najwa Salsabillah	Mekanisme Doksorubisin sebagai Antikanker
3	09.50-10.00	Siti Fahdia Rahmatullah Adude	Potensi Polimer sebagai Basis Termosensitif Hidrogel dalam Transport Obat Pada Terapi Kanker
4	10.00-10.10	Salsabila Fariha Masyfiyah	Pengembangan Sistem Penghantaran Obat Capsanthin sebagai Upaya Peningkatan Efektivitas
5	10.10-10.20	M. Nu'man Faiz	Pengaruh Konsentrasi Kombinasi Talk dan Magnesium Stearat sebagai Glidan terhadap Sifat Alir Kaptopril
6	10.30-10.40	Luay Banna Ste	Pengaruh PEG 400 sebagai Ko-Surfaktan terhadap Karakteristik Fisikokimia *Self-Nanoemulsifying Drug Delivery System* (SNEDDS) Asam Mefenamat
7	10.40-10.50	Pramesti Puspa Anjani	Uji Aktivitas Antibakteri Minyak Atsiri Bunga Cengkeh (*Syzygium aromaticum*) terhadap *Staphylococcus aureus, Pseudomonas aeruginosa*, dan *Propionibacterium acnes* dalam Sediaan Farmasi
8	10.50-11.00	Anum Fitria	Aplikasi Nanoteknologi Dalam Desain Penghantaran Herbal Sebagai Anti Kanker Kulit
9	11.00-11.10	Syahvira Agustin	Pengaruh Rasio HPMC dan PVP Terhadap Karakteristik Sifat Fisik Sediaan *Patch Transdermal*
10	11.10-11.20	Lutfia Savira	*Narrative Review* : Komponen Fromula *Body Butter* dengan Bahan Aktif Ekstrak Tanaman
11	11.20-11.30	Ilham Kukuh Wibisono	Efikasi Efek Anti Inflamasi, Antiiritan, dan Antioksidan pada Sediaan Semi Solid Menggunakan Ekstrak Kulit Durian
OPERATOR	**Yusron Umar**		

ROOM **16**
MODERATOR **apt. Annas Binarjo, S.F., M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Ela Lailatul Habibah	Pengaruh Jenis Basis Gel Terhadap Viskositas Sediaan Topikal Daun Pegagan (*Centella asiatica* L.)
2	09.40-09.50	Hafiz Adhitama Hepni	Aktivitas Antibakteri Ekstrak Kayu Manis (*Cinnamomum*) : *Narrative Review*
3	09.50-10.00	Nila Turrosidah	Pemanfaatan Teknologi *Plantcrystals* Untuk Meningkatkan Aktivitas Antioksidan Daun Kelor (*Moringa oleifera* L.) dalam Sediaan Gel
4	10.00-10.10	Fikri Haikal	Potensi *Agent Film-Forming* sebagai Pendukung Penyembuhan Luka pada Sediaan *Spray*
5	10.10-10.20	Hajjatuna Hasna Sabila	*Narrative Review:* Studi Pengaruh Variasi Basis terhadap Karakteristik Sediaan Masker *Peel Of*
6	10.30-10.40	Masyitah Izati Nurimadani	Senyawa Bioaktif Tertinggi dari Berbagai Jenis Jeruk (Famili *Rutaceae*) yang Memiliki Potensi sebagai Larvasida
7	10.40-10.50	Ferdindha Ningsih	Pengaruh *Gelling Agent* dalam Sediaan Gel Ekstrak Daun Sirih Keraton (*Cissus ciscolor*)
8	10.50-11.00	Anugrah Novia Rahmadani Pabisah	Pengaruh Matriks Lipid *Nanostructured Lipid Carrier* (NLC) Terhadap Karakteristik Koenzim Q10 dalam Sediaan Topikal
9	11.00-11.10	Fitri Wahyuni	Pengaruh Variasi Konsentrasi Ekstrak Etanol Daun Pepaya (*Carica Papaya* L) Terhadap Sifat Fisik Sediaan Topikal dan Daya Antibakteri terhadap *Propionibacterium acnes*
10	11.10-11.20	Nuril Hilmi	Formulasi Semisolid Ekstrak Durian (*Durio zibethinus*)
11	11.20-11.30	Sucia Difa	Formulasi Berbasis Gel Aloe Vera sebagai Sumber Antioksidan untuk Kesehatan Kulit
OPERATOR	**Adelia Rahmawati**		

ROOM	**17**
MODERATOR	**Dr. apt. Siti Fatmawati Fatimah , M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Pratiwi Indah Cahyani	Golongan Senyawa Kimia Dalam Sirih Merah (*Piper crocatum* L.) yang Berpotensi sebagai Obat Luka Diabetes
2	09.40-09.50	Fanny Afida Satria	Formulasi *Lipbalm* Ekstrak Aloe Vera sebagai Sediaan Antioksidan
3	09.50-10.00	Na'ilah Setyo Ningrum	Pengaruh Berbagai *Gelling Agent* dalam Sediaan Gel Pasta Gigi Ekstrak Daun Sirih Keraton (*Cissus discolor*)
4	10.00-10.10	Nasywa Nabil Nazhira	Potensi Senyawa Limonene sebagai Larvasida Alami dalam Pegendalian Vektor Nyamuk *Aedes aegypti*
5	10.10-10.20	Nabilla Rachmadani	Pengaruh Variasi Konsentrasi Polimer Polivinil Alkohol (PVA) terhadap Pelepasan Obat pada Berbagai Sediaan Farmasi
6	10.30-10.40	Nasywa Maula Az Zahra	Penggunaan Asam Hialuronat pada Pasien Osteoarthritis dengan Riwayat Diabetes Melitus Tipe 2 di Asia Tenggara : *Narrative Review*
7	10.40-10.50	Syifa Alifia Nugrahaeni	Formulasi Sediaan Masker *Peel-Off* terhadap Bakteri *Staphylococcus aureus*
8	10.50-11.00	Milatin Zahra	Potensi Konsentrasi Efektif Ekstrak Tanaman Jeruk Purut (*Citrus hystrix*) Sebagai Larvasida
9	11.00-11.10	Adhwa Rizqy Hanifah	Mekanisme Kurkumin sebagai Antikanker: Sistematik Literatur Review
10	11.10-11.20	Rinanti Candra Rukmi	Aplikasi Nanoteknologi dalam Desain Penghantaran Herbal sebagai Antioksidan: *Narrative Review*
11	11.20-11.30	Dyah Ayu Masruroh	Uji Stabilitas Minyak Atsiri Bunga Cengkeh (*Syzygium aromaticum*) dalam Sediaan Farmasi
OPERATOR	**Alya Nurhasanah**		

ROOM 18
MODERATOR Dr. apt. Warsi, M.Sc.

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Intan Nabilah	Aplikasi *Fourier Transform Infrared Spectroscopy* (FTIR) pada Autentikasi dan Penilaian Kualitas Minyak Atsiri Jeruk
2	09.40-09.50	Legisti Banyuati	Autentikasi Kandungan Minyak Atsiri *Family Piperaceae* Menggunakan Metode Kromatografi Gas–Spektrometri Massa (GC-MS)
3	09.50-10.00	Nisrina Azka	Autentikasi Halal Kandungan Asam Lemak pada Produk Komersial Metode *Fourier Transform Infrare*d (FTIR)
4	10.00-10.10	Reggi Dela Ayu Puspita	Potensi Antioksidan dan Antidiabetes Kalangkala serta Kajian Metabolit Sekundernya
5	10.10-10.20	Alda Rahma Pratiwi	Autentikasi Halal Kandungan Gelatin dalam Produk Menggunakan Metode *Fourier Transform Infrared Spectroscopy* (FTIR) Kombinasi Kemometrika
6	10.30-10.40	Anjani Az Zahra Dewi Lestari	Tinjauan Literatur: Potensi Kalangkala (*Litsea angulata*) sebagai Antioksidan dan Pencegahan Diabetes
7	10.40-10.50	Ika Ariyanti	Kepatuhan Terapi Pasien Diabetes Mellitus terhadap Pengobatan
8	10.50-11.00	Lusi Rahmawati	Pangan Fungsional Antioksidan dalam Pencegahan Diabetes : Potensi Tanaman Kalangkala (*Litsea angualata*)
9	11.00-11.10	Fadya Zakinah Mauliya	Pengembangan Pangan Fungsional dengan Indeks Glikemik Rendah untuk Diabetes Melitus

OPERATOR **Wahyu Agustina Saputri**

ROOM **19**
MODERATOR **Mustofa Ahda, S.Si., M.Sc.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Bintang Rezki Febrianto	Aplikasi Metode *Real Time Polymerase Chain Reaction* (RT-PCR) pada Autentikasi Halal Produk Kosmetik
2	09.40-09.50	Meirisya Maulidia Azzahra	Spektrofotometri sebagai Metode Analisis Ion Sulfat dalam Air
3	09.50-10.00	Alzena Aufa	Tinjauan Metodologi Analisis Kadar Nitrit terhadap Air Limbah
4	10.00-10.10	Zakiyya Salwa Adestu	Analisis Kadar Fosfat dalam Air Limbah *Laundry*
5	10.10-10.20	Aqila Fadia Haya	Aktivitas Antidiabetes Tanaman Famili *Vitaceae*: Kajian Literatur
6	10.30-10.40	Sabrina Hanum Agustin	Autentikasi Minyak Atsiri Daun dan Kulit Buah dari Berbagai Jeruk (*Citrus* Spp.) pada Produk Komersial Menggunakan Metode *Gass Chromatography Mass Spectometry* (GCMS)
7	10.40-10.50	Difa A'tsany Fakhrunisa	Penentuan Kadar Asam Klorogenat dan Potensi Anti-Kanker pada Kopi *Arabica Roasted* : *Narrative Review*
8	10.50-11.00	Nida Ghiffari Laksana	Potensi Berbagai Jenis *Sargassum* Sebagai Antioksidan Terhadap Embrio Zebrafish Dalam Beragam Pelarut
9	11.00-11.10	Anggi Herawati Kusuma Ningrum	Potensi Antioksidan dari Alga Merah *Eucheuma spinosum* secara *In Vitro* : *Narrative Review*
OPERATOR	**Wulan Syifa Najiha**		

ROOM	**20**
MODERATOR	**Prof. apt. Nurkhasanah, S.Si., M.Si., Ph.D.**

NO	WAKTU	NAMA PESERTA	JUDUL
1	09.30-09.40	Tasya Sabdilla Ramdiah	Pemanfaatan Spektroskopi FTIR dengan Kombinasi Kemometrika untuk Klasifikasi Kopi
2	09.40-09.50	Anisya Rahma Maulidia	*Narrative Review* Analisis Kandungan Kafein dan Aktivitas Antioksidan pada Biji Kopi Robusta (*Coffea Canephora* Pierre) Menggunakan Metode DPPH
3	09.50-10.00	Bella Kristantia Panca	Aplikasi Ekstrak Kopi sebagai Antioksidan dan Profil Kimianya
4	10.00-10.10	Bunga Citra Lestari	Pengendalian Kualitas Kopi Menggunakan HPLC
5	10.10-10.20	Almuzzammil Najib Afshohul Lisan	Potensi Senyawa Derivat *Naphthoqinon* sebagai Agen Antibakteri Terhadap *Staphylococcus aureus*
6	10.30-10.40	Putri Rahma Dita	Analisis Kuantitatif Tanin pada Tanaman Bungur (*Lagerstroemia Speciosa* Auct. Non (L.) Pers.)
7	10.40-10.50	Padma Fitriana Setyaningtyas	Identifikasi Cemaran dalam Kopi Menggunakan Kromatografi Cair
8	10.50-11.00	Desty Amelia	*Narrative Review* : Pengaruh Variasi Suhu Penyangraian terhadap Aktivitas Antioksidan pada Biji Kopi Arabika (*Coffea arabica*) Menggunakan Metode DPPH
9	11.00-11.10	Aina Nur Hamida	Penentuan Aktivitas Antioksidan pada Biji Kopi Arabika *Roasted* yang Tumbuh di Berbagai Daerah di Indonesia: *Review*
OPERATOR	**Difa Pramesti Rasendriya**		

ABSTRACTS

Review: Effect of Polyvinyl Alcohol (PVA) Concentration on Physical Properties of Antioxidant Plant Extract Peel-Off Gel Mask

Adelia Dyah Nugraheni1, Putri Rachma Novitasari1*

1 Faculty of Pharmacy, Universitas Ahmad Dahlan

ABSTRACT

Peel-off gel masks are among the most popular topical dosage forms due to their ease of use and ability to remove impurities from the skin surface. One of the key components in the formulation of this preparation is polyvinyl alcohol (PVA), which functions both as a gelling agent and a film-forming agent. This study aims to evaluate the effect of varying PVA concentrations on the physical characteristics of peel-off gel masks based on five relevant literature sources. The results showed that PVA concentration significantly affects physical parameters such as viscosity, spreadability, adhesion, pH, and drying time. In general, increasing the PVA concentration leads to higher viscosity, stronger adhesion, and increased pH, while reducing spreadability and accelerating drying time. The optimal concentration of PVA was found to be in the range of 12%-15%, as it produces formulations with physical properties that meet the quality standards of peel-off gel masks. Therefore, selecting the appropriate concentration of PVA is a key factor in developing a stable, effective, and user-friendly preparation.

Keywords: Antioxidant, Peel-off gel mask, Plant extract, PVA

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Mechanism of Curcumin as an Anticancer: A Systematic Literature Review

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ABSTRACT

Curcumin is a plant compound commonly found in tropical environments such as Indonesia. Curcumin possesses significant pharmacological activity potential across various therapeutic applications, one of which is as an anticancer agent. In anticancer activity, curcumin generally induces apoptosis or cell death and acts as an inhibitor of cell proliferation and tumor invasion, leading to variations in other cell types. The objective of this study is to evaluate the potential of curcumin as an anticancer agent. The method used in this study is a Systematic Literature Review (SLR) conducted using the PRISMA (P) systematic review method with the Harzing's Publish or Perish 8 software. Curcumin can comprehensively and specifically inhibit the growth of cancer cells in almost all types of cancer cells.

Keywords: Cancer, Curcumin, Cytotoxicity, Delivery, In vitro, Local, Polymers, Treatment

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Antibacterial Activity Test of Ethanolic Extract of Salak Fruit Peel (Salacca zalacca)

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ABSTRACT

Infections of the gastrointestinal tract are inflammation of the stomach and intestinal walls as a result of bacterial, viral, or germ attacks that require antibiotics, also known as antibacterials. Various databases show that salak (Salacca zalacca) fruit peels have good antibacterial properties. This study is intended as an effort to systematically review the antibacterial properties of salak fruit peel. Literature search was conducted on April 22, 2025 using Google Scholar database. The selected materials were based on certain inclusion and exclusion criteria. There were 4 literary works that met the requirements. The results of the analysis showed that salak fruit extract produced a zone of inhibition against bacterial growth.

Keywords: Antibacterial, Ethanol extract of salak fruit peel (Salacca zalacca), Zone of inhibition

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Antibacterial Activity and Determination of Total Flavonoid Contents of Mulberry Leaves (Morus alba L.)

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ABSTRACT

Mulberry leaves (Morus alba L.) are widely known in traditional medicine due to their bioactive compounds, particularly flavonoids, which exhibit potential antibacterial properties. This narrative review aims to explore the antibacterial activity of mulberry leaves and the methods used to determine their total flavonoid content. Literature was gathered from scientific databases such as PubMed, ScienceDirect, and Google Scholar using keywords including "Morus alba, mulberry leaves, flavonoids, and antibacterial." Based on the review, mulberry leaf extracts demonstrated varying degrees of antibacterial activity against both Gram-positive and Gram-negative bacteria, depending on the type of solvent and extract concentration used. Flavonoid content is suggested to play a significant role in the antibacterial mechanism. The determination of total flavonoid content is commonly conducted using spectrophotometric methods with aluminum chloride reagent, and the results are influenced by the extraction technique and plant parts used. In conclusion, mulberry leaves possess promising potential as a natural antibacterial agent, with flavonoids being the primary active compounds, highlighting their relevance for further development as an alternative treatment for bacterial infections.

Keywords: Morus alba, Mulberry leaves, Total flavonoids, Antibacterial, Spectrophotometry

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Ethnomedicine as a Hypertension Drug by the People of Yogyakarta and Central Java

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ABSTRACT

Hypertension is one of the leading causes of cardiovascular disease worldwide. Herbal products and alternative herbal therapies have a significant role in reducing hypertension. The purpose of this review is to collect data on the use of plants for the treatment of hypertension in Indonesia. The method applied is a narrative review and data is obtained from various articles using the Google Scholar library information search tool in the article year range 2020 to 2025. The results obtained conclude that the people of Yogyakarta and Central Java use Syzygium polyanthum, Apium graveolens, Cucumis sativus L., Andrographis paniculata, and Persea americana to treat hypertension. Then it can be concluded that the most widely used method of processing anti-hypertensive medicinal plants is boiling and the most widely used method of use is drinking. This literature review can be a reference for finding hypertension drugs through ethnomedical research.

Keywords: Ethnomedicine, Ethnobotany, Ehnopharmaceuticals, Hypertension, Medicinal plants for hypertension

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Use of Imunosuppressants in Kidney Transplantation Patient

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ABSTRACT

Kidney transplantation is the primary treatment option for patients with end-stage renal failure because it can improve quality of life and long-term survival. However, one of the main challenges in kidney transplantation is the body's immune response that can trigger organ rejection. So that efforts that can be made to overcome organ rejection are by using immunosuppressant therapy. This paper aims to determine the results of a review of articles related to the use of immunosuppressants in kidney transplant patients in terms of benefits, types of drugs and safety. The narrative review writing method was carried out using the Google Scholar and Pubmed databases to identify scientific literature based on inclusion criteria. The inclusion criteria were research articles published between the last 10 years (2015-2025) with full text, open access and written in Indonesian or English. The keywords used for the literature search were "use" AND "immunosuppressants" AND "kidney transplantation" AND "organ rejection". There were 4 articles that met the eligibility criteria for narrative review analysis. The use of immunosuppressant therapy in kidney transplant patients can significantly prevent organ rejection, thereby improving long-term quality of life.

Keywords: Immunosuppressants, Use, Organ rejection, Kidney transplantation

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The Influence of Health-Based Educational Media in Improving the Quality of Life of Diabetes Mellitus Patients in Health Services

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ABSTRACT

Diabetes mellitus is a chronic metabolic disorder characterized by increased blood sugar levels caused by the body producing insufficient insulin or even though sufficient insulin is produced, insulin is unable to lower blood sugar levels. Patients with chronic diseases, especially diabetes mellitus, usually experience a decrease in quality of life due to complications from the disease they suffer from. Education is a preventive effort to change the lifestyle of diabetes patients. Structured and informative diabetes education is effective in increasing the knowledge of diabetes patients so that the quality of life of patients can improve. The purpose of this study was to determine the effect of health education media in improving the quality of life of diabetes mellitus patients in community services. The methodology used in this study was a literature review, which involved relevant research and met the inclusion criteria. The number of journals found was 1,150 national journals, and 4 national journals were used as a comparison of their effectiveness. The journals used were journals in the 2015-2025 period with the keywords improving quality of life, diabetes mellitus. The results of the review of the four journals were examined using educational materials in the form of booklets, applications, audiovisuals, and pharmacist counseling. The effectiveness of this health-based educational media shows the scores before and after the quality of life with a p value <0.05 which meets the requirements.

Keywords: Diabetes mellitus, Education, Quality of life

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Quality of Life of TB Patients

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ABSTRACT

Pulmonary tuberculosis (TB) remains a major public health challenge in Indonesia, affecting not only patients' physical health but also their psychological and social well-being. The quality of life (QoL) of TB patients often declines due to factors such as depression, stigma, and non-adherence to treatment. This study is a narrative review aimed at exploring various factors influencing the QoL of TB patients in Indonesia based on literature published between 2015 and 2025. Data sources were obtained from Google Scholar, ScienceDirect, and PubMed, using specific inclusion criteria such as original studies conducted in Indonesia and available in full-text format. The analysis revealed that depression, social stigma, age, anxiety, family support, and medication adherence significantly affect patients' QoL. Additionally, educational interventions utilizing simple technologies like WhatsApp-based reminders have been shown to improve both adherence and QoL. In conclusion, a multidimensional approach that integrates clinical, psychosocial, and educational aspects is essential for improving the quality of life of pulmonary TB patients.

Keywords: Depression, Education, Quality of life, TB patients

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Determination of Antioxidant Activity in Roasted Arabica Coffee Beans Grown in Various Regions in Indonesia: Review

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ABSTRACT

Coffee is one of the food ingredients that is widely exported by this country. Coffee is also a popular beverage among the Indonesian people. The aim of this research is to determine the antioxidant activity of coffee beans grown in various regions of Indonesia. To conduct this research, the method used is the Systematic Literature Review (SLR) method by comparing several literatures that investigate the antioxidant activity of coffee beans using the same method, specifically with the addition of the reagent 1,1 Diphenyl-2-picrylhidrazyl (DPPH). The results obtained are the antioxidant activity of each sample measured. The research results show that Arabica coffee has different antioxidant activities based on its growing location. The extraction process of the samples is necessary to obtain extracts from the coffee beans, which will then be tested for their antioxidant activity using the DPPH method. Antioxidant activity is expressed as the percentage of free radical scavenging and the determination of the IC50 value.

Keywords: Antioxidant, Arabica, DPPH, Coffee

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Financial Performance Analysis of Pharmacies in Indonesia

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ABSTRACT

Pharmacy is one of the health service facilities that not only functions in pharmaceutical services, but also as a business unit that must be managed professionally in order to remain sustainable and generate profits. To achieve this goal, an appropriate financial performance evaluation is needed, one of which is through profitability ratio analysis. This study aims to analyze the financial performance of pharmacies and pharmaceutical companies in Indonesia based on the results of a review of five recent scientific journals. The method used is quantitative descriptive with a literature study approach to secondary data taken from financial reports. The ratios analyzed include Gross Profit Margin (GPM), Net Profit Margin (NPM), Return on Assets (ROA), and Return on Equity (ROE). The results of the analysis show that most of the entities studied have GPM and ROE that are in accordance with industry standards, while NPM and ROA tend to be below ideal standards. This shows that the efficiency of cost management and asset utilization still needs to be improved. Thus, the profitability ratio is proven to be an effective tool for evaluating financial conditions and formulating strategies for developing pharmacy businesses in the future.

Keywords: Pharmacy, Financial performance, Profitability ratio, GPM, NPM, ROA, ROE

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Authentication of Halal Gelatin Content in Products Using Fourier Transform Infrared Spectroscopy (FTIR) Method Combined with Chemometrics

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ABSTRACT

The majority of the Indonesian population is Muslim so that consuming halal products is an obligation to comply with religious aspects. Halal products can be a means of worship for a Muslim because halal is one of the most important concepts in food, beverage, and cosmetic products. Halal authentication is intended to identify the content of non-halal ingredients that are often used such as pork in products because it has the same function as beef at a lower cost. The purpose of this analysis is to validate the methods used in articles such as FTIR and chemometrics to trace the origin of gelatin from each marketed product using differences in functional groups from FTIR analysis results and combining them with chemometrics to obtain a better model in interpreting the results. To achieve this, this study was conducted using the article review method and PRISMA guidelines. The results of the article review analysis showed that the FTIR combination chemometrics method was able to distinguish and identify the source of gelatin used in the product. The FTIR method alone cannot distinguish specifically because there are similarities in the spectra of pigs and cows, so supporting data analysis is needed, namely chemometrics with PLS and PCA. Based on 13 articles included in the final study, it shows that there are products where no pork spectra are found at all so that their status is declared halal, there are also analysis results that show that the source of the gelatin detected cannot be known the origin of the gelatin so that it is declared doubtful.

Keywords: Authentication, FTIR, Gelatin, Chemometrics

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Use of Methylprednisolone in Outpatients with Osteoarthritis and Medical History of Hypertension in Southeast Asia: A Literature Review

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ABSTRACT

There is a strong association between hypertension and osteoarthritis (OA). An increase in hypertension status will also increase the severity of OA. One of the medications used to treat OA with a history of hypertension is methylprednisolone. The use of methylprednisolone certainly has a risk-benefit ratio. The purpose of this narrative review is to describe the use of methylprednisolone in OA patients with a history of hypertension in different countries in Southeast Asia. The method used was to identify journal articles through online searches using databases such as PubMed, Cochrane Library, and Google Scholar. The keywords used were "hypertension" and "osteoarthritis", "methylprednisolon", "outpatient" "southeast asia." The search for journal articles targeted full-text articles with a focus on human studies, published in English and or Indonesia, and journal articles published in the last ten years.

Keywords: Osteoarthritis, Hypertension, Outpatient, Southeast Asia, Methylprednisolone

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Narrative Review: Therapeutic Effects of Plant Extracts from the Araliaceae Family as Wound Healers

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ABSTRACT

Wound healing is a complex biological process involving overlapping phases of hemostasis, inflammation, proliferation, and remodeling. Disruption or imbalance in any of these phases may lead to delayed healing or chronic wounds. In recent years, there has been growing interest in plant-based therapies, particularly those containing bioactive compounds with anti-inflammatory, antioxidant, and tissue-regenerative properties. The Araliaceae family—especially the Panax genus, including Panax ginseng and Panax notoginseng—has been recognized for its active constituents, such as ginsenosides, which exhibit significant roles in modulating inflammatory responses, stimulating fibroblast activity, promoting angiogenesis,and enhancing collagen synthesis. This narrative review aims to explore the potential of Araliaceae plant extracts in wound healing, based on evidence from national and international studies. The findings reveal that Araliaceae extracts can reduce pro-inflammatory cytokines (e.g., TNF-**α**, IL-6), accelerate re-epithelialization, and improve wound contraction in various in vivo models. Topical formulations containing ginsenosides have demonstrated promising effects in enhancing healing outcomes. However, most studies remain in the preclinical phase, with limited clinical application. Further research is required to assess the safety, pharmacological efficacy, and formulation potential of Araliaceae-based products in modern wound management. This review provides a scientific basis for future studies and supports the development of safe and effective herbal therapies for wound care.

Keywords: Araliaceae, Collagen, Ginsenosides, Inflammation, Medicinal plants, Wound healing

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Cultural Perspectives and Ethnomedicine Practices in Hypertension Management in West Java: A Narrative Review

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ABSTRACT

The use of traditional medicinal plants or ethnomedicine-based treatment remains an alternative choice in many rural areas, including the West Java region. Hypertension is one of the health conditions that is often treated traditionally using herbs that are passed down from generation to generation. This study aims to examine the types of medicinal plants utilized by the Sundanese community in treating hypertension, as well as the parts of the plants used, active substance content, mode of action, and the resulting cultural value. The study was conducted using a narrative review method by searching literature from Google Scholar, PubMed, and Elsevier published between 2018 and 2025. Six key articles were analyzed using ethnobotanical parameters such as Relative Citation Frequency (RFC) and Plant Part Value (PPV). The results showed five plant species with the highest RFC values, namely Syzygium polyanthum, Annona muricata, Apium graveolens, Crassocephalum crepidioides, and Kaempferia galanga. The leaves are the most commonly used part of the plant, mainly because they are easy to obtain and do not damage the plant itself. Active substances such as flavonoids, saponins, apigenin, and acetogenin function through vasodilatory, diuretic, and ACE enzyme inhibitory mechanisms. These findings confirm that ethnomedicinal practices not only have pharmacological functions, but also reflect very important local wisdom.

Keywords: Bioactive compounds, Ethnomedicine, Hypertension, Medicinal plants, Sundanese, West Java

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Narrative Review: Effectiveness of Traditional Treatment Based on the Level of Trust of the Gunung Kidul Community

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ABSTRACT

Traditional medicine is still the main choice for people in various regions of Indonesia, which are known for their local culture and limited access to modern health services. Public trust in traditional medicine is an important factor in the effectiveness of its use. The purpose of this study is to examine the effectiveness of traditional medicine based on the level of public trust in traditional medicine, the type of treatment, and the local resources used. The method used is a narrative review by reviewing six relevant national journals published in 2015–2025 through literature searches on Google Scholar, ResearchGate, ScienceDirect, JPPIPA, KPIN, and SAGE Journals. The results of the study show that high trust in traditional medicine is influenced by social closeness, cultural heritage, and the success of previous experiences. The most trusted types of treatment include herbal concoctions, traditional massage, and spiritual therapy. The effectiveness of traditional medicine is assessed from the perception of successful healing, comfort, and minimal side effects.

Keywords: Effectiveness of treatment, Public trust, Traditional medicine

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Cost Study of Immunosuppressant Use in Kidney Transplantation

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ABSTRACT

Kidney transplantation is the main therapy of choice for patients with end-stage chronic kidney disease. The use of immunosuppressants in kidney transplantation is very important to prevent graft rejection (the transplanted kidney organ). This article review aims to review the cost study of immunosuppressant regimens in kidney transplant patients. The narrative review method was conducted using the PubMed and Google Scholar databases with inclusion criteria, original research articles, published between 2015 and 2025, in Indonesian or English, and available in full text. Five articles were eligible for analysis. The results showed that the combination of immediate-release tacrolimus and mycophenolate mofetil was the most cost-effective regimen. Extended-release formulations such as LCPT and Envarsus can improve compliance, but are more expensive. Cost-effectiveness is influenced by various factors such as donor type, transplant time, and health financing system. This study concluded that the selection of regimens must be adjusted to the patient profile and health system to ensure the sustainability of kidney transplant therapy.

Keywords: Cost study, Immunosuppressant, Kidney transplantation

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Potential of Naphthoquinone Derivative Compounds as Antibacterial Agents Against Staphylococcus aureus

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ABSTRACT

Naphthoquinone is an aromatic compound containing two ketone groups and is known for its antibacterial activity. Studies have shown that this compound and its derivatives can generate reactive oxygen species (ROS), which damage key bacterial cell components. This review aims to explore the effectiveness of naphthoquinone derivatives against Staphylococcus aureus, including methicillin-resistant strains (MRSA). Articles were sourced from scientific databases and selected based on quality and relevance. The analysis found that compounds such as 1,4-naphthoquinone, menadione, and juglone demonstrated significant antibacterial effects. These include inhibition of biofilm formation, disruption of bacterial membranes, and enhancement of conventional antibiotic activity. Given their distinct mechanisms of action, naphthoquinone derivatives hold promise as potential candidates for alternative antimicrobial development.

Keywords: Naphthoquinone, Antibacterial, ROS, MRSA, Staphylococcus aureus

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Antioxidant Activity of Cinnamon Extract (Cinnamomum burmannii) and Secang Wood (Caesalpinia sappan L.): Narrative Literature Review

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ABSTRACT

Antioxidants have an important role in counteracting free radicals such as inflammation or aging.Some plants that have antioxidant activity are cinnamon (Cinnamomum Burmannii) and sappanwood (Caesalpinia sappan L.). This study is a narrative literature review that aims to examine theresults of previous studies on the antioxidant activity of cinnamon and sappan wood extracts based on IC 50 data. IC 50 (Inhibitory Concentration 50%) is a quantitative measure that indicates the concentration of a substance (eg, a drug or chemical compound) needed to inhibit a certain function by 50%. The literature search was conducted through Google Scholar, ResearchGate, and Publish or Perish, with a total of nine articles meeting the inclusion criteria. The results of the study showed that both extracts had varying antioxidant activity, with the lowest IC 50 value in sappan wood of 12.611 mg/L and cinnamon of 42.03 μg/L. A lower IC 50 value indicates a stronger antioxidant potential so it can be concluded that sappan wood extract generally has higher antioxidant activity
than cinnamon

Keywords: Antioxidant, Ethanol extract, IC50, Cinnamon, Secang wood, Medicinal plants

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A Review of Analytical Methods for Nitrite Determination in Wastewater

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ABSTRACT

Analysis of nitrite levels in wastewater is a crucial step in controlling environmental pollution and monitoring water quality. Several analytical methods have been developed to detect and measure nitrite levels accurately, efficiently, and in accordance with the principles of sustainability. This study aims to review various methods commonly used in nitrite analysis, including UV-Vis spectrophotometry, Visible spectrophotometry, colorimetry, surface-based sensors, to chromatography-based techniques and mass spectrometry. Each method has advantages and limitations that depend on sensitivity, specificity, cost, and sample complexity. This review also evaluates the validation of methods that have been carried out in various studies, and considers the suitability of the method to domestic, surface, and industrial wastewater matrices. By summarizing findings from various primary sources, this paper is expected to be a reference in selecting the most appropriate and applicable nitrite analysis method in the context of wastewater management.

Keywords: Nitrite analysis, Colorimetry, Wastewater, Spectrophotometry, Method validation

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Narrative Review: Activity of Indonesian Herbal Plants as Antidepressant Therapy

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ABSTRACT

Depression is a major mental disorder that significantly affects the quality of life worldwide, including in Indonesia. Synthetic antidepressant drugs are widely used for treatment but often cause undesirable side effects, highlighting the need for safer alternatives. This study aims to review the potential of seven Indonesian native plants as natural antidepressants. The plants reviewed are Curcuma heyneana (Temu Giring), Cinnamomum burmannii (Cinnamon), Mangifera indica var. Arumanis (Arumanis Mango), Syzygium aromaticum (Clove), Piper retrovactum (Javanese Chili Fruit), Foeniculum vulgare (Fennel), and Cymbopogon nardus (Lemongrass). A literature review was conducted focusing on the active compounds, mechanisms of action, and parts of the plants used. Results indicate that these plants contain bioactive compounds such as curcumin, eugenol, piperin, mangiferin, and flavonoids, which exert antidepressant effects mainly through inhibition of monoamine oxidase, modulation of neurotransmitters, and antioxidant activity. This review concludes that these seven native plants have promising potential as alternative or complementary therapies for depression with fewer side effects. Further research is recommended to explore their clinical efficacy and safety.

Keywords: Antidepressant, Depression, Indonesian native plants, Medicinal plants

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Evaluation of Leprosy Prevention and Treatment Strategies in Indonesia

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ABSTRACT

Leprosy, caused by Mycobacterium leprae, remains a public health problem in Indonesia despite a decline in its prevalence globally. This article is a narrative review aimed at evaluating leprosy prevention and treatment strategies based on relevant literature. This method uses a Narrative Rivew taken from Pumbed, Connected Papers, Google Scholar, Public or Perish searched to select relevant literature using the keywords "leprosy", "prevention" and "treatment.", Effective prevention involves early detection, adherence to Multi drug therapy (MDT), chemoprophylaxis, and community education. Although MDT remains the standard of care, the risk of relapse and drug resistance, particularly to dapsone and rifampicin, remain major challenges. Second-line therapies such as ROM and Mycobacterium indicus pranii (MIP) immunization offer potential improvements, but have not shown significant advantages over standard MDT. Successful leprosy elimination requires a comprehensive approach that includes long-term monitoring, social interventions, and health policy support.

Keywords: Leprosy, Prevention, Treatment, Multy drug therapy (MDT)

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Antioxidant Potential of Red Algae Eucheuma spinosum In Vitro: Narrative Review

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ABSTRACT

Eucheuma spinosum is a type of red algae that can be used as an alternative source of natural antioxidants. The content of bioactive compounds in E. spinosum such as phenols and flavonoids can potentially act as antioxidants. Antioxidant activity tests were carried out in vitro using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) method with various types of solvents, namely water, methanol, ethanol, n-hexane, and ethyl acetate. This review explains the phytochemical content and antioxidant levels of E. spinosum from scientific articles. The method used in writing this narrative review uses the Systematic Literature Review (SLR) approach, through a systematic review of scientific literature published between 2015-2025 sourced from international journals and accredited national journals. Based on the results of the study, the ethanol extract of E. spinosum has high antioxidant activity as indicated by an IC50 value of 75.98 ppm, so it has the potential to be a natural antioxidant.

Keywords: Antioxidants, Eucheuma spinosum, In vitro

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Health Promotion-Based Pharmaceutical Education in the Prevention and Management of Dyslipidemia

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ABSTRACT

Hypercholesterolemia and dyslipidemia are major risk factors for non-communicable diseases such as heart disease and stroke. Educational interventions have been proven effective in raising awareness and knowledge on prevention and management of these conditions. This community service program aimed to improve public understanding through health education, pharmaceutical counseling, and herbal-based product workshops, including empon-empon and rosella jam. Methods included lectures, leaflets distribution, interactive discussions, and pretest/post-test evaluations. Results showed significant improvements in participants' knowledge ($p < 0.05$) and active involvement in herbal product preparation. The education also contributed to behavior changes towards a healthier lifestyle and equipped participants with applicable practical skills.

Keywords: Hypercholesterolemia, Dyslipidemia, Health education, Herbal, Counseling

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The Effectiveness of Marsilea crenata Presl. Extract in the Wound Healing Process

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ABSTRACT

Marsilea crenata is herbal plant containing bioactive compounds such as flavonoids, tannins, saponins, and alkaloids that have the potential to accelerate wound healing. This study aims to review the effectiveness of Marsilea crenata extract in the wound healing process through a narrative review approach. Articles were obtained from Google Scholar, PubMed, ScienceDirect, and ResearchGate based on inclusion criteria focusing on studies of wound healing activity from Marsilea crenata extract. The review of four selected articles showed that Marsilea crenata extract exhibits anti-inflammatory activity by reducing the expression of MHC II and unbound ER**α**, while increasing activated ER**α** and ER-**β**. The extract also enhances fibroblast proliferation, dermal thickness, and demonstrates antibacterial activity against Staphylococcus epidermidis. These findings indicate that Marsilea crenata has potential as a herbal-based wound healing agent. However, further research, particularly clinical trials, is needed to support its medical application.

Keywords: Antibacterial, Anti-inflammatory, Herbal agent, Marsilea crenata, Wound healing

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The Effect of Education on Knowledge and Attitude in the Use of Safe Cosmetics in Adolescents

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ABSTRACT

The use of cosmetics in adolescents is increasing along with the times. However, lack of knowledge about the content and safety of cosmetics can pose a risk to skin health, especially in adolescents who are still vulnerable to the influence of certain chemicals. This study aims to assess the importance of education in the selection and use of safe cosmetics in adolescent skin care through a narrative review approach. The method of writing this article review uses Google Scholar database to identify scientific literature based on inclusion criteria. The inclusion criteria were research articles published between
the last 10 years (2015-2025), full text and written in Indonesian or English. The writing of this article review uses the PEO technique (population/problem/patient, exposure, and outcome). The population in question is adolescents, the exposure is safe cosmetics education, and the outcome is increased knowledge and attitudes. Based on the results of the article review that has been done, by conducting education related to the use of safe cosmetics, it can increase the knowledge of adolescents in the selection and use of safe cosmetics. So it can be concluded that there is a significant relationship between knowledge and attitude in the use of safe cosmetics in adolescents.

Keywords: Education, Safe cosmetics, Adolescents

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Narrative Review: Analysis of Caffeine Content and Antioxidant Activity in Robusta Coffee Beans (Coffea canephora Pierre) Using the DPPH Method

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ABSTRACT

Robusta Coffee Beans scientifically known as (Coffea canephora Pierre) are plants that are famous for their antioxidant abilities due to their caffeine, alkaloid, flavonoid, polyphenol, saponin, and tannin content. The antioxidant ability of Robusta coffee is thought to be related to the presence of flavonoid and polyphenol compounds. Antioxidants are compounds that play an important role in maintaining body health because they function to capture free radicals that are formed in abundance in the body. This study aims to create a narrative review of antioxidant activity and caffeine content in Arabica coffee using the DPPH (2,2-diphenyl-1-picrylhydrazyl) method. Antioxidant activity with positive control of ascorbic acid is calculated by absorbance based on the elimination of free radicals and determination of IC50 values using the DPPH method by UV-Vis Spectrophotometry and a wavelength of 517 nm. In this study, the method used was experimental with a narrative review design. The population of this study used all articles related to Antioxidant Activity and Caffeine Content. There are 200 journals but only 5 of them meet the category.

Keywords: Antioxidants, Coffea robusta, Caffeine, DPPH method

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Literature Review: The Potential of Kalangkala (Litsea angulata) as an Antioxidant and Diabetes Prevention

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ABSTRACT

Litsea angulata (kalangkala) is a plant commonly found in South Kalimantan, Indonesia, with the local name kalangkala, which is native to Sarawak (Engkala). The stems, leaves, and roots of this plant have been reported to have various bioactivities, including as anticancer, anti-inflammatory, antibacterial, antioxidant, antidiabetic, anti-HIV, and insecticidal agents. The purpose of writing this literature review is to summarize information about the potential of kalangkala as an antioxidant and antidiabetic through a literature review of several journals. This study uses the Systematic Literature Review (SLR) method for articles discussing Litsea angulata or the Litsea genus related to antioxidant and/or antidiabetic activities, which are in vitro / in vivo experimental studies / clinical studies, articles in Indonesian and English, published between 2014-2024, and available in full-text. There are three articles discussing kalangkala as an antioxidant and five articles discussing kalangkala as an antidiabetic. Based on the results of the review, it is known that L. angulata extract contains secondary metabolite alkaloids, flavonoids, and phenols that can inhibit free radicals so that they have the potential as antioxidants. Meanwhile, the content of polyphenols, flavonoids, and alkaloids proves that L. angulata extract acts as an antidiabetic (prevents diabetes).

Keywords: Antidiabetic, Antioxidant, Kalangkala, Litsea angulata, Potential

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The Effect of Nanostructured Lipid Carrier (NLC) Matrix on the Characteristics of Coenzyme Q10 in Topical Preparations

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ABSTRACT

Coenzyme Q10 (CoQ10) or Ubiquinone is a lipophilic antioxidant so high lipophility causes low penetration on the skin and is easily degraded by light. Nanostructured Lipid Carriers (NLCs) are an alternative in developing the stability and solubility of CoQ10. NLC generally uses a combination of solid lipids and liquid lipids stabilized with surfactants. The formulation of coenzyme Q10 in the NLC system produces a stable preparation with a very small particle size. NLC has the ability to maintain the chemical physics stability of bioactives. This study aims to analyze the influence of lipid matrix on the physical properties of NCL-Q10. The method used with a narrative review approach from several previous research results related to the topic and sourced from indexed articles by comparing lipid base and stability of the formula
Word.

Keywords: Antioxidant, Coenzyme Q10, Nanostructured lipid carrier, Topical, Characterization

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Application of Nanotechnology in the Design of Herbal Delivery as an Anti-Skin Cancer Agent

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ABSTRACT

Skin cancer is one of the most aggressive types of cancer and continues to show an increase in cases globally. The application of nanotechnology in herbal delivery offers a more targeted approach, significantly reducing toxicity and increasing the effectiveness of skin cancer therapy. This review is based on the need to analyze the development of nanotechnology for herbal delivery systems as skin cancer therapy. This review aims to examine the application of nanotechnology in herbal delivery systems as skin cancer therapy. The method used in this review is to conduct a literature review of several international articles searched using Scopus for the period 2015-2025 which were then selected and obtained 11 with the keywords "Nanotechnology", 'Nanoparticle', "Anti Skin Cancer", and "Extract". Based on this review, data on nanotechnology applications in nanocarrier design were obtained, including silver nanoparticles (AgNPs), zinc oxide (ZnO NPs), solid lipids (SLNs), gold (AuNPs), and Fe-NPs. Zinc oxide nanoparticles are the most widely utilized type due to its easy synthesis process and high stability. From this review, it was found that plant extracts incorporated into nanocarriers showed smaller IC50 compared to extracts that were not loaded in nanocarriers. Thus, nanotechnology in herbal delivery has the potential to be an innovative therapeutic strategy for anti-skin cancer that is more effective and safer.

Keywords: Herbal, Nanoparticle, Nanotechnology, Skin cancer

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Pengaruh Nanocarrier Terhadap Aktivitas dan Stabilitas Antioksidan Ekstrak Tanaman

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ABSTRACT

Antioxidant compounds are needed by the body to prevent cancer and cardiovascular disease due to their capability to quench free radicals. However, these compounds show properties that are unstable to light and temperature. To protect these compounds, nanocarrier techniques can be utilized as a drug delivery system. The purpose of this literature review is to determine the effect of nanocarriers preparation on the antioxidant activity and stability of plant extracts. The results of the literature review are expected to provide basic information regarding the utilization of nanocarrier technology in further applications in the pharmaceutical field. The method used is descriptive analysis through the study of scientific literature. The literature used was limited to Indonesian and English journals related to the topic. The results show that the utilization of nanocarrier technology in the delivery of plant extract antioxidants increased antioxidant activity and stability. It is predicted that the enhancement of free radical scavenging capacity of the extract in the nanocarrier is due to the additional antioxidant activity of the materials used in nanocarrier preparation, instead of the activity of the extract itself. Concerning stability, drugs in nanocarriers are protected from light and oxygen in the atmosphere during storage, leading to better stability in comparison to non-nanocarrier preparations.

Keywords: Activity, Antioxidant, Nanocarrier, Plant extract, Stability

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The Effect of Sodium Carboxymethyl and Karbopol Combination on the Physical Characteristic of Topical Gel

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ABSTRACT

Topical gel is a semi-solid dosage form widely used due to its ease of application and comfort. A crucial factor in gel formulation is the selection of an appropriate gelling agent. Carbopol and Na-CMC are commonly used gelling agents, each affecting the gel's physical characteristics differently. This review aims to analyze the influence of Carbopol and Na-CMC combinations on the physical properties of topical gels based on four relevant studies. According to the literature reviewed, increasing Carbopol concentration enhances viscosity and adhesion but reduces spreadability, while Na-CMC improves spreadability and helps maintain stable pH levels. A combination within the range of 0.5–1.0% Carbopol and 1.5–4.0% Na-CMC produces a gel with neutral pH, viscosity, spreadability, and appropriate adhesion. Therefore, this combination is recommended for developing effective and user-friendly topical gel formulations.

Keywords: Carbopol, Gelling agent, Na-CMC, Physical characteristics, Topical gel

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Antidiabetic Activity of Plants in the Vitaceae Family: A Literature Review

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ABSTRACT

Diabetes mellitus (DM) has become a global health problem with increasing prevalence, while conventional treatments are often accompanied by side effects and high costs. This encourages the search for alternative treatments from natural ingredients, especially plants from the Vitaceae family which are known to contain various potential bioactive compounds. This literature review aims to analyze the latest scientific evidence regarding the antidiabetic activity of Vitaceae plants and their mechanisms of action. The research method was carried out through a review of research articles published in the last 5 years (2020-2025 period) in PubMed, ScienceDirect, SpringerLink, Scopus, and Google Scholar, with a focus on antidiabetic activity tests both in vitro, in vivo, and in silico. The results of the study indicate that Vitaceae plants have the potential as natural antidiabetic agents, although clinical studies in humans still need to be developed further to validate their safety and effectiveness.

Keywords: Diabetes mellitus, Medicinal plants, Vitaceae, Bioactive compounds, Antidiabetic

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Ethnomedicinal Study of Plant as Diabetes Medicine in Indonesia

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ABSTRACT

Diabetes mellitus (DM) is one of the chronic diseases with high prevalence and contributes significantly to global morbidity and mortality rates. This disease is characterized by hyperglycemia caused by insulin deficiency, insulin resistance, or a combination of both. In an effort to manage diabetes, the use of medicinal plants has become an alternative approach that is considered safer because it tends to have minimal side effects compared to conventional therapy. The purpose of this study was to examine various types of plants that have the potential to be used as an alternative treatment for diabetes mellitus. The approach used in this study is a narrative review, which is carried out by reviewing a number of previous research results that are relevant to the study theme. Articles were obtained through a search on Google Scholar, then analyzed using two quantitative parameters, namely Relative Frequency of Citation (RFC).

Keywords: Ethnomedicine, Diabetes, Indonesia, Medicinal plants

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Activity of Celery Leaf Extract (Apium graveolens) as a Hair Growth Agent

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ABSTRACT

Celery (Apium graveolens) is a plant that is often used in traditional medicine, including as a hair care ingredient. This article aims to examine the benefits of celery leaves as a hair tonic that has the potential to stimulate hair growth. The study method was carried out by literature review (narrative review) through literature searches in PubMed, Google Scholar, and ScienceDirect using the keywords "celery leaves", "Apium graveolens", "hair tonic", and "hair growth". The results of the review showed that celery leaves contain a number of active compounds, such as flavonoids, alkaloids, and vitamins, which are thought to be able to increase blood flow to the scalp and strengthen hair follicles. Based on these findings, celery has the potential to be developed as a natural ingredient in hair tonic formulations to support hair growth.

Keywords: Apium graveolens, Hair tonic, Hair growth, Celery, Active compounds, Blood circulation

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Narrative Review: Kidney Protection Through Polyphenol Compound Resveratrol

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ABSTRACT

Chronic Kidney Disease (CKD) is a progressive condition characterized by a gradual decline in kidney function, primarily driven by diabetes and hypertension through oxidative stress and inflammatory mechanisms. While ACE inhibitors (ACEi) are the standard therapy for renal protection in CKD, diabetes, or hypertension, their use has limitations, including the risk of reduced glomerular filtration rate (GFR) or acute kidney injury in patients with renal artery stenosis due to impaired renal perfusion. Therefore, complementary therapeutic approaches are needed to optimize ACEi effects. This narrative review explores the potential of resveratrol, a polyphenolic compound with antioxidant, anti-inflammatory, and vasoprotective properties, as an adjunctive therapy. Resveratrol exerts synergistic effects by enhancing nitric oxide (NO) bioavailability through reduction of asymmetric dimethylarginine (ADMA, an endogenous NO synthase inhibitor) and inhibition of the RhoA/ROCK2 signaling pathway, which contributes to hyperglycemia-induced renal damage. A literature search spanning the last decade reveals that combining resveratrol with conventional drugs such as captopril or ramipril in animal models of hypertensive and diabetic nephropathy produces synergistic benefits, improving blood pressure control, reducing fibrosis, and preserving kidney function more effectively than monotherapy. These findings suggest that resveratrol may enhance the efficacy of standard treatment while mitigating its side effects, positioning it as a promising adjuvant therapy for CKD management.

Keywords: Chronic kidney disease, Resveratrol, Oxidative stress, Combination therapy, Nephroprotection, Polyphenols

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Penggunaan Litium dalam Pengobatan Gangguan Bipolar pada Lansia

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ABSTRACT

Bipolar disorder in the elderly is increasing globally. However, due to altered pharmacokinetics, comorbidities, and toxicity risks, the use of lithium in older adults requires special attention. The objective of this study is to evaluate the effectiveness and safety of lithium in older patients with bipolar disorder. The method involved reviewing articles from the PubMed (NCBI) database, with inclusion criteria such as availability of abstract, full-text access, original research, and review or open review articles, published between 2015 and 2025 in international languages. Articles that were irrelevant or lacked complete data were excluded. Results showed that lithium is effective in managing mania in older adults and is recommended as a first-line treatment. Lower serum concentrations (<0.6 mEq/L) offer neuroprotective, antidepressant, and anti-suicidal benefits. However, its effectiveness may be reduced due to comorbidities, drug interactions, and age-related pharmacokinetic changes. Adverse effects such as acne and hair loss are more common in younger populations than in the elderly. In conclusion, lithium is effective in treating bipolar disorder in the elderly but requires careful monitoring of clinical conditions and potential adverse effects.

Keywords: Bipolar, Geriatrics, Lithium effectiveness

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Narrative Review: Exploration of Preclinical Testing Methodology of Antidepressant Compounds

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ABSTRACT

Depression is a common psychological disorder and a leading cause of global disability. Conventional therapies such as SSRIs and TCAs often produce adverse side effects, prompting the exploration of alternative treatments derived from natural sources. This study aims to review the most frequently used preclinical testing methods over the past five years for evaluating the antidepressant activity of herbal compounds. A literature review method was employed, focusing on articles retrieved from Google Scholar and ResearchGate that met specific inclusion criteria. The findings indicate that the Open Field Test (OFT), Forced Swim Test (FST), and Tail Suspension Test (TST) are the most commonly applied methods. Plant extracts such as bitter melon, basil, and fennel demonstrated potential antidepressant effects through reduced immobility time and increased locomotor activity. However, outcomes are also influenced by the testing method, dosage, and the active compound content. Utilizing multiple testing methods enhances the validity of the results. In conclusion, combining behavioral methods in preclinical studies provides a more comprehensive understanding of the antidepressant potential of natural compounds.

Keywords: Antidepressant, Forced swimming test, Open field test, Rat, Tail suspension test

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Effectiveness of Carbamazepine Monotherapy and Combination in Treating Bipolar Disorder in Adolescents and Adult

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ABSTRACT

Background Bipolar disorder is chronic mental health disorder characterized by fluctuations in mood and energy. Carbamazepine is used as one of the therapy options, especially to control the manic phase. The purpose of writing this article is to evaluate the effectiveness of carbamazepine as monotherapy or combination in bipolar disorder patients based on several published studies. The method used in writing this article is by searching the PubMed (MeSH), Google Scholar, and MDPI databases. The selection of articles using inclusion criteria includes abstracts, full text, original research and reviews. The selected articles are international language publications and were published in the period 2015 to 2025 The results show that carbamazepine helps reduce Symptoms of mood disorders and relapse rates in bipolar patients. The effectiveness of carbamazepine can be seen from a significant decrease in 1) the depression phase score based on the HAM-D measurement, 2) YMRS, and 3) relapse of the disorder P <0.05). Conclusion The LISe of carbamazepine as monotherapy or combination is effective in reducing symptoms of mania. The combination of carbamazepine with lithium or valproate improved the clinical response, but did not show significant diferences in effectiveness

Keywords: Carbamazepine, Bipolar, Efficacy, Monotherapy, Combination

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The Application of Coffee Extract as Antioxidants and Its Chemical Profiling

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ABSTRACT

Coffee is one of the important commodities in Indonesia that is not only consumed as a drink, but also used as a source of natural antioxidants. Antioxidants play an important role in protecting body cells from damage by free radicals originating from within the body or outside the body. This study aims to examine the content of antioxidant compounds in robusta and arabica coffee and their antioxidant activity. The method used is a narrative review by tracing research articles from various bases or using specific keywords related to coffee and its antioxidant compounds. The selected articles were analyzed according to the suitability of the method, sample type, and compounds identified. The results of this study indicate that robusta and arabica coffee contain active compounds such as alkaloids, flavonoids, polyphenols, and tannins with antioxidant activity measured using the DPPH method and Uv-Vis spectrophotometry. The IC50 values obtained vary, but most show a strong to very strong antioxidant category. In conclusion, robusta and arabica coffee have the potential as a source of natural antioxidants that are beneficial to health.

Keywords: Extraction, IC50, Arabica coffee, Robusta coffee, Ultraviolet-visible spectrophotometry

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Quantitative Analysis of Antibiotics in Child Pneumonia Using the Anatomical Therapeutic Chemical/Defined Daily Dose (ATC/DDD) Method

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ABSTRACT

Pneumonia is one of the leading causes of death among children worldwide, particularly in those under five years of age. Antibiotic therapy remains the primary treatment for pneumonia caused by bacterial infections; however, inappropriate use can increase the risk of resistance, prolong hospitalization, and raise healthcare costs. This study aims to examine patterns of antibiotic use in pediatric patients by applying the Anatomical Therapeutic Chemical/Defined Daily Dose (ATC/DDD) methodology. The review is based on two studies conducted in different hospitals in Indonesia. Findings indicate variations in the selection and combination of antibiotics used, highlighting the need for regular evaluations to ensure effective treatment and to prevent antimicrobial resistance in pediatric populations.

Keywords: Pneumonia, Antibiotics, ATC/DDD, Pediatrics

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Utilization of Aloe Vera Leaves (Aloe vera L.) as a Base for Topical Antioxidant Gel Formulation

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ABSTRACT

Aloe vera is a natural ingredient known to contain antioxidants such as vitamin C, vitamin E, and phenolic compounds, which are beneficial in maintaining skin health and have the potential to inhibit premature aging. One of the common dosage forms used for topical application is gel. This study aims to review various topical gel formulations that use Aloe vera as an active ingredient and gel base, and to evaluate the stability of the preparation and the resulting antioxidant activity. The method used is a narrative review by reviewing four core articles selected based on topic suitability and completeness of the data. The results of the review show that the use of Aloe vera in a concentration of 15% with Carbopol 940 as a gelling agent at a concentration of 0.5 to 1% is able to produce a gel that is physically stable and has high antioxidant activity. Phytosomal gel-based formulations show the best potential in terms of skin penetration and antioxidant effectiveness. Based on these results, it can be concluded that Aloe vera has the potential to be used as a base material for topical antioxidant gel formulations, although further research is still needed to optimize long-term stability and clinical trials in humans.

Keywords: Aloe vera, Topical gel, Antioxidant, Anti-aging, Carbopol

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Authentication of Halal Porcine Content in Non-Halal Cosmetic Products Using Polymerase Chain Reaction (PCR) Method

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ABSTRACT

Cosmetics are products that are widely used by the public, including Muslims who are required to use halal products. One important issue in the halalness of cosmetics is the possibility of the presence of ingredients derived from babies. Polymerase Chain Reaction (PCR) is an accurate and sensitive molecular method for detecting traces of pig DNA in cosmetic products, even in very small amounts and after going through a complex processing process. This study is a literature study that examines the results of research over the past ten years related to the detection of pig DNA in cosmetics using the PCR method, both conventional, Real-Time PCR, and multiplex PCR. Based on the results of research on various journals, it was found that several cosmetic products without halal labels were detected to contain pig DNA, while most halal-labeled products did not show contamination. The types of products tested included lipstick, face cream, mask, and collagen cream. Differences in test results are greatly influenced by DNA isolation techniques, primer types, and PCR methods used. The results of this study emphasize the importance of supervision and verification of the halalness of cosmetics with a scientific approach based on DNA to ensure the safety and comfort of Muslim consumers.

Keywords: Cosmetic, Halal, Pig DNA, PCR, Authentication

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Factors Affecting Quality of Life in Kidney Transplant Patients

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ABSTRACT

Kidney transplant patients require optimal care to support kidney function and quality of life which is influenced by psychological, social, educational and other factors. The purpose of this narrative review is to identify and summarize various factors that affect the quality of life of patients after undergoing kidney transplantation. The narrative review method was conducted using PubMed and Google Scholar databases to identify scientific literature based on inclusion criteria. The inclusion criteria were research articles published between 2015-2025, full text and written in Indonesian or English. The PEO (population, exposure and outcome) question framework helped determine the search strategy. The keywords used were "Kidney Transplant" AND "Quality Of Life" AND "mental state /social support/ economic status/ education level/ etc". There are 6 articles that meet the criteria for narrative review analysis. The quality of life of kidney transplant patients is highly dependent on many things, not only from the medical side. Factors such as family support, psychological conditions, availability of medication, and outlook on life and personal income also have a major influence.

Keywords: Factors, Kidney transplantation, Quality of life, Transplant recipients

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Controlling of Coffee Quality Using High Performance Liquid Chromatography: Narrative Review

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ABSTRACT

Coffee quality control becomes very crucial after considering that coffee is one of the main commodities widely consumed by Indonesian people. The content of chemical compounds such as caffeine, chlorogenic acid, trigonelline, and potential contaminants such as acrylamide and ochratoxin A (OTA) need to be strictly monitored to ensure the quality and safety of the product being consumed. This study aims to review the study of the use of the High Performance Liquid Chromatography (HPLC) method in the identification and validation of bioactive compounds and contaminants in coffee. The study was conducted using the article review method based on article searches from three data sources, namely Google Scholar, PubMed, and Semantic Scholar, with selection through inclusion criteria. The results of the study from 7 articles showed that the HPLC method was able to identication and validate bioactive compounds and contaminants in coffee and had high sensitivity and selectivity in detecting parameters to determine coffee quality such as main compounds and contaminants in coffee, with validation parameters such as linearity, precision, accuracy, detection limits, and standardized quantification limits.

Keywords: Bioactive compounds, Contamination, Validation, Identification, Food safety

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Description of the Quality of Life of Breast Cancer Patients Undergoing Chemotherapy

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ABSTRACT

One of the most common types of cancer in Indonesia is breast cancer. Breast cancer ranks first in the world with a prevalence of 2.3 million or about 11.7% of all cancer cases in Indonesia. The effectiveness of breast cancer treatment is one of the factors that have an impact on the quality of life of breast cancer patients. Therefore, this narrative review aims to determine the description of the quality of life of cancer patients after chemotherapy using several instruments such as EORTC QLQ-C30 and QLQ-BR23. The method in this study used a narrative review with the keywords "cancer", "quality of life", "EORTC QLQ-C30, QLQ-BR23" so that the articles obtained were 6 articles. The results obtained that breast cancer patients who undergo chemotherapy experience a decrease in quality of life, with problems that are still high from the functional scale domain, namely cognitive function and social function, while from the symptom scale domain with the highest problems such as fatigue, nausea vomiting, and pain.

Keywords: Cancer, Quality of life, EORTC QLQ-C30, QLQ-BR23, LC13

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Review: Formulation of Cream Preparation as a Facial Moisturizer from Kirinyu Leaf Extract (Chromolaena odorata) and Moringa Leaf (Moringa oleifera)

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ABSTRACT

Cream is a semisolid topical preparation used to moisturize the skin and carry active ingredients to the skin's surface. Moringa leaves (Moringa oleifera) and kirinyuh leaves (Chromolaena odorata) are known to contain active compounds such as flavonoids, tannins, and saponins, which are antioxidants, anti-inflammatory, and antibacterial, making them potential as active ingredients in natural facial moisturizers. The purpose of this review article is to determine the potential combination of ethanol extracts of moringa leaves (Moringa oleifera) and kirinyuh leaves (Chromolaena odorata) for facial moisturizers with a simple method. The extract is macerated for 72 hours using 50%–96% ethanol, then the extract is evaporated until a thick extract is obtained and added to the oil-in-water (O/W) type cream formula. The formulation is carried out by mixing the oil and water phases at a temperature of 70–80°C, then the extract is added to the homogeneous cream base. The formulation results will produce a brownish green cream, odorless, and easy to apply. In conclusion, the combination of moringa leaf extract and kirinyuh leaf maceration can be formulated into a facial moisturizer that has the potential to be used as a natural product with antioxidant and antibacterial content.

Keywords: Antibacterial, Antioxidant, Natural ingredients, Moringa leaves, Kirinyuh leaves, Moisturizing cream, Maceration

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Narrative Review: Methods Used to Improve Knowledge of Self-Medication in the Community

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ABSTRACT

Self-medication is the act of selecting and using modern medicine, herbal medicine, or traditional medicine by an individual to reduce or overcome a disease or symptoms of a disease without a doctor's prescription. Good knowledge of self-medication is very important so that drug use is carried out rationally and safely. This article aims to compare the methods used in improving knowledge of self-medication in the community after being given education. This article review uses the Google Scholar database with simple keywords or hyphens such as "AND", "swamedikasi AND Method AND knowledge". Based on the results of a review of four journals, it was found that the CBIA method (Cara Belajar Insan Aktif) is the most effective educational method in improving self-medication knowledge. CBIA produced the highest increase in the "good" knowledge category, which was 76.7%, compared to other methods such as brainstorming (73.3%), lectures (38.1%), and Tanya 50 (18.9%). Therefore, CBIA is recommended as the main approach in community self-medication education programs.

Keywords: Self-medication, Methods, Knowledge

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Effect of CYP3A4 Genetic Variation on Statin Therapy Response in Patients at Cardiovascular Risk

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ABSTRACT

Variability ïn statin therapy response among patients with high cardiovascular risk presents significant clinical challenges, with CYP3A4 genetic polymorphisms as primary determinants in drug metabolism. This study aimed to analyze the effect of CYP3A4 genetic variations on statin therapy effectiveness and safety n high cardiovascular risk populations through a systematic literature review approach. A systematic narrative review was conducted with comprehensive searches across PubMed/MEDLINE, Scopus, Web of Science, and Cochrane Library databases for 2021-2025, with inclusion criteria encompassing tudies evaluating CYP3A4 polymorphism relationships with statin therapy response in adult subjects, utilizing structured data extraction and quality assessment using appropriate instruments. Analysis revealed significant response heterogeneity with myopathy incidence ranging 8-50% depending on statin type, where CYP3A41B (86%) and CYP3A53 (83%) polymorphisms showed high frequencies with significant impacts on plasma concentrations and therapeutic effectiveness. Inter-population response variability indicated substantial genetic disparities, with 46.7% of Indonesian populations demonstrating poor metabolizer phenotypes in CYP systems. CYP3A4 genetic variations have complex effects on statin therapy response with population-specific patterns, therefore pharmacogenomic implementation requires integrated approaches considering local genetic profiles, demographic factors, and drug interactions for personalized medicine optimization ïin cardiovascular risk management

Keywords: CYP3A4 polymorphism, Statin therapy, Pharmacogenomics, Cardiovascular risk, Precision medicine

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Narrative Review: Optimization of Clove Essential Oil (Syzygium aromaticum L.) Formula in Gel and Microemulgel

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ABSTRACT

Clove essential oil (Syzygium aromaticum L.) contains 72-90% eugenol as a bioactive compound that has anti-inflammatory, analgesic, and antimicrobial activities. However, its volatile nature and low solubility in water limit its effectiveness in conventional topical preparations. This review aims to determine the optimization of formulations in the form of gels or microemulgels that can improve stability and topical bioavailability. The review method was carried out by searching the literature through Publish or Perish which includes Google Scholar, PubMed. .The The k keywords used were 'gel', 'microemulgel', 'clove flower essential oil'. The articles retrieved were articles published within the year range (2015-2025). The results showed that there were 7 articles that met the objectives. In the optimization, the ingredients that are widely used in gel preparations are CMC-Na as a gelling agent. Propylene glycol, glycerin, and ethanol as co-solvents. The constituent ingredients of the microemulgel include the oil phase, namely clove flower essential oil, surfactants and co-surfactants including tween 80, span 80, PEG 400, propylene glycol, oleic acid, and gel bases such as Carbopol 9400. The concentration of essential oil in gel and microemulgel preparations varied from 1% to 15%. The conclusion is that clove flower essential oil can be formulated in gel and microemulgel preparations. With the best concentration found at 10% - 15% concentration.

Keywords: Clove essential oil, Gel, Microemulgel

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Narrative Review: The Effect of Roasting Temperature Variations on Antioxidant Activity in Arabica Coffee Beans (Coffea arabica) Using the DPPH Method

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ABSTRACT

Arabica coffee (Coffea arabica) is one of the superior types of coffee that has high economic and health value due to its bioactive compound content. The antioxidant activity of these compounds is influenced by the roasting process, especially the temperature used. The purpose of this narrative review is to evaluate the effect of variations in roasting temperature on the antioxidant activity of Arabica coffee beans using the DPPH (2,2-diphenyl-1-picrylhydrazyl) method. The articles analyzed were obtained through Google Scholar with inclusion criteria in the form of primary research articles from 2015–2025 that studied the antioxidant activity of Arabica coffee using the DPPH method and were available in full text. The results of the review showed that roasting temperature significantly affected the IC_{50} value. Moderate temperatures (190–210°C) generally produced the lowest IC_{50} values, indicating the highest antioxidant activity. Conversely, high temperatures and long roasting times can reduce antioxidant activity due to degradation of active compounds. However, several studies have also shown that compounds resulting from Maillard reactions at high temperatures can contribute to antioxidant activity. Therefore, controlling the roasting temperature is important to optimize the functional benefits of Arabica coffee as a source of natural antioxidants.

Keywords: Arabica coffee, Roasting temperature, Antioxidant activity, DPPH, IC50

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Narrative Review: Quality of Life of Hypertension Patients in Community Health Center

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ABSTRACT

Background; Hypertension is a disease that is familiar to the Indonesian people where this disease is characterized by an increase in blood pressure that exceeds normal. Hypertension is included in one of the chronic diseases that are usually controlled by routinely taking medication and improving lifestyle. Quality of life itself is a view of the health experienced. Objective: to identify and summarize previous articles on how the relationship between quality of life and patients with hypertension undergoing treatment at the Health Center. Method: this narrative review study uses journal and article searches through the Google Scholar, Pubmed, Science direct and NCBI databases. The final results show that patients with low psychological, social, and compliance conditions will affect the decline in the quality of life of hypertension sufferers who are undergoing routine treatment. So it can be concluded that there is a significant relationship between the factors mentioned above and the quality of life of hypertension sufferers. Suggestion: It is expected that health workers and families can provide education and support related to hypertension in prevention or control so that their quality of life remains stable and good.

Keywords: Hypertension, Quality of life, Health center-questionnaire SigQOLM

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Implementation of Sharia Values in Pharmaceutical Services

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ABSTRACT

The implementation of sharia principles in pharmaceutical services is a strategic priority in responding to the needs of Muslims for health products that are not only safe and effective, but also consistent with religious values. This study aims to examine the application of sharia values in pharmaceutical services. This research is a narrative review of four scientific articles published between 2015 and 2025, with inclusion criteria focusing on discussions about the characteristics of Muslims pharmacists, halal medications, and the values of the Quran in pharmaceutical services. The results indicate that the integration of Islamic moral values into the pharmacist profession significantly contributes to improving the quality of ethical and welfare oriented pharmaceutical services. Quranic values such as halal, thayyib, and justice serve as the normative foundation for the development of modern Sharia-compliant pharmaceutical industries. Therefore, cross-sector collaboration, consumer education, and strengthening halal regulations based on Islamic values are key to developing a sustainable pharmaceutical system. This study emphasizes that strengthening the character of Muslim pharmacists and harmonizing halal regulations can promote the creation of a high-quality, competitive, and globally competitive Islamic pharmaceutical ecosystem.

Keywords: Halal pharmaceutical services, Muslim pharmacist, Islamic ethics

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Antibiotic Rationality Analysis in Surgery Patients Using Qualitative and Quantitative Methods

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ABSTRACT

The use of prophylactic antibiotics in surgical patients is very important to prevent infections due to surgery, but can cause major problems if not used properly. Qualitative (Defined Daily Dose) and quantitative (gyssens) methods are used to measure the use of antibiotics. This article aims to see an overview of qualitative and quantitative antibiotic rationality analysis by looking at the results of analysis from previous studies. The preparation of this narrative review by searching articles from the google scholar database usi ng the keywords "surgery" AND "defined daily dose" AND 'gyssens' AND "the use of antibiotics". 3 articles were obtained that met the inclusion and exclusion criteria from atotal of 137 articles. The results showed that the most widely used antibiotics were ceftriaxone and cefazoline. Evaluation with the gyssens method showed the highest level of rationality of 93% and the lowest was only 15.52%. Routine evaluation with qualitative and quantitative methods is needed to ensure the effective and safe use of antibiotics, and to reduce the rate of resistance.

Keywords: Antibiotics, DDD, Gyssens, Rationality, Resistance

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Identification of the Highest Risk Lifestyle Parameters in the Development of Hypertension in the Elderly

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ABSTRACT

Hypertension is a chronic medical condition characterized by an increase in systemic blood pressure above the normal threshold value (Rahmad et al., 2020). It is a global concern due to its increasing prevalence and implications for cardiovascular morbiditv and mortalitv (Putri et al. 2020). Lifestyle factors, including diet, play a crucial role in the pathogenesis of hypertension. With age, physiological changes such as decreased blood vessel elasticity and decreased kidney function occur, causing blood pressure to rise more easily (Whelton et al, 2018). In addition to the age factor, lifestyle is a significant cause, especially high sodium dietary habits, saturated fat consumption, lack of physical activity, and psychosocial stress (Appel et al., 2011). Although many studies have mentioned the influence of these factors, a more focused study is still needed to determine which lifestyle parameters are most dominant in exacerbating hypertension in the elderly. The aim of this review is to identify the highest-risk lifestyle parameters that contribute significantly_to the development of hypertension in the elderly based on literature evidence. This study used the narrative review method, which is a review of previous journals.

Keywords: Diet, Elderly, Hypertension, Lifestyle, Sodium

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Analysis of Factors Affecting the Absorption of BPJS Prescriptions for the Referral Back Program (PRB) at the PRB Pharmacy in Cirebon City

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ABSTRACT

The Referral Back Program is part of the health service system that aims to ensure the continuation of treatment for participants with chronic conditions that are already medically stable. However, the implementation of this program in Cirebon City faces challenges in the form of a low level of prescription collection by participants at designated pharmacies. This situation can interfere with the effectiveness of treatment, cause health complications, and cause losses to pharmacies and increase the burden of health service costs. This study aims to analyze the factors that affect the rate of prescription taking in the Referral Back Program at participating pharmacies. The research was conducted using qualitative and quantitative approaches through survey methods of program participants and interviews with program leaders in first-level health facilities and pharmacies and then analyzed descriptively. The factors studied include the availability of drugs, program socialization, services and coordination between health facilities, the level of awareness and understanding of participants towards the referral program, administrative constraints, and ease of access to pharmacies. The results of this study show that the factors that most affect the absorption of referral prescriptions are accessibility constraints from first-level health facilities to referral pharmacies and lack of socialization are also factors that affect the level of understanding of participants. The results of this research are expected to be the basis for improving the implementation of the program to be more effective and efficient.

Keywords: Access to pharmacies, Availability of medications, Service coordination, Prescription intake, Primary health services, Referral program

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Determination of Chlorogenic Acid Levels and Anti-Cancer Potential on Roasted Arabica: Narrative Review

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ABSTRACT

Chlorogenic acid levels in Arabica coffee have been the focus of research because of their potential as antioxidants and other bioactive compounds that are beneficial to health. Chlorogenic acid is an ester of quinic acid and caffeic acid that is found in significant amounts in coffee beans. The roasting process of coffee beans can affect the concentration of chlorogenic acid, with the rate of reduction occurring as the roasting temperature increases. Arabica coffee, with its smoother flavor and higher acid content than other varieties, is expected to have higher chlorogenic acid content, which may provide more significant health benefits. In addition, coffee has long been used in various cultures as an energy-boosting and alertness-enhancing beverage, but research also suggests that coffee may have therapeutic effects, including potential as an anticancer agent. The anticancer activity of coffee is associated with bioactive compounds such as chlorogenic acid that can inhibit cancer cell proliferation, induce apoptosis, and reduce tumor growth. Anticancer activity tests on coffee have shown that coffee extracts can reduce cancer cell formation through anti-inflammatory and antioxidant mechanisms, as well as slowing the cell cycle. Thus, analysis of chlorogenic acid levels and testing of anticancer activity in roasted Arabica coffee can provide a deeper understanding of the health potential of coffee as a cancer prevention agent.

Keywords: Chlorogenic acid, Arabica coffee, Roasting, Anticancer potential, Bioactive compounds

*Corresponding author

The Effect of Polypharmacy on the Effectiveness and Medication Adherence of Hypertension Patients at the Outpatient Clinic of Private Hospital X in Majenang

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ABSTRACT

Polypharmacy is commonly found in hypertensive patients, especially those with comorbidities. Although intended to achieve optimal blood pressure control, polypharmacy may affect treatment effectiveness and medication adherence. This study aimed to analyze the impact of polypharmacy on treatment effectiveness and adherence in hypertensive patients at the outpatient clinic of Private Hospital X. The study employed an analytical observational design with a quantitative approach, complemented by qualitative data. Data were collected through therapy monitoring sheets, interviews, and blood pressure measurements. The results showed that the majority of respondents (97%) were categorized as adherent, with only 3% being non-adherent. The mean systolic blood pressure before treatment was 139.86 ± 18.93 mmHg, which slightly decreased to 139.70 ± 19.33 mmHg after treatment, while diastolic pressure increased from 86.27 ± 8.76 mmHg to 87.33 ± 13.08 mmHg. Linear regression analysis indicated no statistically significant relationship between the number of medications and either adherence or treatment effectiveness ($p > 0.05$). The study concludes that the success of hypertension therapy is more influenced by patient understanding and family support rather than the number of medications consumed

Keywords: Antihypertensive treatment, Hypertension, Medication adherence, Outpatient care, Polypharmacy

*Corresponding author

Polymer-Based Microarray Patches, a Novel Strategy to Bypass the Skin Barrier for Sustained-Delivery of Ramipril, a Poorly Soluble Antihypertensive Drug

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ABSTRACT

Ramipril is an angiotensin-converting inhibitor which is widely prescribed for hypertension with the high risk of cardiovascular diseases and heart failure. Due to its poorly-soluble property, ramipril has limitation regarding the low bioavailability. This study aims to develop a polymeric dissolvable microneedle system for sustained transdermal delivery of ramipril, targeting the early morning surge of blood pressure. Ramipril was formulated into microneedle patches using a two-step casting method with polyvinylpyrrolidone (PVP) and polyvinyl alcohol (PVA) as the polymeric matrices, then charactherized. The finalized formulation resulted in microneedles with good morphologycal and structural features. In vitro penetration test confirmed that the microneedles could penetrate up to the third layer of Parafilm M®, indicating an insertion depth of around 378 μm. Needle tips dissolution test revealed microneedles dissolved within 45 minutes of skin application. Microneedle actual drug content analysis resulted that approximately (5.71 ± 0.09 mg) of ramipril found in a microneedle patch, while drug deposition and permeation studies revealed the deposition of (3.56 ± 0.44 mg) ramipril into the full-thickness porcine skin and (1.86 ± 0.38 mg) ramipril permeated. Overall, these findings support the successful development of polymeric dissolving microneedle capable of delivering ramipril transdermally in a sustained manner.

Keywords: Microneedle, Polyvinylpyrrolidone, Polyvinyl alcohol, Transdermal

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The Influence of Service Quality on Customer Retention at Kimia Farma Pharmacy in Cirebon City

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ABSTRACT

Kimia Farma Pharmacy is a healthcare service network that adopts the One Stop Health Care Solution concept with a focus on implementing standardized and integrated service delivery. Adherence to Standard Operating Procedures is essential to ensure safe and beneficial pharmaceutical services for customers. This study aims to analyze the effect of service quality dimensions—including tangible, reliability, responsiveness, assurance, and empathy—on customer retention at Kimia Farma Pharmacy in Cirebon City. The study employed a quantitative approach using a cross-sectional design, with data collected through questionnaires. The findings indicate that all dimensions of service quality have a positive and significant influence on customer retention. Among these, assurance and empathy were the most influential factors in shaping customer perceptions of service quality. In conclusion, improving overall service quality encourages customers to continue utilizing pharmacy services, thereby increasing customer retention.

Keywords: Customer retention, Pharmaceutical services, Pharmacy, Service quality, Service standards

*Corresponding author

Evaluation of Pharmaceutical Service Quality Standards on Patient Satisfaction at Kimia Farma Pharmacy in Cirebon City

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ABSTRACT

Pharmacies serve as primary healthcare providers that offer quick and easy access to medications and health-related information for the community. To ensure the quality of pharmaceutical services, regular evaluations of patient satisfaction are essential. This study aims to evaluate the effect of pharmaceutical service quality standards on patient satisfaction at Kimia Farma Pharmacy in Cirebon City. A quantitative approach was employed using a cross-sectional design with purposive sampling of 100 respondent. Data were collected through questionnaires reflecting various aspects of pharmaceutical service quality standards. The analysis results indicate a positive influence of pharmaceutical service quality standards on patient satisfaction levels. This study concludes that the pharmaceutical service quality at Kimia Farma Pharmacy in Cirebon City has been well implemented and successfully contributes to positive patient satisfaction.

Keywords: Dispensing services, Patient satisfaction, Pharmacy, Pharmaceutical care, Service quality

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Effectiveness of Antibiotics Prophylaxic Usage in Surgical Patients on the Incidence of Infections in Surgical Site

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ABSTRACT

Surgical site (SSI) is one of the common complications after surgery and can prolong the treatment period and increase morbidity. The use of prophylactic antibiotics is one of the main preventive efforts in preventing SSI. This study aims to determine the effectiveness of antibiotic use in surgical patients on the incidence of SSI. The method used is a narrative review literature study that examines various clinical studies, practice guidelines, and reviews. The literature reviewed includes the use of antibiotics in various types of surgical procedures, with a focus on the time of administration, antibiotic selection, and duration of use. Data collected include the type, time of antibiotic administration, and type of surgery. The results showed that the administration of appropriate prophylactic antibiotics (both in terms of type, dose, and time of administration) significantly reduced the incidence of SSI compared to patients who were not given antibiotics. The conclusion of this study emphasizes the importance of antibiotic use in surgical procedures to prevent infection and improve the quality of health services.

Keywords: Antibiotics, Surgical site (SSI), Effectiveness

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Level of Knowledge of Adolescent Girls About Iron Deficiency Anemia and Prevention Efforts

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ABSTRACT

Iron deficiency anemia is a common health problem among adolescent girls, particularly in developing countries. This condition results from inadequate iron intake, increased iron requirements during adolescence, and poor dietary habits. This narrative review aims to explore the level of knowledge of adolescent girls about iron deficiency anemia and its prevention efforts, including the use of iron-folic acid (IFA) tablets. Articles were collected from Google Scholar, PubMed, ScienceDirect, and Publish or Perish databases within the 2015–2025 period. Findings show that most adolescents have low to moderate knowledge regarding anemia and IFA tablets, although some studies report adequate to good knowledge levels. However, good knowledge does not always lead to positive attitudes and preventive behaviors. Educational interventions such as school-based nutrition counseling and IFA supplementation programs have proven effective in improving adolescents' knowledge and compliance. Therefore, the involvement of pharmacists in health education and promotion is essential to increase awareness and prevent anemia among adolescent girls.

Keywords: Adolescent girls, Health education, Iron deficiency anemia, Iron-folic acid tablets, Knowledge, Prevention

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Narrative Review: Penggunaan Obat-Obatan Psikotropika pada Pasien Psikogeriatri

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ABSTRACT

The increasing number of elderly population globally presents a major challenge in the management of psychiatric disorders, especially in psychogeriatric patients. With increasing age, the prevalence of mental disorders such as depression, dementia, and anxiety increases, which then drives the use of psychotropics such as antidepressants, anxiolytics, and hypnotics. However, physiological changes in the elderly cause an increased risk of side effects such as cognitive impairment, falls, and fractures, especially when polypharmacy occurs. Several studies have shown a high prevalence of psychotropic use in the elderly, especially benzodiazepines and SSRIs, although their use is often not in accordance with clinical guidelines. One of the recommended tools to evaluate the appropriateness of therapy in the elderly is the Beers Criteria, which classifies a number of psychotropics as drugs that should be avoided or used with caution. This review used a narrative review approach to review the pattern of psychotropic use in the elderly, its potential risks, and appropriate deprescribing strategies. The results showed that multiple psychotropic use was closely associated with cognitive and physical decline. Therefore, a multidisciplinary approach and regular evaluation based on the Beers Criteria are important to optimize the safety and quality of life of elderly patients.

Keywords: Elderly, Psychotropics, Beers criteria, Deprescribing, Psychogeriatrics

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Validity of Quality of Life (QOL) Questionnaire in Generic Population: A Narrative Review

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ABSTRACT

Quality of Life (QoL) is a multidimensional concept that reflects an individual's subjective perception of their physical, psychological, social, and environmental well-being. Measuring Qol using valid and reliable instruments is essential, especially in the general population. This review aims to provide a comprehensive overview of the most appropriate measurement tools based on validity, reliability, and sensitivity to sociodemographic variables. Articles were obtained through a search of the PubMed Central (PMC) database with he keywords "general population" and "quality of life instrument" and "validity". Selection was carried out using strict inclusion and exclusion criteria, including non-clinical populations, generic QoL instruments, and validity and reliability tests. Five selected articles were analyzed narratively based on _ instrument characteristics, populations, and validation results. The results showed that the WHOQOL-BREF was the most frequently validated instrument and showed high construct validity and reliabilitv across countries and age groups. One study developed a new instrument, the SigQ0LM, which also showed good psychometric performance. However, only a few studies evaluated the sensitivity of the instrument to sociodemographic variables. This review concludes that the WHOQOL-BREF is a valid and flexible generic QoL instrument, but further testing of demographic factors is needed.

Keywords: Quality of life, General population, Reliability, Validity

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Stability Test of Clove Flower Essential Oil (Syzygium aromaticum) in Pharmacy Preparations

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ABSTRACT

Clove essential oil (Syzygium aromaticum) is one of the natural products that has high biological activity and is widely used in the pharmaceutical, cosmetic, and food industries. The main component of this essential oil is eugenol, which has antimicrobial and antioxidant properties. However, the stability of essential oils to environmental factors such as light, temperature, and oxygen greatly affects their quality and effectiveness. This review aims to examine the stability test of clove essential oil in pharmaceutical preparations. This review took 12 articles from various literatures using Google Scholar, pubmed, science direct, NCBI. The literature search was conducted with the keywords ''stability test'', ''eugenol'', ''pharmaceutical dosage form'', and ''clove essential oil'' which were released in the last 15 years, namely 2015 to 2025. The results of the investigation showed the stability of clove essential oil in nanoemulsion, spray, ointment, gel, cream, and emulsion preparations. The formulation of clove essential oil in these preparations has good stability.

Keywords: Essential oil, Stability test, Syzygium aromaticum

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Potential of Orange Plants as Sunscreens

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ABSTRACT

Indonesia is a tropical country with ample sunlight exposure. Excessive exposure to the skin is quite dangerous, so natural sunscreen is needed for skin protection because it is relatively safe. The purpose of this article is to examine the potential of citrus plants as sunscreen. This research uses the keywords extract, orange plants, and sunscreen to search for articles using methods with scientific databases such as Google Scholar, PubMed, and Perish & Publish from 2015–2025. The research results show that the peels, leaves, and fruits of citrus contain essential oils, flavonoids, phenols, and bioactive compounds with chromophore groups that can absorb UVA and UVB rays. The sun protection factor (SPF) values of citrus extracts, especially those made with ethanol and ethyl acetate solvents, show high protection up to the ultra category (>15), with the highest SPF value being 81.8. So, citrus plants have great potential as a good and safe source of natural sunscreen to protect the skin from ultraviolet radiation.

Keywords: Extract, Orange plants, Sunscreen

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Narrative Review: Effect of Gel Base Type on the Viscosity of Topical Preparations of Centella Leaves (Centella asiatica L.)

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ABSTRACT

Centella asiatica (L.) is widely known to have various pharmacological activities, such as anti-inflammatory, antioxidant, and stimulation of collagen synthesis, so it is often used in topical preparations, especially gels. The stability and effectiveness of gels are strongly influenced by viscosity, one of which depends on the type and concentration of the gel base used. This article is a narrative review that analyzes nine studies related to the effect of various gelling agents, such as Carbopol 940, hydroxypropyl methylcellulose (HPMC), sodium carboxymethylcellulose (Na CMC), methylcellulose (Metalose), Viskolam, and polyvinyl alcohol (PVA), on the viscosity of gotu kola extract gel. The results showed that Carbopol 940 was most commonly used because it was able to produce high viscosity and good pH stability at low concentrations. Na CMC also increases viscosity, but requires higher concentrations and is less stable to changes in pH and temperature. HPMC produces gels with lower viscosity, but softer texture and better spreadability. The combination of gelling agents, such as Carbopol and HPMC, can optimize viscosity while improving the comfort of using the gel. In addition, increasing the concentration of gotu kola extract tends to increase the viscosity of the gel. Thus, the selection of the type and concentration of gel base is very important to produce a topical preparation of gotu kola gel that is stable, effective, and convenient to use.

Keywords: Centella asiatica, Formulation, Gel base, Topical formulation, Viscosity

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Association Between Polypharmacy and Potential Drug Interactions in Patients With Chronic Kidney Disease and Hypertension Undergoing Hemodialysis at Prof. Dr. Margono Soekarjo Regional Hospital

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ABSTRACT

Patients with chronic kidney disease (CKD) undergoing hemodialysis frequently present with comorbid conditions, particularly hypertension and metabolic disturbances, which often necessitate the concurrent use of multiple medications. This circumstance may lead to polypharmacy, thereby increasing the risk of potential drug interactions. This study aimed to examine the association between polypharmacy and potential drug interactions in CKD patients with hypertension receiving outpatient hemodialysis. An analytical observational study with a cross-sectional design was conducted using retrospective data obtained from patient medical records at Prof. Dr. Margono Soekarjo Regional Hospital over the period of January to December 2024. The results demonstrated that a significant proportion of patients prescribed five or more medications experienced drug interactions. Spearman's correlation test revealed a statistically significant positive association between polypharmacy and potential drug interactions ($p = 0.000$; $r = 0.710$). The severity of identified interactions ranged from mild to moderate and severe. In conclusion, there is a significant association between polypharmacy and the occurrence of potential drug interactions in CKD patients undergoing hemodialysis. These findings underscore the importance of careful therapeutic planning and regular medication review. Interdisciplinary collaboration among physicians, pharmacists, and nursing professionals is essential to ensure the safety and effectiveness of pharmacotherapy, as well as to mitigate the risk of adverse drug interactions in this high-risk population

Keywords: Chronic kidney disease, Drug interactions, Hemodialysis, Polypharmacy

*Corresponding author

Potential Antibacterial Activity of Salak Fruit Extract (Salacca zalacca) Against Pathogenic Bacteria of the Digestive Tract: Narrative Review

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ABSTRACT

Infectious diseases of the digestive tract such as diarrhea, dysentery, and gastroenteritis are still a significant health problem in developing countries, mainly duet o the spread of pathogenic bacteria such as Escherichia coli, Salmonella spp., Shigella spp., and Vibrio cholerae. Cases of infection can be treated with the use of antibiotics, but excessive use can lead to resistance, so natural treatment alternatives are needed. One of the natural ingredients that can be useful as an antibacterial is salak fruit (Salacca zalacca). Salak fruit in the fruit, seeds, and peel are known to contain active compounds of flavonoid, tannins, adn alkaloids. This study aims to determine the effectiveness and antibacterial inhibition of salak fruit againts pathogenic bacteria of the digestive tract. Literature searches using the Google Scholar database were based on certain inclusion and exclusion criteria, so that 4 articles published in the last 10 years (2015-2025) were obtained.

Keywords: Antibacterial, Salak fruit extract (Salacca zalacca), Zone of inhibition

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Development of Functional Food with Low Glycemic Index for Diabetes Mellitus

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ABSTRACT

The increasing prevalence of diabetes mellitus, especially type 2 which is closely related to diet and lifestyle, has prompted the development of functional foods with a low glycemic index as a preventive strategy. This study is a literature review article aimed at identifying various natural ingredients that can be used in the formulation of analog rice for people with diabetes. Data were obtained from scientific articles published between 2015 and 2025, accessed through Google Scholar using keywords such as "functional food", "analog rice", "glycemic index", "diabetes", and "bioactive compounds". The analysis followed PRISMA guidelines and used tools such as Publish or Perish and Mendeley. The results indicate that tubers and cereals such as Arenga microcarpha, purple sweet potato, corn, sorghum, and cassava contain bioactive compounds like phenolics, anthocyanins, and dietary fiber, which have the potential to lower the glycemic index. These compounds help slow glucose absorption and reduce oxidative stress, making analog rice a functional food alternative that is safe for people with diabetes.

Keywords: Analog rice, Bioactive compounds, Diabetes, Functional food, Glycemic index, Tubers

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Formulasi Lipbalm Ekstrak Aloe Vera sebagai Sediaan Antioksidan

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ABSTRACT

The lips are one of the most vulnerable parts of the body, prone to damage from sun exposure, pollution, and temperature changes due to their thin epidermal layer, which makes them easily lose moisture and become dehydrated. One common treatment is lip balm, which functions to maintain moisture and protect the lips from environmental factors. Nowadays, the use of natural ingredients such as Aloe vera extract in lip balm formulations is increasingly popular due to its bioactive compounds, including vitamins, polysaccharides, amino acids, enzymes, and antioxidants such as vitamin C, vitamin E, and polyphenols, which help combat free radicals. This study aims to explore the potential of Aloe vera extract as an antioxidant agent in lip balm formulations by reviewing pharmacological aspects, mechanisms of action, formulation considerations, and preparation stability. The method used was a literature review by searching national and international articles through Google Scholar and Publish or Perish, using the keywords "lip balm," "Aloe vera," and "antioxidant," with article selection based on inclusion criteria from the 2015–2025 period.

Keywords: Aloe vera, Antioxidant, Lipbalm

*Corresponding author

Evaluation of Antibiotic Use Profile in Patients with Urinary Tract Infection (UTI) in Hospital Indonesia

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ABSTRACT

Urinary Tract Infection (UTI) is an infectious condition characterized by excessive bacterial growth in the urinary tract beyond normal limits. The general treatment given is usually in the form of antibiotics. However, inappropriate use of antibiotics can result in failure to achieve therapeutic goals and trigger the development of resistance. This study aims to understand the current medical conditions and the impact of antibiotic use in UTI patients. This study uses a narrative review method that analyzes articles related to antibiotic use in UTI patients. Data were collected from Google Scholar and Semantic Scholar using certain keywords, with a range of years 2018–2025. Of the 132 journals found, after the selection process, 7 journals were selected that met the inclusion criteria for further analysis. Based on the results of the study obtained, the use of antibiotics to treat UTI in a number of hospitals in Indonesia is considered appropriate, especially regarding the determination of patients and the reasons for their administration. Even so, there are still several things that need to be improved in terms of dosage and duration of administration, which have the potential to cause antibiotic resistance. In order to ensure that antibiotic therapy is more appropriate and effective, education, monitoring, and periodic assessment are needed.

Keywords: Antibiotics, Usage profile, Urinary tract infection

*Corresponding author

Review: Influence of Gelling Agents on the Gel Formulation Containing Cissus discolor Leaf Extract

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ABSTRACT

Gel formulations are topical preparations typically made with various types of polymers that can be penetrated by a liquid. Gelling agents or gel bases significantly influence the formation and physical properties of gel formulations. The aim of this narrative review is to explore information on which polymers are best used in gel production based on the physical properties of the gel. The methodology includes a literature search of scientific articles from databases such as Google Scholar using the keywords "Evaluation of Physical Properties," "Gel," "Gelling Agent," and "Topical" systematically selected based on relevance and publication quality. The results from the review of several literatures indicate that common gelling agents used in the production of topical gel formulations include Hydroxyethyl cellulose (HEC), Sodium Carboxymethyl cellulose (Na-CMC), Hydroxypropyl methyl cellulose (HPMC), Methylcellulose (MC), and Carbomer. The conclusion of this study is that the gelling agent with the best physical properties is HPMC.

Keywords: Evaluation of physical properties, Gel, Gelling agent, Topical

*Corresponding author

Potential of Film-Forming Agents as Wound Healing Support in Spray Preparations

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ABSTRACT

Wound healing is a complex biological process that requires an optimal environment for effective tissue regeneration. Topical preparations in the form of film-forming sprays offer advantages over other forms because they are easy to apply, hygienic, and able to form a semi-occlusive protective layer that supports wound moisture and controlled drug release. This study aims to assess various film-forming agents used in spray preparations to accelerate the wound healing process. The method used was a descriptive literature review of articles from reputable scientific databases. The review showed that natural polymers such as chitosan and water-soluble chitosan have antimicrobial effects, bioadhesivity, and support tissue regeneration, while synthetic polymers such as Eudragit E100, PVP, and PVA form strong, elastic, and physicochemically stable films. The combination of film-forming agents with herbal and biopharmaceutical active ingredients has also shown synergistic effects in accelerating wound healing. Therefore, the selection of the right polymer and formulation is an important factor in the development of effective, safe, and convenient topical spray preparations.

Keywords: Film-forming agent, Polymer, Spray preparation, Topical, Wound healing

*Corresponding author

Antibacterial Activity of Kepok Banana Peel (Musa paradisiaca L.) Against Porphyromonas gingivalis

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ABSTRACT

Gingivitis is an inflammation of the gums that can progress to periodontitis if left untreated. Porphyromonas gingivalis is the main bacteria that causes it. The use of chemical antiseptics such as chlorhexidine is effective, but risks causing side effects, so a safer natural alternative is needed. Kepok banana peel (Musa paradisiaca L.) is known to contain bioactive compounds such as flavonoids, tannins, saponins, alkaloids, and terpenoids that have potential as antibacterials. This study aims to evaluate the antibacterial activity of kepok banana peel extract against P. gingivalis through literature review. Articles were collected through the Publish or Perish application, selected from publications from 2015–2025 with relevant in vitro and in vivo study criteria. The results of the three studies showed that kepok banana peel extract was able to inhibit the growth of P. gingivalis, with a maximum inhibition zone of 19.2 mm and the lowest minimum inhibitory level (KHM) of 10%, depending on the type of solvent and extract concentration. Methanol and ethanol solvents gave the best results in extracting active compounds. It is concluded that kepok banana peel has potential as a natural antibacterial agent to treat gingivitis. Further research is needed for formulation and further clinical trials.

Keywords: Musa paradisiaca, Porphyromonas gingivalis, Antibacterial, Gingivitis

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The Effect of Base on Lip Balm Formulation: A Narrative Review

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ABSTRACT

The lips are a vulnerable part of the face as they lack natural protection such as hair follicles and sweat glands. Lip balm is a cosmetic preparation that provides moisture to help care for the lips, where the base components (waxes, oils, and fats) play a crucial role in determining the physical quality of the formulation. This study aims to review the effect of base types and concentration variations on the physical properties of lip balm, including organoleptic characteristics, homogeneity, pH, and adhesiveness. The method used is a narrative review with a systematic approach to scientific articles published between 2020–2025, applying specific inclusion and exclusion criteria. Analysis of six articles shows that both the type and concentration of bases significantly influence the physical properties of lip balm. A combination of cera alba (white beeswax) with Vaseline album at a concentration of 10–15% provides a stable soft semi-solid texture, high adhesiveness lasting up to 4 minutes, a neutral pH suitable for lips, and does not cause irritation or dryness. It also ensures good homogeneity, making it the most suitable base in terms of physical quality.

Keywords: Formulation, Lips, Lip balm, Lip balm formulation

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Narrative Review: Quantitative Analysis of Antibiotic Use in Caesarean Section Patients (Section Caesarea) Using the Method ATC/DDD

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ABSTRACT

Cesarean section (sectio caesarea) is a surgical delivery through an incision in the abdomen and uterus. Cesarean section is a method of delivery that can pose a post-operative risk, namely surgical wound infection (SSI), so prophylactic antibiotics are needed. Prophylactic antibiotics are antibiotics used to prevent infection complications due to surgery and are given before, during and after surgery. The selection of antibiotics is very important because inappropriate use can cause resistance. The purpose of this study was to determine the pattern of antibiotic use in cesarean section patients based on the ATC/DDD method with therapy guidelines. Articles were obtained through searches on the Pubmed, Google Scholar and ResearchGate databases. Article searches were obtained with a time span of 2020-2025 with keywords such as "infection" and "sectio caesarea", and "antibiotic prophylaxis in cesarean delivery". Selection was carried out using inclusion and exclusion ariteria. The results showed that the most common use of prophylactic antibiotics in cesarean section patients was Cefazolin besides Cefotaxime and Ceftriaxone The use of prophylactic antibiotics is effective in reducing the risk of infectious morbidity in pregnant women who wll undergo cesarean sectionsurgery.

Keywords: Antibiotics prophylaxis in cesarean delivery, Sectio caesarea, ATC/DDD

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Effect of Variation of Pepaya (Carica papaya L.) Leaf Ethanol Extract Concentration on the Physical Features of Topical Medicine and Antibacterial Power Against Propionibacterium acnes

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ABSTRACT

Papaya leaf extract (Carica papaya L.) can be used as an alternative in the treatment of acne, due to the content of active compounds such as carpain which has antimicrobial effects. The purpose of this review is to determine the variation of concentration of ethanol extract of papaya leaves (Carica papaya L.) on the physical properties of topical preparations and antibacterial power against Propionibacterium acnes bacteria, the cause of acne. This article uses the Google Scholar article search method. The results show that increasing the concentration of papaya leaf extract affects the antibacterial activity as seen from the increase in the diameter of the inhibition zone against Propionibacterium acnes. In addition, the variation in extract concentration also affects the physical properties of the preparation, especially viscosity, where the higher the extract concentration, the higher the viscosity of the preparation. In addition, the higher concentration of papaya leaf extract proved to be more effective in inhibiting Propionibacterium acnes bacteria.

Keywords: Papaya leaf, Concentration, Propionibacterium acnes, Topical

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Narrative Review: Antibiotic Switch Therapy in Hospitalized Patients with Pneumonia in the Hospital

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ABSTRACT

Pneumonia is one of the main causes of morbidity and mortality, especially in hospitalized patients. Switch therapy, which is the transfer of antibiotics from intravenous to oral, is a strategy that can accelerate healing and reduce the length of hospitalization. This study is a narrative review that aims to examine the application of antibiotic switch therapy in hospitalized pneumonia patients and evaluate the most effective oral antibiotic options based on the results of scientific journals obtained. Using the narrative review method of national and international journals that discuss switch therapy in hospitalized pneumonia patients, with a descriptive approach based on study design, location, population, and therapy outcomes. The results obtained were six articles that met the inclusion and exclusion criteria. Based on the six journals analyzed, the most frequently used antibiotics in intravenous to oral therapy were from the third generation cephalosporin and fluoroquinolones groups, with the implementation time of switch therapy generally carried out on the 3rd to 5th day oftreatment.

Keywords: Switch therapy, Pneumonia, Intravenous to oral antibiotics, Hospitalization

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Optimization of Ethanol Solvent Concentration in Kersen Leaf Extract (Muntingia calabura) on Antibacterial Activity

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ABSTRACT

Muntingia calabura L. is known to contain bioactive compounds such as flavonoids, saponins, and tannins, which have potential antibacterial properties. The effectiveness of Muntingia calabura leaf extract is significantly influenced by the ethanol concentration used during the extraction process. This study aims to review and compare the effect of different ethanol solvent concentrations on the antibacterial activity of Muntingia calabura leaf extract against Escherichia coli. A narrative review approach was applied by collecting and analyzing various literature focusing on ethanol concentration and the antibacterial activity of Muntingia calabura leaf extract. Based on the literature reviewed, Muntingia calabura leaf extract with 75% ethanol concentration showed the largest inhibition zone against E. coli, with an average diameter of 19.83 mm. In contrast, lower ethanol concentrations (2%–10%) produced smaller inhibition zones and only exhibited antibacterial activity at certain concentrations. In conclusion, the antibacterial activity of Muntingia calabura leaf extract increases with higher ethanol concentrations used in the extraction process. Although its activity is still lower compared to synthetic antibiotics, this extract shows potential as a natural alternative for treating bacterial infections, especially in light of the growing issue of antibiotic resistance.

Keywords: Cherry leaf, Escherichia coli, Antibacterial, Ethanol extract, Solvent optimization

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Activity of Garlic (Allium sativum L.) as Anticancer: In Vivo

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ABSTRACT

Cancer is the second leading cause of death in the world after cardiovascular disease. In the last five years, the number of cancer cases worldwide reached around 43.8 million. In Indonesia, there were 396,914 cancer cases in 2020 with 234,511 deaths. Cancer treatment with chemotherapy has a number of disadvantages, because in addition to attacking cancer cells, this method also affects normal cells, causing various side effects both physically and psychologically. To overcome this, researchers are trying to conduct research by utilizing existing natural resources, one of which is garlic which has the potential as an anticancer. This article aims to provide an overview of the potential of garlic as an anticancer. The literature search method was carried out through PubMed, ScienceDirect, and Google Scholar, using the keywords "garlic as an anticancer in vivo", "garlic anticancer in vivo", and "Allicin anticholesterol", which resulted in 4 relevant scientific articles. Based on the results of the literature review, garlic (Allium sativum L.) has potential as an anticancer agent.

Keywords: Anticancer, Garlic, In vivo

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Antibacterial Activity of Cinnamon (Cinnamomum) Extract: Narrative Review

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ABSTRACT

This study is a narrative review that aims to evaluate the potential antibacterial activity of cinnamon (Cinnamomum) extract against various types of pathogenic bacteria based on the diameter of the inhibition zone produced through the agar diffusion method, both discs and pits. Data were collected from five scientific articles that met the inclusion criteria, published in indexed journals between 2017-2025. The results showed that cinnamon extract has antibacterial activity against bacteria such as Staphylococcus aureus, Escherichia coli, Salmonella typhi, Pseudomonas aeruginosa, Streptococcus mutans, and Lactobacillus acidophilus. The zone of inhibition formed varied depending on the type of solvent, test method, and concentration of extract used. Nonetheless, comparison between the results of the studies was difficult due to significant differences in the test parameters. This review supports the potential of cinnamon extract as a natural antibacterial agent and encourages further research with a standardized approach.

Keywords: Antibacterial, Cinnamon, Inhibition zone diameter, Diffusion method, Cinnamomum

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Narrative Review: A Study on the Effect of Variations Bases on the Characteristics of Based Peel-Off Mask Formulations

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ABSTRACT

Public awareness of the importance of skincare has driven the growth of cosmetic products, including peel-off facial masks, which are favored for their ability to cleanse pores and remove dead skin cells. Along with the increasing concern regarding ingredient safety, the use of natural ingredients has become a leading trend in product formulation. In the development of peel-off masks, the gel-forming base (gelling agent) plays a critical role in determining the physical characteristics of the preparation, such as viscosity, drying time, spreadability, and stability. This study aims to evaluate the influence of the type and concentration of gelling agents on the characteristics of natural-based peel-off masks using a narrative review approach. Data were obtained from scientific literature published between 2015 and 2025 through searches on Google Scholar, ScienceDirect, and DOAJ using relevant keywords. Out of 83 articles, 6 met the inclusion criteria. The review revealed that polyvinyl alcohol and carbomer 940 are the most commonly used bases. Carbomer 940 excels in providing high viscosity and stability, while polyvinyl alcohol forms a strong and comfortable film on the skin. The combination of multiple gelling agents, such as hydroxypropyl methylcellulose and polyvinyl alcohol, has also been shown to enhance formulation efficacy and active ingredient penetration. Physical characteristics such as homogeneity, pH, spreadability, and drying time are significantly influenced by the type and concentration of the base used. In conclusion, selecting the appropriate gelling agent is a key factor in determining the quality and effectiveness of natural-based peel-off masks. Therefore, optimal formulation should balance physical properties and user comfort.

Keywords: Formulasi, Masker peel-off, Gelling agent

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Relationship Between Adherence Medication and Quality of Life in Schizophrenia Patients

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ABSTRACT

Psychiatric disorders such as schizophrenia require long-term treatment. It is very important for schizophrenia patients to comply with taking schizophrenia medications regularly according to instructions in order to reduce the symptoms experienced. When symptoms can be controlled, patients will live their daily lives well. One of the challenges in long-term treatment is adherence with medication use. Low adherence with medication use can increase symptom recurrence. This can affect the patient quality of life. This article review aims to identify and summarize previous articles on how the relationship between drug adherence and the quality of life of schizophrenia patients. The method used in this article review is a literature search through electronic databases such as Google Scholar, PubMed, and the Garuda Portal. Adherence with antipsychotic medication affects the quality of life of schizophrenia patients. Counseling by health workers, especially pharmacists, has been shown to be effective in increasing adherence and has a positive impact on the environmental aspects of quality of life. adherence with antipsychotic medication is a key factor that significantly affects the improvement of the quality of life of schizophrenia patients, especially in terms of self-esteem and social relationships. Although demographic characteristics do not always have an effect, a holistic approach that considers psychological, social, and educational aspects is needed to support the success of long-term therapy for schizophrenia patients.

Keywords: Adherence, Quality of life, Schizophrenia

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Natural Compounding Nanoparticle Manufacturing Method

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ABSTRACT

Nanoparticles from natural compounds are one of the innovative approaches in modern pharmaceuticals that aim to increase the effectiveness and stability of bioactive compounds that naturally have limitations, such as low solubility, light stability, and bioavailability. This study aims to comprehensively describe the various methods used in the manufacture of nanoparticles from natural compounds, as well as highlight their advantages, disadvantages, and applications. This study was conducted through a narrative review method by selecting articles published between 2015 and 2024 from various scientific databases such as PubMed, ScienceDirect, and Google Scholar. The methods of making nanoparticles discussed include precipitation, emulsion-solvent evaporation, nanoprecipitation, and ionic gelation. The results of the analysis show that each method has unique characteristics that need to be adjusted to the type of compound used. Green synthesis or biosynthesis is also discussed as an environmentally friendly and increasingly popular method. The conclusion of this study shows the importance of choosing the right method to optimize the physicochemical properties and biological activity of nanoparticles from natural compounds.

Keywords: Nanoparticles, Natural compounds, Green synthesis, Formulation methods, Nanotechnology

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The Effect of Compliance in Taking Medication on the Incidence of Hypertension in Adult Patients at Panggang I Community Health Center

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ABSTRACT

Hypertension is a growing public health concern in Indonesia, including in the working area of Panggang II Public Health Center. One of the key factors in managing hypertension is patient compliance with antihypertensive medication. This study aims to review the effect of medication adherence on the incidence of hypertension in adult patients. A narrative review method was employed, analyzing four relevant studies published between 2015 and 2025. The literature was obtained through a Google Scholar search using related keywords. The review findings indicate a significant relationship between medication adherence and blood pressure control. Patients who adhere to their medication regimen tend to have better-controlled blood pressure compared to those who do not. Factors such as knowledge, education, access to healthcare services, and family support influence patient adherence. In conclusion, improving medication adherence through continuous education and regular monitoring is essential for achieving optimal hypertension control in adult patients.

Keywords: Adherence, Antihypertensive, Compliance, Hypertension

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Implementation of Shariah Principles in Health Services: Narrative Review

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ABSTRACT

Sharia-based health services are an innovation in the health system that integrates Islamic spiritual and ethical values into medical practice. This study aims to examine the effect of health worker satisfaction on the quality of sharia services, especially in the context of pharmaceutical services. This study uses a narrative review method of four scientific articles published in the period 2015–2025, with inclusion criteria in the form of explicit discussions on the application of Islamic values in health services. The results of the study indicate that the application of sharia principles in health services, such as maqashid sharia and Islamic ethics, has a positive impact on the satisfaction of health workers and patients. Health workers who work with a spiritual foundation report higher levels of job satisfaction, especially because work is seen as a form of worship. However, implementation in the field still faces challenges such as lack of training and inconsistency in the implementation of sharia-based procedures. Therefore, institutional commitment, ongoing education, and service standardization are needed to support the sustainability of sharia-based hospitals.

Keywords: Health worker satisfaction, Health services, Islamic hospitals

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Antioxidant Potential of Black Garlic Against Free Radicals

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ABSTRACT

Oxidative stress and degenerative diseases can result from excessive free radicals produced by modern lifestyles. Black garlic, a product of the fermentation process applied to fresh garlic, has been shown to contain bioactive compounds, including S-allyl cysteine, flavonoids, and phenolic compounds, which have been identified as having antioxidant properties. The present narrative review has been developed with the objective of conducting a rigorous evaluation of the antioxidant potential of black garlic. This evaluation is based on the results of three distinct experiments, which are commonly referred to as DPPH, ABTS, and FRAP tests, respectively. The results of these experiments will be critically analyzed to provide a comprehensive assessment of the antioxidant activity of black garlic. A comprehensive review of the extant literature, encompassing six scientific journals, has demonstrated that the fermentation of garlic consistently enhances antioxidant activity, with a maximal response generally observed within the timeframe of days 21 to 30. The DPPH (2,2-diphenyl-1-picrylhydrazyl) and ABTS (2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid)) methods are employed to measure the ability to capture free radicals, while FRAP (ferric reducing antioxidant power) assesses reducing capacity. The findings revealed that variations in extraction method, onion type, and fermentation duration influenced the outcomes. However, a consensus emerged from the collective analysis of these studies, indicating that the amalgamation of these three methods yielded a more comprehensive representation of the antioxidant capacity of black garlic. The results of the present study support the development of black garlic as a potential source of natural antioxidants in the functional food, pharmaceutical, and cosmetic fields.

Keywords: Antioxidant, Black garlic, DPPH, ABTS, FRAP, Fermentation

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The Influence of Video-Based Educational Media on Increasing Knowledge of Type 2 Diabetes Mellitus Patients

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ABSTRACT

Health education is an important approach in managing Type 2 Diabetes Mellitus. This narrative review aims to determine the influence or effectiveness of Type 2 Diabetes Mellitus educational videos on increasing knowledge of Type 2 Diabetes Mellitus patients. The method used is through literature searches in research journal databases, then reviewed and then 9 articles were obtained that met the inclusion and exclusion criteria. The results of the review of 9 articles show that the provision of educational media in the form of videos has a great influence on increasing the knowledge of Type 2 Diabetes Mellitus patients. Therefore, the conclusion from this narrative review is that video educational media has proven to be effective as an educational tool in increasing patient knowledge about the management of Type 2 Diabetes Mellitus.

Keywords: Education, Knowledge, Type 2 diabetes mellitus, Video

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The Effect of Different Extraction Methods of Java Bark (Lannea coromandelica (Houtt.) Merr) on Antibacterial

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ABSTRACT

Java bark (Lannea coromandelica (Houtt.) Merr.) is empirically used as a treatment for internal and external wounds. This plant is proven to be used as an antimicrobial against Staphylococcus aureus bacteria. The chemical compounds contained include flavonoids, phenols, and alkaloids that act as antibacterial agents. In obtaining these compounds can use a variety of extraction methods. This type of research is experimental to see the effect of Java bark extraction method on extract characteristics and antibacterial activity. The extraction used the same treatment in the ratio of sample and solvent (1:5), and the same extraction time for 3 hours. Extracts were obtained by heating on a waterbath until dry. Tests were carried out on the calculation of yield, KLT profile, and antibacterial activity. The results showed that the yield value on extraction with the reflux method (10.37%) was greater than the maceration method (7.79%). However, maceration and reflux methods produce the same compounds, namely phenol and flavonoid compounds. Meanwhile, the antibacterial test showed that the reflux method had a larger inhibition zone (20.7 mm) than the inhibition zone with the maceration method (20.5 mm). This results indicating reflux are more recommended for the next research.

Keywords: Antibacterial, Extraction method, Lannea coromandelica (Houtt.) Merr

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Compliance of Diabetes Mellitus Patients with Treatment: A Narrative Review

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ABSTRACT

Background: Diabetes (DM) is a chronic disease that requires long-term management, including adherence to treatment as one of the main factors in achieving optimal glycemic control. However, adherence to patients with DM therapy is a global challenge that affects the effectiveness of care and the quality of life of patients. Objective: This review aims to describe the various factors that affect adherence in patients with DM in treatment and their impact on clinical outcomes and strategies that can be used to improve adherence. Method: Writing occurs in the form of a story review by pursuing relevant literature from various scientific sources, including national and international journals over the past decade. This article was selected for discussion because of the suitability of the topic and its contribution. Results: Treatment adherence is influenced by various factors, including individual patient characteristics, complexity of treatment schemes, disease perception, social support, and interactions with health professionals. Non-income can lead to increased complications, hospitalizations and health costs. Various educational approaches, health techniques, and psychosocial support have been shown to be effective in improving adherence. Conclusion: Treatment adherence in diabetes patients is greatly influenced by various multidimensional factors. Overall and continuous interventions are needed to support disease adherence and optimal control.

Keywords: Diabetes, Compliance, Treatment

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Efficacy of Anti-Inflammatory, Anti-Irritant, and Antioxidant Effects on Semi-Solid Preparations Using Durian Peel Extract

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ABSTRACT

Durian (Durio zibethinus) is a popular tropical fruit in Southeast Asia, yet its peel is often discarded as waste. In fact, durian peel contains bioactive compounds such as flavonoids, tannins, and phenolic compounds that have potential as anti-inflammatory, anti-irritant, and antioxidant agents. This narrative review aims to evaluate the efficacy of durian peel extract in semi-solid formulations such as creams, gels. and ointments, based on available scientific data. The writing method involved a literature search through electronic databases including PubMed, ScienceDirect, and Google Scholar, using keywords such as "durian peel," "anti-inflammatory." "antioxidant," "anti-irritant," and "topical formulation." Articles were selected based on relevance, publication year (2015-2025), and the availability of laboratory or formulation data. The review findings indicate that durian peel extract demonstrates promising pharmacological activities, such as scavenging free radicals, inhibiting inflammatory mediators, and relieving skin irritation. Several semi-solid formulations containing this extract have also shown good physical stability and topical effectiveness. Although preliminary research results are positive, further preclinical and clinical studies are needed to ensure its safety and determine the optimal dosage. The development of topical formulations based on natural ingredients like durian peel represents an innovative step in supporting the natural and sustainable management of inflammation and skin irritation.

Keywords: Durian, Anti-inflammatory, Antioxidant, Anti-irritant, Semi-solid preparation, Narrative review

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Effectiveness of Valproic Acid in Adolescents with Bipolar Disorder

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ABSTRACT

Background: Bipolar is a mental health condition that is a leading cause of disability among adolescents, affecting cognitive, functional abilities and increasing the risk of death, especially by suicide. One commonly used medication is valproic acid. This narrative review aims to examine the effectiveness of valproic acid in adolescents with bipolar disorder.
Method: A literature review was conducted on articles from Google Scholar and PubMed that met inclusion criteria, including seminars, original research, and reviews/open reviews, published in the last 10 years (2015–2025) in English. Exclusion criteria included articles published over 10 years ago (<2015) and opinion articles.
Results: Valproic acid is the most frequently prescribed drug (93.3% of manic patients and 46.7% of bipolar depression patients). It is effective for mania, depression, and maintenance, with common side effects being sedation, fatigue, and tremor. Serum levels of 50–74 mg/L gave the best results in reducing relapse risk. However, the average serum level in patients was 79.8 mg/L. Females showed higher serum levels than males at the same dose. Conclusion: Valproic acid is effective for treating bipolar disorder in adolescents during mania, depression, and maintenance phases. However, regular monitoring of serum levels is necessary.

Keywords: Adolescents, Bipolar, Effectiveness, Valproic acid

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Application of Fourier Transform Infrared Spectroscopy (FTIR) in Authentication and Quality Assessment of Orange Essential Oil

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ABSTRACT

Orange essential oil is a natural product that is widely used in the cosmetic, pharmaceutical, and food industries. The authenticity and quality of orange essential oil are very important considering the many counterfeit products in circulation. Therefore, an effective method is needed to verify the authenticity and assess the quality of orange essential oil. One of the widely used methods is FTIR (Fourier Transform Infrared Spectroscopy). This study aims to examine the application of FTIR in the authentication and quality assessment of orange essential oil. FTIR can provide a unique spectrum for each type of orange, allowing accurate identification and facilitating verification of product authenticity. In addition, FTIR can also identify the main chemical compounds that affect the quality of orange essential oil. This study shows that FTIR is a fast, efficient, and effective method to ensure the quality and authenticity of orange essential oil, so it can be widely applied in industry.

Keywords: Authentication, FTIR, Orange essential oil, Authenticity, Quality

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Evaluation of Antibiotic Switch Therapy in Hospitalized Patients

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ABSTRACT

Infection is a disease caused by microorganisms (bacteria) and as a response of the body (fever) due to stimulation of the body's defense system. Antibiotics as a therapy to overcome infections, their use at the beginning of intravenous infection treatment. Side effects and length of hospitalization increase the use of long-term antibiotics, thus affecting the cost of care. Efforts to increase treatment efficiency by switching antibiotic therapy from intravenous to oral (switch therapy) are also rational efforts that can be made. The aim is to evaluate the effectiveness and safety of switch therapy in patients with infections. The method used is narrative review. Data collection uses descriptive methods (retrospective). Data in the form of patient characteristics, types of antibiotics, duration of administration, and clinical conditions. Data were analyzed descriptively quantitatively (presence, frequency, and average (mean)). The results of the majority of studies on replacement therapy were carried out from IV ceftriaxone to oral cefixime and the accuracy of replacement therapy had a positive impact on patients. It was concluded that switch therapy is effective and safe to be carried out according to clinical criteria (reducing the length of hospitalization, treatment costs, and the risk of complications of long-term intravenous antibiotic use without having to worry about reducing the effectiveness of treatment).

Keywords: Antibiotic, Infection, Inpatients, Switch therapy

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Narrative Review: The Role of Pharmacogenetics and Pharmacogenomics in Optimizing Therapy for Major Depression Disorder (MDD)

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ABSTRACT

Major depressive disorder (MDD) is a common mood disorder, with often unpredictable responses to antidepressant therapy. Individual genetic variations, particularly in CYP2C19 and CYP2D6 enzymes, have a major impact on drug metabolism, efficacy, and risk of side effects. This review aims to review the role of pharmacogenetics and pharmacogenomics in optimizing MDD therapy. The article search method was conducted through PubMed with the keywords "Pharmacogenetic", "MDD", and "Cytochrome P450", limited to publications from the last 10 years. The results showed that a single gene-based approach, such as CYP2C19 or CYP2D6, helps predict drug response and adjust dosage. Meanwhile, a combinatorial approach that considers several genes at once is superior in achieving therapeutic levels, accelerating clinical effects, and reducing side effects. The use of genetic testing has been shown to improve therapy accuracy and reduce the trial-and-error approach in antidepressant selection. These findings support the integration of pharmacogenetics and pharmacogenomics in clinical practice as a step towards more personalized and effective MDD therapy.

Keywords: Antidepressants, Major depressive disorder, Pharmacogenetics, Pharmacogenomics

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Potential Antioxidant Activity of Extracts Rose Flower (Rosa damascena Mill), Jasmine Flower (Jasminum sambac), and Butterfly Pea Flower (Clitoria ternatea)

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ABSTRACT

Free radical compounds are the result of normal metabolic processes in the body that can cause oxidation such as membrane damage, protein modification, DNA damage and cell death. The use of antioxidants can reduce and capture free radicals. Plants that have antioxidant activity are Rose Flower (Rosa damascena Mill), Jasmine Flower (Jasminum sambac), and Butterfly Pea Flower (Clitoria ternatea), which contain bioactive compounds such as saponins, tannins, phenolics, flavonoids, anthocyanins, steroids, phenols, and terpenoids. The purpose of this study was to determine the highest antioxidant activity of the plant using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) method. This Narrative Review uses a database taken from various articles through Google Scholar, ResearchGate. The results showed that the active substance from 70% solvent telang flowers had a high IC50 value compared to the others at 41.36 μg/mL.

Keywords: Antioxidant activity, Rose flower, Jasmine flower, Butterfly pea flower, DPPH, IC50

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The Relationship Between Knowledge of Type 2 Diabetes Mellitus Patients and Adherence to Treatment

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ABSTRACT

Type 2 diabetes mellitus is a chronic disease with increasing prevalence globally. Management of this disease requires patient adherence to treatment. A key factor influencing adherence is the patient's knowledge level. This narrative review aims to evaluate the relationship between knowledge and medication adherence in diabetic patients based on five published journals. The method used was a narrative review with a qualitative and descriptive approach based on relevant literature. The results showed that four out of five studies found a significant positive relationship between knowledge and adherence, with correlation strengths ranging from moderate to very strong. The conclusion of this review is that patient knowledge plays a crucial role in improving adherence to diabetes mellitus treatment.

Keywords: Adherence, Diabetes mellitus, Knowledge, Medication

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Narrative Review: Aktivitas Antioksidan Ekstrak Kulit Putih Semangka (Citrullus lanatus) dalam Berbagai Konsentrasi dan Jenis Pelarut

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ABSTRACT

Watermelon rind (Citrullus lanatus) contains the active compounds citrulline and lycopene, which have potential antioxidant properties. This study aims to review the antioxidant activity of watermelon rind at various extract concentrations and dosage forms, as well as the types of solvents used as extraction fluids, using a literature review method. The literature was obtained from the Google Scholar database. The results of the review showed that the IC_{50} values varied between 45.26–443.10 μg/mL depending on the type of solvent, extraction method, and formulation. Solvents with high polarity, such as ethanol and methanol, tend to be effective in extracting antioxidant compounds. Maceration is the most widely used technique because it can maintain the stability of the active compounds. Therefore, watermelon rind extract has the potential to be a natural source of antioxidants, particularly in topical formulations using polar solvents and optimal extract concentrations.

Keywords: Antioxidant, Citrullus lanatus, IC50, Watermelon rind extract

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Relationship Between Patient Characteristics in Treatment Compliance and Prevention of Complications in Diabetes Mellitus Patient

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ABSTRACT

Diabetes mellitus (DM) is a global chronic disease characterized by hyperglycemia due to impaired insulin secretion and/or action. The reviewed articles show that the success of DM management is greatly influenced by patient compliance with treatment, dietary regulation, physical activity, and social support and health education. Factors such as age, education level, duration of illness, and perception of illness also play an important role in therapy compliance. Education-based interventions through pharmacist, pharmacist, and information technology approaches have been shown to be effective in increasing patient awareness and glycemic control. Several studies also highlight the importance of using standardized instruments such as the MMAS and a comprehensive approach in evaluating patient behavior. This review emphasizes the need for a multidisciplinary approach and ongoing interventions to reduce complications and improve the quality of life of DM patients, especially in type 2 DM patients who are prone to non-adherence to therapy.

Keywords: Diabetes mellitus, Medication compliance, Patient education, Blood sugar control, MMAS

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Effect of Temperature Variations on the Preparation of Nifedipine Solid Dispersion by Hot Melt Extrusion Method

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ABSTRACT

Temperature variation in the hot melt extrusion process plays an important role in the formation of nifedipine solid dispersion in amorphous form. This method is used to convert the crystalline structure to amorphous in order to improve the solubility and bioavailability of the drug. Temperature changes during the process greatly affect dispersion stability, especially in heat-sensitive active compounds such as nifedipine. High temperatures risk thermal degradation, while low temperatures can trigger uneven mixing and recrystallization. Extrusion at 130°C produces the most stable amorphous dispersions, with particle sizes of 60-100 nm and strong drug-polymer interactions. Therefore, this narrative review aims to examine the effect of temperature variation during the hot melt extrusion process on nifedipine solid dispersion characteristics, based on characterization data using Transmission Electron Microscopy (TEM), Differential Scanning Calorimetry (DSC), and Fourier Transform Infrared Spectroscopy (FTIR) obtained from relevant original articles in indexed journals both nationally and internationally.

Keywords: Amorphous, Hot melt extrusion, Nifedipine, Polymer, Solid dispersion, Thermal stability

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The Effectiveness of Stevia Plant Phytochemicals (Stevia rebaudiana) as a Natural Sweetener in Reducing Blood Glucose

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ABSTRACT

Stevia rebaudiana is a widely recognized plant known for its natural sweetening properties, primarily due to its phytochemical content, such as steviol glycosides—particularly stevioside and rebaudioside. These compounds exhibit a sweetness level far greater than sucrose but contain negligible calories, making stevia an ideal sugar substitute for individuals with diabetes mellitus or those aiming to control sugar intake. Beyond its function as a sweetener, numerous studies have demonstrated that the active compounds in stevia possess significant biological activities, notably hypoglycemic effects or the ability to reduce blood glucose levels. These effects are believed to occur through several mechanisms, including stimulation of insulin secretion from pancreatic beta cells, enhancement of insulin sensitivity in peripheral tissues, and inhibition of glucose absorption in the intestines. Additionally, stevia exhibits antioxidant properties that help protect cells from oxidative stress commonly associated with hyperglycemia. Based on various in vitro and in vivo studies, regular consumption of stevia extract has been shown to significantly lower blood glucose levels without causing toxic effects or metabolic disturbances. This indicates that stevia functions not only as a natural sweetener but also offers therapeutic potential in glycemic control. With this background, stevia holds great promise for development as part of a functional nutrition strategy and as a supportive therapy in the prevention and management of diabetes mellitus in a natural, effective, and safe manner.

Keywords: Phytochemicals, Natural sweeteners, Stevia natural sweetener

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The Potential Antibacterial Activity of 96% Ethanol Extract of the Skin and Fruit of Kepok Banana (Musa paradisiaca) as an Antibacterial that Causes Acne

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ABSTRACT

Acne is a persistent skin disorder caused by the bacteria Propionibacterium acnes, which damages the pilosebaceous unit. This type of bacteria secretes lipase, which breaks down sebum (oil glands) on the skin's surface, creating fatty acids. This causes irritation and acne. Kepok bananas (Musa paradisiaca) are one of the natural ingredients that have been used for acne for a long time. Antibacterial compounds such as saponins, alkaloids, tannins, quinones, and flavonoids have been found in kepok bananas (Musa paradisiaca). The aim of this research is to investigate the antibacterial properties and potential benefits of using 96% ethanol extract from yellow kepok banana waste (Musa paradisiaca) to treat acne. In addition, the bioactive compounds included and how they work against harmful bacteria will be discussed in this narrative review, using the keywords "pisang kempul" or Musa sp. and acne. The search for papers was conducted manually using two databases, namely Google Scholar and Open Knowledge Maps, and three articles published in the last ten years (2015–2025) were obtained.

Keywords: Antibacterial, Kapok banana (Musa paradisiaca), Acne

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Authentication of Commercial Essential Oil from the Betel Leaf Family Using Gas Chromatography-Mass Spectrometry (GC-MS) Method

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ABSTRACT

Commercial betel leaf oil is widely used in the food, cosmetic, and pharmaceutical industries due to its bioactive compounds such as phenolics, terpenoids, and aldehydes that have high biological activity. The main compounds found in betel leaf essential oil include eugenol, chavicol, chavibetol (methyl eugenol), estragol, and caryophyllene, which are known to have antimicrobial, anti-inflammatory, and antioxidant activities. The high economic value and increasing market demand make betel leaf oil susceptible to counterfeiting, so an accurate authentication method is needed to ensure the authenticity and quality of the product. This study aims to authenticate commercial betel leaf oil using the Gas Chromatography–Mass Spectrometry (GC-MS) method. The samples analyzed included pure distillation betel leaf oil and commercial products that claimed to contain the oil. The GC-MS method was used to identify and analyze the main volatile compounds that are typical markers of betel leaf oil. The pure oil was then mixed with adulterants such as synthetic solvents or other vegetable oils to produce reference mixtures in various concentrations. The chromatogram profile of the mixture was compared with pure oil to identify marker compounds and significant differences in compound patterns. The results of the analysis were used to design an authentication method based on the typical chemical profile detected by GC-MS, so that it is able to distinguish genuine betel leaf oil from adulterated products.

Keywords: Authentication, GC-MS, Betel leaf, Essential oil

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The Effect of PEG 400 as a Co-Surfactant on the Physicochemical Characteristics of Mefenamic Acid Self-Nanoemulsifying Drug Delivery System (SNEDDS)

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ABSTRACT

Mefenamic acid is a drug classified as BCS class II with low solubility, which can affect its bioavailability. Self-nanoemulsifying Drug Delivery System (SNEDDS) is a drug delivery system that can be used to enhance drug solubility. SNEDDS consists of oil, surfactant, and co-surfactant, which spontaneously form a nanoemulsion when in contact with water under mild agitation. Co-surfactants play a role in reducing surface tension and preventing separation between the oil and water phases. PEG 400 is a co-surfactant commonly used in SNEDDS formulations. Therefore, this narrative review aims to examine SNEDDS formulations using PEG 400 as a co-surfactant based on the characterization of their physicochemical properties. This narrative review was conducted by collecting, identifying, and analyzing data obtained from relevant original articles in indexed national and international journals regarding SNEDDS formulations of mefenamic acid using PEG 400 as a co-surfactant. In this review, mefenamic acid SNEDDS using PEG 400 as a co-surfactant exhibit good physicochemical characteristics in improving solubility, thereby helping to enhance their bioavailability.

Keywords: Co-surfactant, Mefenamic acid, PEG 400, Physicochemical characteristics, SNEDDS, Solubility

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Functional Food Antioxidants in Prevention of Diabetes: Potential of the Kalakala Plant (Litsea angulata)

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ABSTRACT

Type 2 diabetes mellitus (T2DM) is a chronic disease that can be prevented through a healthy lifestyle and consumption of functional foods rich in bioactive compounds such as antioxidants. Kalangkala (Litsea angulata), an endemic plant of Kalimantan, contains flavonoids, alkaloids, tannins, and **β**-sitosterol which have the potential as antioxidants and antidiabetics. This article is a narrative review study that aims to explore the potential of Kalangkala as a functional food for the prevention of T2DM naturally. Data were obtained from scientific literature through Google Scholar and Publish or Perish. The results of the study showed that methanol and ethyl acetate extracts of Kalangkala had the highest antioxidant and antidiabetic activities through inhibition of **α**-glucosidase and **α**-amylase enzymes. Its essential oil also showed antimicrobial potential. With its bioactive compound content, Kalangkala has the potential to be developed as a functional food in the management of T2DM naturally and sustainably.

Keywords: Antioxidants, Functional food, Kalangkala, Litsea angulata, Type 2 diabetes mellitus

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Narrative Review: Body Butter Formulation Components with Active Plant Extract Ingredients

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ABSTRACT

Body butter has the ability to hydrate, moisturize, nourish, and protect the skin more effectively than lotions. The components of body butter formulations typically consist of a fat base, active ingredients, emulsifiers, emollients, preservatives, and fragrances, with varying concentrations. The purpose of this narrative review is to examine and analyze the various components of body butter formulations, especially fat bases such as cocoa butter, milk butter, and red palm oil, as well as the concentrations used in these formulations. The main focus of this review is to explore how each component affects the effectiveness of body butter in maintaining skin moisture and health. The method used in this research involved literature searching through the Google Scholar database with relevant keywords such as "body butter," "formula," and "base," with articles selected from 2020 to 2025. The results of the analysis show that base ingredients such as cocoa butter, milk butter, and red palm oil play a significant role in improving skin hydration, with varying concentrations providing different outcomes. In conclusion, the selection of the right formula components and concentrations greatly influences the quality and effectiveness of body butter in skin care.

Keywords: Base, Body butter, Extract, Skin

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Formulation of Clove Flower Essential Oil (Syzygium aromaticum) in Microemulsion and Nanoemulsion Preparations

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ABSTRACT

Clove essential oil (Syzygium aromaticum) which is rich in eugenol has pharmacological activities such as anti-inflammatory and analgesic. However, because clove oil has volatile properties and is susceptible to heat, a delivery system is needed that can increase its stability. The purpose of the review is to determine the formulation of clove essential oil in the form of nanoemulsion and microemulsion preparations. The review method was carried out by searching on Google scholar, publish or pheris, The keywords used were formulation, optimization, clove essential oil, nanoemulsion, microemulsion. The articles searched were articles published in the period 2015 to 2024. The search results produced 8 articles that met the criteria. The results showed that in the manufacture of microemulsions and nanoemulsions with a concentration of 5% essential oil using additional ingredients tween 80 and span 400 with concentrations (10,20,30,40,50%). Tween 80 is used as a surfactant and span 400 as a co-surfactant). The conclusion of this review is that essential oils can be formulated in microemulsion and naniemulsion preparations.

Keywords: Clove, Essential oil, Eugenol, Microemulsion, Nanoemulsion

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Potential of Azadirachta indica as an Antibacterial in Various Extraction Methods

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ABSTRACT

Bacterial infection is one of the health problems in tropical countries such as Indonesia. In general, one of the causes of bacterial infections in tropical countries is Staphylococcus aureus bacteria. The prevalence of antibiotic resistance in Indonesia for Methcillin-Resistant Staphylococcus aureus (MRSA) reaches 25% - 50%. Inappropriate use of antibiotic drugs can cause bacterial resistance. So this encourages researchers to explore information related to alternative natural ingredients that have antibacterial properties. One of them is the neem leaf plant (Azadiratcha indica) known to contain flavonoid compounds, alkaloids, and saponins that function in inhibiting bacterial growth. Based on literature studies, neem leaf extracts can be made by maceration and perchloration methods, and the solvents used are 70% ethanol and 96% ethanol. With both extraction methods and solvents showed the results that neem leaf extract can provide antibacterial properties against Staphylococcus aureus, Escherichia coli and Pseudomonas Aeruginosa bacteria. Evidenced by the formation of inhibition zone on the formed on the bacterial media reached 13 mm which is included in the category of strong inhibition (11-20 mm). The higher the concentration of neem leaf extract, the higher the inhibition zone formed.

Keywords: Antibacteri, Azadirachta indica, Neem leaf, Extraction method

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Antibacterial Papaya Leaves (Carica papaya) Against Escherichia coli

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ABSTRACT

Escherichia coli bacterial infection remains a serious challenge in public health due to its widespread distribution and high level of resistance to synthetic antibiotics. This encourages the search for alternative natural-based treatments that are safe, effective, and sustainable. One of the local plants that has the potential to be developed as an antibacterial agent is papaya leaves (Carica papaya), which have been empirically used in traditional medicine and are known to contain active compounds such as alkaloids, flavonoids, saponins, tannins, and terpenoids. This study aims to systematically evaluate scientific evidence related to the effectiveness of papaya leaf extract on the growth of E. coli bacteria. The method used is a narrative review of seven relevant research articles, focusing on variations in methods, concentrations, and antibacterial test results. The results of the study showed that ethanol extract of papaya leaves was able to provide a significant inhibitory effect on E. coli, especially at concentrations above 20%, with the lowest minimum inhibitory concentration (MIC) recorded at 1%. These findings support the potential of papaya leaves as a promising antibacterial phytopharmaceutical candidate.

Keywords: Antibacterial, Carica papaya, Papaya leaves, Escherichia coli, Ethanol extract, Phytochemicals

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Effect of Concentration Combination of Talc and Magnesium Stearate as Glidant on the Flow Properties of Captopril

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ABSTRACT

Variations in concentration of a combination of talcum and magnesium stearate as a glidant plays an important role in improving the flow properties of captopril in the tablet formulation process. Captopril, which has poor flow and compression properties, requires the addition of appropriate excipients to ensure the smoothness of the manufacturing process and the physical quality of the preparation. Glidant serves to improve the flowability of powders by reducing the cohesiveness between particles. Improper glidant concentration can cause suboptimal powder flow, thus affecting tablet mass homogeneity and weight uniformity. The combination of talcum and magnesium stearate at a certain concentration is able to producestable powder flow, indicated through evaluation of powder flow parameters. Therefore, this narrative review aims to examine the effect of varying concentrations of the combination of talcum and magnesium stearate on the flow properties of captopril, based on characterization data of the physical property of powder flow from various original articles published in nationally and internationally accredited journals.

Keywords: Captopril, Evaluation, Glidant, Talc, Magnesium stearate

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Evaluation of Antihypertensive Activity of Ethanol Extract of Dayak Onion (Eleutherine palmifolia)

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ABSTRACT

This narrative review focuses on the use of Bawang Dayak (Eleutherine palmifolia) as an antihypertensive agent. The objective of this study is to examine the mechanisms and effectiveness of Bawang Dayak bulb extract in lowering blood pressure, including its vasodilatory activity, diuretic effects, and inhibition of angiotensin-converting enzyme (ACE). Eleutherine palmifolia is an endemic plant of Kalimantan that has been traditionally used for generations, particularly in treating cardiovascular disorders. Various in vitro and in vivo studies have shown that flavonoids, saponins, and alkaloids contained in the bulbs possess potential antihypertensive effects. This study employs a literature review method by collecting data from Google Scholar, PubMed, and other scientific portals, comparing results of antihypertensive activity tests, effective dosages, and the safety profile of Bawang Dayak extract. The findings are expected to provide a scientific basis for the development of antihypertensive phytopharmaceuticals derived from this local plant.

Keywords: Bawang Dayak, Eleutherine palmifolia, Antihypertensive, Bulb extract, Vasodilation, ACE inhibition

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A Group of Chemical Compounds from the Peel of the Kaffir Lime Plant (Citrus hystrix) Which Have the Potential to Act as Larvicides

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ABSTRACT

Introduction: The Aedes aegypti mosquito is a vector mosquito that causes Dengue Hemorrhagic Fever (DHF). In 2016, the number of malaria cases was estimated at 216 million people worldwide (Dewi et al. 2019). In DHF, an estimated 50 million people were infected with the dengue virus worldwide (Hilaludin et al., 2015). Meanwhile, from 1968 to 2009, the World Health Organization (WHO) recorded Indonesia as the country with the highest DHF cases in Southeast Asia (Ministry of Health, 2020). Vector control using chemical insecticides has many resistant effects to these insecticides. One option to avoid this is the need for natural larvicides derived from various plants, one of which is plants from the rutaceae family. Purpose: This study aims to identify compounds of the highest rutaceae family that have the potential to be natural larvicides. Design: Literature review. The data or journals used come from the Google scholar, Scinpase, and Scopus databases. Method: In this literature review search using the keywords "larvicide" AND "Rutaceae Family" AND "Aedes aegypti" using indexed national journals published in 2015-2025. Results: Sweet orange (Citrus sinensis) showed the highest effectiveness as a larvicide against Aedes aegypti, with the lowest LC 50 value and a relatively fast larval death time.

Keywords: Larvicide, Aedes aegypti, Rutaceae family

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Narrative Review: The Effect of Compliance with Psychiatry Drug Use on Behavioral Changes in Schizophrenia Patients

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ABSTRACT

Schizophrenia is a chronic disease that disrupts brain function, including thinking, social interaction, language use, and emotional management, and causes difficulty distinguishing reality. The prevalence of schizophrenia in Indonesia has increased from 1.7 per 1,000 population in 2013 to 6.7 per 1,000 population in 2018. Although 84.9% of patients have received treatment, 51.1% of them do not take their medication regularly. This non-compliance is a major challenge in the treatment of schizophrenia because it can worsen the patient's condition and increase the risk of relapse. The main goal of schizophrenia treatment is to reduce the frequency and severity of symptoms, improve social function, and improve quality of life. This study uses a narrative review method to summarize the literature on medication adherence in schizophrenia patients. The results of five national studies show a significant relationship between medication adherence and reduced relapse in schizophrenia patients. Educational interventions, such as pharmacist counseling and health education, have been shown to be effective in improving adherence, reducing psychotic symptoms, and positively impacting patients' quality of life. This underscores the importance of a holistic and sustainable approach to the management of schizophrenia, involving health workers, families, and social support to ensure adherence to treatment and prevent relapse.

Keywords: Behavioral change, Compliance, Schizophrenia, Quality of life

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Antioxidant Potential of Senggugu Plant (Clerodendrum serratum (L.) Moon.): DPPH Free Radical Scavenging

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ABSTRACT

Antioxidants are compounds that can protect body cells from free radical attacks that can cause degenerative diseases, namely cell damage. Exposure to free radicals for humans is cumulative, resulting in disease if the body's defense system (immunity) decreases. Antioxidants can be classified into synthetic and natural antioxidants. Synthetic antioxidants have harmful side effects on the body, namely toxic and mutagenic, so that interest in natural antioxidants is increasing. The senggugu plant (Clerodendrum serratum (L.) Moon) is a natural antioxidant that has shown its potential to ward off free radicals. The purpose of this article review is to determine the antioxidant potential of the senggugu plant in warding off free radicals using the DPPH method. The article review method uses qualitative research with a descriptive method that begins with identification, screening, and analysis of data obtained from literature that meets the inclusion criteria. The article databases used include Garuda Kemdikbud and Google Scholar. The results of the literature study analysis show that the senggugu plant has higher antioxidant activity in the ethyl acetate fraction of the roots compared to its leaves. The highest antioxidant potential based on the IC50 value was obtained at 12.52 ± 2.21 μg/mL, which is included in the very strong category.

Keywords: Antioxidant activity, Clerodendrum serratum, DPPH

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The Use of Spectrophotometry in the Analysis of Sulfate Ions in Water

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ABSTRACT

Water is an important element in human life and activities. One of the chemical parameters for assessing water quality is the level of sulfate ions contained. Excess sulfate ions in water can cause digestive problems such as diarrhea. Based on Permenkes No. 492/MENKES/PER/IV/2010, the maximum limit of sulfate in drinking water is 250 mg/L, while Permenkes No. 32 of 2017 sets a limit of 400 mg/L for water for hygiene and sanitation purposes. The UV-Vis spectrophotometry method is widely used for sulfate ion analysis. This method relies on the reaction between sulfate ions and barium chloride in an acidic environment, forming a barium sulfate precipitate in the form of a fine suspension. The turbidity of this suspension is proportional to the sulfate concentration and is measured at a wavelength of 420 nm.

Keywords: Water, Sulfate ion, Spectrophotometry, Turbidimetry

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Spektrofotometri sebagai Metode Analisis Ion Sulfat dalam Air

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ABSTRACT

Water is an essential element in human life and activities. One of the chemical parameters to assess water quality is the sulfate ion concentration. Excessive sulfate ions in water can cause digestive disorders such as diarrhea. Based on Minister of Health Regulation No. 492/MENKES/PER/IV/2010, the maximum limit for sulfate in drinking water is 250 mg/L, while Minister of Health Regulation No. 32 of 2017 sets the limit at 400 mg/L for water used for hygiene and sanitation purposes. The UV-Vis spectrophotometry method is widely used for the analysis of sulfate ions. This method relies on the reaction between sulfate ions and barium chloride in an acidic environment, forming a fine suspension of barium sulfate. The turbidity of this suspension is proportional to the sulfate concentration and is measured at a wavelength of 420 nm.

Keywords: Water, Sulfate ion, Spectrophotometry, Turbidimetry

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Study of the Potential of Tamoxifen Drug as Hormone Therapy for Breast Cancer

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ABSTRACT

In hormonal treatment of breast cancer using tamoxifen is usually combined with chemotherapy or other hormone therapy such as aromatase inhibitors to increase the effectiveness of treatment and reduce the risk of recurrence. However, this combination must be done with strict supervision because of the potential of drugs that can affect the effectiveness of tamoxifen and increase the risk of side effects. Tamoxifen has significant benefits in reducing the risk of breast cancer recurrence, and increasing patient life expectancy. However, the use of tamoxifen can cause side effects, including the potential of tamoxifen with other drugs, which risk reducing the effectiveness of therapy and causing other health complications. This study aims to provide an overview of the treatment pattern, side effects of hormonal therapy, and side effects of tamoxifen so that it can ensure the effectiveness and safety of therapy. Therefore, an overview of the potential of tamoxifen is very important to ensure the success of therapy and patient safety.

Keywords: Breast cancer, Tamoxifen, Effectiveness

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Narrative Review: Safety Irritation Test of Clove Flower Essential Oil (Syzygium aromaticum (L.) Merr. & L.M.Perry) from Various Topical Formulations

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ABSTRACT

Clove essential oil (MABC) containing eugenol is useful as an anti-inflammatory so it is developed in various preparations. The safety of a preparation is one of the requirements for a quality product preparation. The purpose of this review is to examine the irritation test of clove essential oil (Syzygium aromaticum (L.) Merr. & L. M. Perry) from various preparations. This review took 7 articles from various literatures using Google Scholar, pubmed, science direct, NCBI. Literature searches were conducted with the keywords ''rritation test'', ''eugenol'', ''various preparations'', and ''clove essential oil'' which were released in the last 10 years, namely 2015 to 2025. The search results showed that essential oils have been formulated using various preparations including water-soluble ointment bases, hydrocarbon ointment bases, gels, emulgels and lotions. The formulation of clove essential oil in these preparations does not cause irritation and is safe to use.

Keywords: Irritation test, Essential oil, Syzygium aromaticum

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The Potential of Effective Concentration of Kaffir Lime (Citrus hystrix) Plant Extract as a Larvicide

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ABSTRACT

Dengue fever remains a major public health issue in Indonesia, transmitted by the Aedes aegypti mosquito. The continuous use of chemical insecticides has led to resistance and negative environmental impacts. Therefore, there is a need for natural and eco-friendly alternatives. One potential plant-based larvicide is kaffir lime (Citrus hystrix DC.) leaves, which contain active compounds such as flavonoids, tannins, and essential oils. Four separate studies demonstrated that the extract of Citrus hystrix leaves, particularly at concentrations between 0.8% and 1%, effectively causes high mortality in Aedes aegypti larvae, reaching over 90%. Thus, Citrus hystrix leaf extract shows promising potential to be developed as a natural larvicidal agent in dengue vector control programs.

Keywords: Concentration, DHF, Kaffir lime, Larvicide

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Antibacterial Activity of Javanese Wood Bark (Lannea coromandelica)

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ABSTRACT

This narrative review focuses on the use of Kayu Jawa bark as an antibacterial agent. The purpose of this study was to examine the antibacterial activity of Kayu Jawa bark (Lannea coromandelica) on Staphylococcus aureus, Shigella dysenteriae, Escherichia coli, and Pseudomonas aeruginosa. Lannea coromandelica or Kayu Jawa is an endemic plant native to Indonesia that is known for its various benefits. Almost all parts of this plant, which is included in the Anacardiaceae family, including the bark, can be used as traditional medicine. In addition, research shows that the results of Kayu Jawa bark extraction have the potential as an antibacterial agent. This study uses a literature review method with collecting data using Google Scholar and Portal Garuda.

Keywords: Antibacterial, Javanese wood bark, Lannea coromandelica

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The Effect of Drug Use Education on Increasing Compliance in Type 2 Diabetes Mellitus Patients

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ABSTRACT

Diabetes Mellitus (DM) is a chronic disease associated with metabolic disorders characterized by high blood sugar levels exceeding normal limits. Compliance with taking medication is an important key to successful therapy. The success of a treatment is not only influenced by the quality of health services, attitudes and skills of officers, attitudes and lifestyles of patients and their families but also by patient compliance with their treatment. Education is a preventive effort that can change the lifestyle of diabetes mellitus patients so that the level of compliance with taking medication can increase. The purpose of this study was to determine the effect of educational media on drug use on increasing compliance in type 2 diabetes mellitus patients. The method used in this study was a literature review, which involved relevant research and met the inclusion criteria. The journals used were journals in the 2015-2025 period with the keyword the effect of educational media on compliance with taking medication in diabetes mellitus patients. The results of the review of these four journals showed that health education with the help of educational media can have an effect on increasing compliance with taking medication in diabetes mellitus patients. The conclusion of this narrative review is that educational media in the form of leaflets can increase compliance higher than audio visuals, WhatsApp social media, and posters.

Keywords: Type 2 diabetes mellitus, Education, Compliance

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The Effect of Bleeding Polymorphisms on VCORC1 Gene on Warfarin Treatment

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ABSTRACT

Background: Type 2 Diabetes Mellitus (T2DM) is a chronic metabolic disorder characterized by hyperglycemia due to insulin resistance and/or relative insulin deficiency, in which cardiovascular and thromboembolic complications often occur, requiring anticoagulant therapy such as warfarin to prevent thrombotic events, but the response to warfarin therapy shows significant interindividual variability which is largely influenced by genetic factors, especially polymorphisms in the VCORC1 (Vitamin K Epoxide Reductase Complex Subunit 1) gene which encodes a key enzyme in the vitamin K cycle, where the -1639G>A (rs9923231) variant has been shown to widely affect warfarin sensitivity and dose requirements through the mechanism of modulating VCORC1 enzyme activity, while in T2DM patients there are additional complex factors such as chronic hyperglycemia, dyslipidemia, oxidative stress, and systemic inflammation that can interact with these genetic variations as well as potential pharmacological interactions with antidiabetic drugs such as metformin and sulfonylureas that may affect warfarin pharmacokinetics, so that a comprehensive understanding of The role of VCORC1 polymorphism in the context of T2DM is very important to optimize safe and effective anticoagulation therapy by considering pharmacogenomic aspects to achieve stable INR therapy targets while minimizing the risk of bleeding complications or therapy failure. Method: The method used was a literature review from various national and international journals in the Google Scholar and Pubmed databases for articles published in the last 10 years from the year (2015-2025). Results: Of the five international journals, the analysis of the VCORC1 gene has been proven to cause bleeding. The AA genotype requires a 30-50% lower dose of warfarin than the GG genotype. However, it still requires re-monitoring regarding INR monitoring. Conclusion: The VCORC1 gene has been shown to cause bleeding, the AA genotype requires a 30-50% lower dose of warfarin than the GG genotype. However, it still requires re-monitoring regarding INR monitoring.

Keywords: Gene, Warfarin, Polymorphism, VCORC1, Diabetes mellitus

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Pengaruh Media Edukasi Terhadap Efikasi Diri Pasien Diabetes Melitus Tipe 2

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ABSTRACT

Type 2 diabetes mellitus (T2DM) requires effective self-management, with self-efficacy playing a key role in treatment adherence. This narrative review examines the impact of educational media on enhancing self-efficacy in T2DM patients. Literature was sourced from Google Scholar using specific keywords and inclusion criteria. Results show that media such as animated videos, booklets, and direct education significantly mprove self-efficacy. Tailored educational methods are more effective in promoting patient understanding and adherence.

Keywords: Booklet, Education, Educational media, Self-efficacy, Type 2 diabetes mellitus

*Corresponding author

Narrative Review: The Effect of Various Gelling Agents in Toothpaste Gel Formulation of Sirih Keraton Leaf Extract (Cissus discolor)

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ABSTRACT

Gel-based toothpaste is one of the most popular dosage forms due to its soft texture, ease of use, and the comfortable sensation it provides in the oral cavity. The selection of a base as a gelling agent plays a crucial role in determining the physical characteristics, stability, and effectiveness of the gel toothpaste formulation. Sirih Keraton leaf (Cissus discolor) is known to contain active compounds such as polyphenols and flavonoids, which have potential as natural antibacterial agents, making it a promising candidate for development into an herbal toothpaste formulation. This review article aims to explore suitable gelling agents for the gel toothpaste formulation of Sirih Keraton leaf extract. The research methodology includes leaf extraction using the maceration method with ethanol as the solvent, formulation of the gel with various bases such as carbomer, hydroxypropyl methylcellulose (HPMC), and sodium carboxymethylcellulose (Na CMC), as well as evaluation of the physical characteristics of the formulations, including viscosity, pH, spreadability, and foam height. The expected outcome of this study is the identification of the most suitable gelling agent base that produces a stable, effective gel toothpaste with optimal physical characteristics, thereby supporting the development of herbal products based on local natural ingredients.

Keywords: Base, Gelling agent, Toothpaste gel

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Potential of PlantCrystals Technology to Enhance Antioxidant Activity of Angkak as Natural Active Ingredient in Lip Balm Preparation

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ABSTRACT

Angkak is the result of fermenting white rice using Monascus purpureus mold which is widely known as a natural dye and traditional medicine. The content of red pigment and bioactive compounds in it makes angkak a potential antioxidant agent to ward off free radicals. The antioxidant activity of angkak has been scientifically proven through the DPPH method, with an IC50 value showing high effectiveness, although there are variations due to differences in solvents, concentrations, and extraction techniques. Several studies show that the IC50 value of angkak extract ranges from 1.16–34.29 mg/mL, which is categorized as a very strong antioxidant activity. To optimize this potential, a modern technological approach is needed in processing natural materials. One promising approach is PlantCrystals technology, which is a system for delivering active particles from plants produced through a top-down process into ultrafine crystals (<1 µm) using high pressure. This technology is able to increase the stability, effectiveness, and bioavailability of active compounds in plant extracts. The application of PlantCrystals to angkak has great potential in the development of lipbakm products as a more efficient and applicable natural antioxidant ingredient in the pharmaceutical and cosmetic fields.

Keywords: Angkak, Antioxidant, Lip balm, PlantCrystal

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Rasionalitas dan Faktor-Faktor yang Mempengaruhi Rasionalitas Penggunaan Antibiotik pada Pasien Ulkus Diabetikum di Rumah Sakit

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ABSTRACT

Diabetic foot ulcer is a chronic complication commonly found in patients with type 2 diabetes mellitus and often requires antibiotic therapy. Inappropriate antibiotic use can lead to bacterial resistance, increased treatment costs, and worsening patient conditions. Therefore, it is important to evaluate the accuracy of antibiotic use through a structured approach, one of which is the Gyssens method. This study aims to evaluate the rationality of antibiotic use in diabetic foot ulcer patients with type 2 diabetes mellitus in a regional hospital in Yogyakarta using the Gyssens method. The study employed a retrospective observational design. Data were collected from medical records of patients diagnosed with diabetic foot ulcers and receiving antibiotic therapy. Rationality assessment was carried out using the Gyssens method, which categorizes antibiotic therapy based on the appropriateness of indication, dosage, duration, and drug spectrum.

Keywords: Antibiotic, Diabetic foot ulcer, Gyssens method, Rationality, Type 2 diabetes mellitus

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The Effect of Variation in Polyvinyl Alcohol (PVA) Polymer Concentration on Drug Release in Various Pharmaceutical Preparations

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ABSTRACT

Polyvinyl Alcohol (PVA) is a synthetic polymer that is widely used in pharmaceutical formulations as a controlled release matrix. Variations in PVA concentration are known to affect the drug release profile, both in the form of films, solutions, and 3D printed tablets. This study aims to examine the effect of PVA concentration on drug release based on the results of recent literature studies. Three main articles were analyzed with a focus on the relationship between PVA concentration, dosage form and drug release results. The results showed that increasing PVA concentration generally slows down drug release due to the formation of a denser and viscoelastic matrix. At high concentrations the release effect can decrease due to limited PVA-drug interactions. PVA particle size and tablet design, such as the presence of channels (channeled tablets) also affect the dissolution rate. This study concludes that choosing the right PVA concentration is very important and must be adjusted to the characteristics of the drug and the dosage form used, especially in the context of the development of modern pharmaceutical technology such as 3D printing.

Keywords: Polyvinyl alcohol, Drug release, Formulation, 3D printing, Matrix system, Pharmaceutical dosage forms

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Antioxidant Activity in Aloe Vera

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ABSTRACT

Aloe vera is a herbal plant known to have various bioactive compounds with high antioxidant activity in counteracting free radicals that cause degenerative diseases. This review aims to analyze and summarize the results of research related to the antioxidant activity of Aloe vera based on the extraction method, type of solvent, and combination of ingredients used. The four scientific articles that are the source of data are experimental studies that use valid methods such as DPPH, ABTS, and HPLC in measuring antioxidant activity and the content of bioactive compounds such as aloin. The results of the review show that the antioxidant activity of Aloe vera is greatly influenced by the extraction technique and type of solvent, where polar solvents such as methanol and ethanol provide more optimal results. The combination of ethanol extract of Aloe vera and green algae (Ulva lactuca L.) at a ratio of 1:2 produces the highest antioxidant activity with an IC50 value of 16.51 μg/mL. In contrast, processing into commercial and homemade beverage products significantly reduces antioxidant activity due to the heating process and the addition of additional ingredients such as sugar. Based on the results of the study, it can be concluded that Aloe vera has great potential as a source of natural antioxidants, but its effectiveness is greatly influenced by the processing method and product formulation. Standardization of extraction and formulation processes is important to optimize their benefits in the field of functional food and health.

Keywords: Antioxidant, DPPH, Extraction, Aloe vera

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The Effect of Polymer Type on Cumulative Drug Release of Theophylline Sustained-Release (SR) Tablets

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ABSTRACT

Theophylline is a bronchodilator drug that has a rapid rate of elimination that can cause high fluctuations in plasma levels. Sustained Release (SR) system is a system design in tablets so that the drug is able to maintain prolonged therapeutic action. This system controls the release base on the polymer matrix so that the target treatment is successfully achived. The main parameter used to evaluate the drug release of these tablets is % cumulative drug release (% CDR). This parameter will show the percentage of total drug release at a given time interval. The physicochemical characteristics of the polymer can affect the % CDR. Therefore, this narrative review aims to examine the effect of polymer on % CDR. This narrative review was conducted by collecting and analyzing data obtained from relavant original articles in national and international indexed journals regarding the effect of polymer type on % CDR of SR theophylline tablets.

Keywords: Cumulative drug release, Polymer, Sustained release, Theophylline

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Association of Erythropoietin Use with Patient's Quality of Life Hemodialysis

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ABSTRACT

Chronic kidney disease is a progressive condition that cannot be cured, with high morbidity and mortality rates. Patients with hemodialysis symptoms generally experience symptoms of anemia, erythropoietin therapy is needed to stimulate the differentiation of erythroid progenitor cells and trigger the release of reticulocytes from the bone marrow into the bloodstream. The purpose of this study was to determine the relationship between erythropoietin use and the quality of life of hemodialysis patients. The method used in this study was a descriptive method with a narrative review using 5 of 310 articles that met the exclusion and inclusion criteria. The results of the study showed that erythropoietin (EPO) therapy generally improved the quality of life of chronic kidney failure patients by improving anemia and hemoglobin levels. The conclusion of the five studies in the table consistently shows that erythropoietin therapy is very effective in increasing hemoglobin levels and overcoming anemia in CKD patients undergoing hemodialysis.

Keywords: Anemia, Erythropoietin, Hemodialysis, Hemoglobin, Quality of life, Chronic kidney disease

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The Mechanism of Doxorubicin as an Anticancer Agent: Narrative Review

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ABSTRACT

Cancer is the leading cause of death worldwide, with 10 million deaths in 2020 and an estimated threefold increase by 2040. One of the most widely used chemotherapy drugs is doxorubicin due to its effectiveness against various types of cancer. Anthracyclines like doxorubicin form the basis of several modern polychemotherapy regimens. Currently, doxorubicin is widely used to treat various types of cancer. Although it is frequently used due to its broad-spectrum efficacy, doxorubicin also has side effects, namely cardiovascular toxicity. The aim of this study is to understand the mechanisms of doxorubicin in various pathways as an anticancer agent. The method used was a Systematic Literature Review (SLR). The result of the study indicate that doxorubicin can act through several mechanisms, such as DNA intercalation, inhibition of topoisomerase II, formation of reactive oxygen species, and activation of the apoptosis pathway, leading to DNA damage and cancer cell death. The IC50 values of doxorubicin in various studies demonstrate strong anticancer activity, both as a single agent and in combination. Combination therapy can enhance efficacy and reduce side effects, particularly cardiotoxicity.

Keywords: Anticancer, Doxorubicin, IC50, Mechanism

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Potential of Limonene Compounds as Natural Larvicides in Control of Aedes aegypti Mosquito Vectors

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ABSTRACT

Dengue Hemorrhagic Fever (DHF) remains a significant global health threat, particularly in endemic countries such as Indonesia. Vector control of Aedes aegypti and Aedes albopictus mosquitoes is commonly conducted using synthetic chemical larvicides such as temephos; however, long-term use may lead to resistance and environmental concerns. Therefore, alternative larvicides derived from natural, environmentally friendly, and safe sources are needed. This study aimed to evaluate the potential of limonene from kaffir lime (Citrus hystrix) peel extract as a natural larvicide. The review was conducted using a narrative review method with the PRISMA approach. Scientific articles were retrieved from the Scholar database using Harzing's Publish or Perish 8 software, applying inclusion criteria of English-language original research articles published between 2020 and 2025. Four eligible articles were selected. The results indicated that limonene exhibited significant larvicidal activity at various LC50 values, acting through cuticle penetration, disruption of the central nervous system, and damage to larval digestive tissues. In conclusion, limonene from Citrus hystrix peel extract shows strong potential as an effective, environmentally friendly larvicide with a reduced risk of resistance in dengue vector control programs.

Keywords: Concentration, Dengue hemorrhagic fever, Limonene, Natural larvicide

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Review Evaluation of the Role of Pharmacists in Drug Information Services (DIS) at Community Health Centers

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ABSTRACT

Drug Information Services (DIS) are a key aspect of pharmaceutical practice that support the rational use of medicines, especially in community health centers (puskesmas) as primary healthcare facilities. Pharmacists play an active role in providing accurate and accountable drug information to patients and healthcare professionals. This study aims to evaluate the role of pharmacists in DIS at puskesmas through a narrative review of seven articles that met inclusion and exclusion criteria, published between 2020 and 2025, and obtained from Google Scholar and PubMed. The findings indicate that DIS significantly improves patient knowledge, compliance, and clinical outcomes, particularly in hypertension and tuberculosis cases. Pharmacist-led education has been shown to reduce blood pressure, improve quality of life, and enhance therapy adherence. However, the effectiveness of DIS is influenced by sociodemographic factors such as age, education, occupation, as well as limitations in infrastructure and pharmaceutical personnel. Innovations such as leaflet media and telehealth services show promise in expanding access to drug information. Therefore, continuous optimization and integration of DIS are necessary as strategies to improve healthcare quality and therapeutic outcomes in puskesmas.

Keywords: Community health center, Drug information service (DIS), Patient compliance, Pharmacist

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Antibiotics in Surgical Practice: A Literature Review of Rationale for Use Based on the DDD Method

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ABSTRACT

Antibiotic therapy plays a crucial role in the prevention and management of infections in surgical patients. However, irrational use can lead to antimicrobial resistance (AMR), increased healthcare costs, and poor clinical outcomes. This study is a literature review of scientific articles obtained from the international PubMed database, with no publication year restrictions, using the PICO method to analyze the rationality of antibiotic use in surgical patients through the Defined Daily Dose (DD) approach by WHO The review examined antibiotic usage data from various healthcare facilities, reported in DDD units. Findings show that beta-lactam antibiotics, particularly cephalosporins, are the most commonly used, often administered empirically without culture and sensitivity testing. Several reports indicated DDD values exceeding WHO standards, suggesting overuse; whereas underuse was found in some settings and linked to increased postoperative complications. This review concludes that the DDD method is effective for evaluating antibiotic consumption and highlights the importance of implementing antimicrobial stewardship programs (ASPs), updating antibiotic use guidelines, and conducting regular audits to ensure rational antibiotic practices in surgical care.

Keywords: Defined daily dose (DDD), Antibiotic therapy, Rational drug use, Surgical patients, Antibiotic control

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Evaluation of the Role of Pharmacists in Providing Drug Information Services (DIS) at Hospital

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ABSTRACT

Drug information service (DIS) is an important activity carried out by pharmacists to provide objective information about drugs to patients and other health workers, with the aim of supporting the rational use of drugs. This study aims to evaluate the implementation of PIO and patient satisfaction with pharmaceutical services in health facilities. This study was conducted using a narrative review approach, through a process of identification, selection, and analysis of nine scientific articles that met the established inclusion and exclusion criteria with journal publication years (2015-2025). The results of the review show that in general, PIO services in several hospitals in Indonesia are quite good, especially in terms of communication, speed of service, and pharmacist friendliness. However, there are still some shortcomings such as incomplete drug information, lack of educational media such as leaflets, and limited interactions during the COVID-19 pandemic. In addition, the ability and knowledge of pharmacy personnel in delivering drug information also needs to be improved. Therefore, improving the quality of PIO is very important to support patient satisfaction and compliance, and improve safety in drug use.

Keywords: Pharmacist, Patient compliance, Patient satisfaction, Drug information service (PIO), Hospital

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Potential of Various Types Sargassum as an Antioxidant for Zebrafish Embryo in Various Solvents

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ABSTRACT

Antioxidants are substances that play a significant role in preventing oxidative damage caused by free radicals, which are known to cause various degenerative diseases such as cancer, cardiovascular disorders, and neurodegenerative diseases. As concerns about the potential side effects of synthetic antioxidants increase, interest in natural antioxidant sources is growing. One potential candidate is the genus Sargassum, a group of brown algae that contains bioactive compounds such as polyphenols, flavonoids, and fucoidans. To assess the antioxidant activity of this algae, an extraction process was carried out using various types of solvents, then tested using zebrafish embryos (Danio rerio) as a relevant animal model in biomedical studies. The method used in writing this Narrative Review was compiled using the Systematic Literature Review (SLR) approach, through a systematic review of scientific literature published between 2015 and 2025 and registered in a reputable database. Based on the results of the study, the resulting extract showed high antioxidant capacity, although at certain concentrations it could cause toxic responses and affect normal embryo development.

Keywords: Antioxidant, Sargassum spp, Solvent extraction, Zebrafish embryo

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The Utilization of PlantCrystals Technology to Enhance the Antioxidant Activity of Moringa Leaves (Moringa oleifera L.) in Gel Formulations

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ABSTRACT

Moringa oleifera leaves contain various bioactive compounds such as flavonoids, tannins, alkaloids, and polyphenols that function as natural antioxidants. The effectiveness of these compounds is greatly influenced by the type of solvent and extraction method used. PlantCrystals technology is an innovation based on nanotechnology that enhances the release and bioactivity of active compounds without organic solvents. This narrative review aims to evaluate the potential of PlantCrystals in enhancing the antioxidant activity of moringa leaves and its application in topical gel formulations. Literature was gathered from Google Scholar in the last 10 years (2015-2025). Results show that moringa leaf extract has the highest antioxidant activity using ethyl acetate as a solvent with an IC value of 14.301 ppm. The gel shows good physical stability and is able to maintain antioxidant capacity. The application of PlantCrystals significantly reduces the IC value and increases effectiveness up to nine times. This technology is promising in the development of environmentally friendly antioxidant capacity

Keywords: Moringa oleifera, Antioxidants, PlantCrystals, Topical gel

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Halal Authentication of Fatty Acid Content in Commercial Products Using Fourier Transform Infrared (FTIR) Method

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ABSTRACT

Halal products, especially food and cosmetic products, are important for Muslim consumers. The potential for mixing non-halal products and fraud for financial gain is a serious problem. One of the critical components in cosmetics is fatty acids that can come from halal and non-halal animal fats or vegetable fats. The purpose of this study was to narratively review the use of the FTIR method in halal authentication of fatty acid content in commercial products. This study was conducted using the narrative review method and PRISMA guidelines. The results of the study of 13 articles showed that the FTIR technique has a high ability to distinguish the typical spectrum of various types of fats based on infrared wave numbers, especially when combined with chemometric analysis. High accuracy and fast and non-destructive analysis processes make this method very potential to be implemented in the halal assurance system. Thus, FTIR can be a tool for appropriate identification in the process of determining halal products in the food, cosmetic, and pharmaceutical industries.

Keywords: Animal fat analysis, Halal food analysis, Halal authentication, Lipids, FTIR spectroscopy

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The Potential of Java Wood Plant (Lannea coromandelica) as Antibacterial

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ABSTRACT

Java wood plant (Lannea coromandelica (Houtt.) Merr.) has been traditionally used for a long time by South Sulawesi community, especially the Bugis and Makassar tribes, as a medicinal plant to cure outside and inside wounds. Leaves and bark are also used to cure sprains, gout, diarrhea, bruises, wounds, and dysentery. Different investigations have shown that the extracts of the plant have excellent antibacterial activity. Antibacterial tests show that ethanol and ethyl acetate extracts of leaves and bark of Java leaves and bark possess antibacterial activity against growth of bacteria such as Escherichia coli, Staphylococcus aureus, Pseudomonas sp., Vibrio parahaemolyticus, Propionibacterium acnes, Staphylococcus epidermidis, and Shigella dysenteriae. Antibacterial activity is due to flavonoid content of compounds which have been reported to exhibit the potential as antibacterial agents. The formed inhibition zones were weak to very strong, depending on the type of extract, concentration, and material state. The antibacterial activity of this Java wood plant leaves room for the development of natural ingredient-based medicines that assist in the fight against antibiotic resistance naturally and in an environmental-friendly manner.

Keywords: Antibakterial, Java wood bark extract (Lannea coromandelica), Zone of inhibition

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Antibacterial Activity on Grape Seeds (Vitis vinifera L.) with Different Types of Solvents

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ABSTRACT

Grape seeds (Vitis vinifera L.) are part of the grape fruit that has antibacterial activity. Grape seeds are known to contain phenolic compounds that have potential as antibacterial agents. Research results show that the antibacterial activity of grape seed extract is influenced by the solvent used in the extraction process. Most studies indicate that extracts using polar solvents (ethanol, methanol, water) exhibit greater antibacterial activity compared to non-polar solvents, as evidenced by the zone inhibition values. Two main points were reviewed: the inhibition zone value and the effect of solvents on antibacterial activity. Methods: Narrative reviews based on journals from Publish or Perish, Google Scholar, PubMed, and Journal Garuda. Data was collected from indexed publications from 2015–2025. Result: Seven journals were identified that grape seed extracts with polar solvents (water, ethanol, methanol) contain more antibacterial activity than non-polar solvents (n-hexane). Polar solvents produce a larger inhibition zone than non-polar solvents. This is due to the ability of polar solvents to extract phenolic compounds that have antibacterial properties. Conclusions: Solvents play a significant role in influencing antibacterial activity. Polar solvents produce extracts with greater inhibition zone values than non-polar solvents. Therefore, selecting the right solvent is very important to maximize the effectiveness of grape seed extract as a natural antibacterial agent.

Keywords: Antibacterial, Antimicrobial, Grape seeds, Solvents, Vitis vinifera L.

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Giving Blood Enhancing Supplements as Anemia Therapy in Adolescent Girls

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ABSTRACT

Anemia is one of the most common health problems among adolescents especially adolescent girl, Anemia is defined as a condition in which the number of red blood cells or hemoglobin (Hb) levels in the blood is lower than average. This condition can have negative impacts such as affecting concentration, energy, academic achievement and quality of life. So that efforts can be made in overcoming anemia, namely by giving blood enhancing supplements. This writing aims to determine the results of a review of articles related to the effect of giving blood-boosting supplements as a therapy for anemia in adolescents. The narrative review method was carried out using pubmed and Google Scholar databases to identify scientific literature based on inclusion criteria. The inclusion criteria were research articles published between 2015-2025, with full text and written in Indonesian or English. The PEO (population, exposure and outcome) question frame made it easier to determine the search strategy. keywords used were " female Adolescent" AND "Anemia" AND "Effectiveness". There were 4 articles that met the eligibility of the narrative review analysis. Giving blood supplements to adolescents is significantly effective in increasing hemoglobin levels to prevent anemia.

Keywords: Anemia, Blood supplement, Adolescent girls

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Antibacterial Activity of Avocado Plant (Persea americana Mill) Against Acidogenic Bacteria

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ABSTRACT

Avocado plants (Persea americana Mill) are known to be rich in bioactive compounds such as flavonoids, tannins, and saponins that have the potential as natural antibacterials. Lactobacillus acidophilus, Staphylococcus aureus and Streptococcus mutans are main acidogenic bacteria that causes dental caries, produces lactic acid from carbohydrate fermentation that causes enamel demineralization. This study aims to summarize the results of research on the antibacterial activity of various parts of the avocado plant against asidogenic bacteria. The narrative review method was used by reviewing articles from the PubMed, Google Scholar, and ScienceDirect databases in the last 10 years. The results showed that the fruit skin had the highest inhibition zone (27 mm), followed by the leaf part (16.91 ± 0.15 mm), fruit flesh, and seeds. the fruit skin show the strongest potential as an antibacterial agent against caries- causing bacteria and are worthy of being developed in the formulation of dental health products.

Keywords: Antibacterial, Oral bacteria, Lactobacillus acidophilus, Persea americana

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Optimization of Semisolid Durian (Durio zibethinus) Extract Formulation

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ABSTRACT

This narrative review focuses on the preparation of durian as an active ingredient in a preparation that is rich in benefits in making semisolid preparations. The purpose of this study was to examine the optimization of the formulation to make semisolid preparations from durian extract. Durio zibethinus or durian is one of the superior tropical fruits that not only has high commercial value, but also contains bioactive compounds such as polysaccharides, tannins, and flavonoids. These compounds have the potential as antioxidants, anti-inflammatories, and antimicrobials, so that durian extract can be used in the development of drug preparation products. In addition, research shows that variations in durian extraction can determine the best formula so that it can maximize the potential of the durian in semisolid preparations. This study uses a literature review method by collecting data using Google Scholar and Google Direct Search.

Keywords: Durian extract, Semi-solid preparations, Formulation optimization

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Narrative Review: Evaluation of Antibiotic Use Patterns in Inpatients with Pneumonia in the Hospital

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ABSTRACT

Pneumonia is an inflammation of the lungs due to acute respiratory tract infection, mainly caused by Streptococcus pneumoniae. This disease is one of the leading causes of death from respiratory tract infections, both in the community and in hospitals. Antibiotics are the main treatment for pneumonia. This narrative review aims to evaluate the pattern of antibiotic use in hospitalized pneumonia patients using Gyssens and Defined Daily Dose (DDD) analysis. The study was conducted using a narrative review design, using literature obtained through Google Scholar and Semantic Scholar in the period 2020–2024. Of the total 246 articles found, 9 articles met the inclusion criteria (original articles related to antibiotic use in pneumonia, hospitalized patients, adult patients) and were further analyzed. The purpose of this review is to provide an overview of the pattern of antibiotic use in hospitals to support efforts to improve the rationality of antibiotic therapy in pneumonia patients. The results showed that third-generation cephalosporins, especially ceftriaxone, were the most frequently prescribed antibiotics. Evaluation using the Gyssens method shows variations in the level of rationality of antibiotic use in various hospitals in Indonesia, from 9 research articles reporting rational use of up to 77.2% (category 0), and finding significant irrationality (eg, 86% irrational use). The DDD method shows high antibiotic consumption, where ceftriaxone often exceeds WHO standards (eg: 139.28 DDD/100 patient-days). This review emphasizes the importance of evaluating and improving policies to improve the rationality of antibiotic use and prevent resistance.

Keywords: Pneumonia, Antibiotics, Gyssens method, DDD method

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The Effect of Garlic Extract (Allium sativum L.) as Anticholesterol: A Narrative Review

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ABSTRACT

Hypercholeterolemia is a condition of increasing blood cholesterol levels that exceed normal levels. This condition can be a major risk factor for cardiovascular diseases such as atherosclerosis, stroke, hypertension, and coronary heart disease. Although pharmacological therapies such as statin-class drugs are effective in lowering cholesterol levels, their long-term use can cause side effects. Therefore, the search for alternative natural ingredient-based therapies continues to be developed, one of which is through the use of medicinal plants. Garlic (Allium sativum) is known to contain allicin-active compounds that can potentially be an anticholesterol agent. A number of studies have shown cholesterol-lowering effects from garlic. The search for literature was conducted in the 2015-2025 range and 4 articles met the criteria. This review aims to determine the effectiveness or effectiveness of garlic as an anticholesterol agent in in vivo research. A review of this article found that garlic has an effect on lowering cholesterol due to the presence of allicin content in garlic that can inhibit HMG-CoA enzymes in the formation of cholesterol in the liver.

Keywords: Hypercholesterolemia, Garlic, Anticholesterol, In vivo

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Identification of Contaminant in Coffee Using Liquid Chromatography: Narrative Review

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ABSTRACT

Coffee is one of the major commodities that offers health benefits but is also susceptible to contamination by various harmful substances that may pose risks to consumer health. The production and storage processes play a role in contamination levels, particularly through moisture exposure that can promote the growth of fungi producing mycotoxins. Therefore, highly sensitive and selective analytical methods are required to ensure accurate detection. Various techniques have been employed to identify contaminants in coffee, including liquid chromatography, which excels in multi-component analysis with high precision. This article aims to assess the types of contaminants found in coffee and determine the most suitable liquid chromatography method for analysis. This review article utilizes databases from PubMed, Science Direct, Google Scholar, and Semantic Scholar using the keywords "Contaminant" AND "Coffee" AND "Liquid Chromatography." Research findings indicate that coffee may contain various contaminants such as mycotoxins, pesticides, glyphosate, and acrylamide. The most common mycotoxins are aflatoxin, fumonisin, ochratoxin A, and zearalenone. The LC-MS/MS method is highly effective in detecting multiple mycotoxins due to its high sensitivity, while LC-HRMS is superior in multi-class compound analysis.

Keywords: Coffee, Contaminants, Herbicide, Liquid chromatography, Mycotoxins, Pesticides

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The Potential of Plant Species from the Vitaceae Family as Antibacterial Agents

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ABSTRACT

The Vitaceae family, which includes various species such as Vitis vinifera (grape) and Tetrastigma spp., is known to contain a wide range of secondary metabolites, such as flavonoids, tannins, saponins, and alkaloids. These compounds are recognized for their broad biological activities, including antibacterial properties. Several studies have shown that extracts from the leaves, stems, and fruits of various Vitaceae species can inhibit the growth of pathogenic bacteria such as Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa. This activity holds potential as a natural antibacterial alternative, especially in light of the increasing resistance to conventional antibiotics. This study is a literature review that examines research findings from the past decade regarding the potential of Vitaceae plants as antibacterial agents. The review highlights the potential of the Vitaceae family in the development of plant-based antibacterial agents, as well as the importance of further exploration into their mechanisms of action and pharmaceutical applications.

Keywords: Vitaceae, Grape, Antibacterial, Bioactive compounds, Antibiotic resistance

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A Narrative Review: Quality of Life of Type II Diabetes Mellitus Patients in Indonesia

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ABSTRACT

Type 2 Diabetes Mellitus is a chronic disease with a continuously ncreasing prevalence in Indonesia. In 2024, Indonesia ranked fifth in the world for the number of diabetes cases. In addition to causing metabolic complications, Type 2 Diabetes Mellitus negatively affects patients' quality of life in physical, psychological, and social domains, Quality of life has become an essential indicator for evaluating the management of chronic diseases. This narrative review aims to provide an overview of the quality of life of Type 2 Diabetes Mellitus patients in various hospitals in Indonesia, with a focus on physical, psychological, and social aspects. The study design used is descriptive with a cross-sectional approach, employing valid measurement instruments. Literature was obtained from databases such as PubMed, Google Scholar, ResearchGate, and national platforms like Sinta, Selected studies used quantitative methods with instruments such as SF-36, EQ-5D, DQOL, and WHOQOL-BREF. The number of respondents in the reviewed studies ranged from 58 to 137 participants. The results showed that most patients experienced significant declines in physical well-being, emotional health, and social interaction, with the severity of impact varying based on the type of therapy received. These findings highlight the importance of addressing psychosocial and behavioral aspects in Type 2 Diabetes Mellitus management. Strengthening care strategies and patient support systems is essential to improve quality of life and reduce diabetes-related complications.

Keywords: Measurement, Quality of life, Type 2 diabetes mellitus

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Potential of Antibacterial Agent for Diabetic Wounds From Ethyl Acetate Extract of Patikan Kebo (Euphorbia hirta L.) Leaves

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ABSTRACT

Diabetic ulcers were one of the chronic complications that were susceptible to bacterial infection. This study aims to determine the antibacterial activity of ethyl acetate extract of patikan kebo leaves (Euphorbia hirta L.) based on variations of extract concentration against isolated bacteria of diabetic wounds. Extraction was carried out by maceration method using ethyl acetate solvent. The extract was tested for extract parameters quality with phytochemical screening, determination of water and ash content, and antibacterial activity. Antibacterial activity was carried out by well diffusion method. The results of phytochemical screening showed that the leaf extract contained flavonoids, tannins, terpenoids, and polyphenols. The water content of the leaf extract was 6.24% ±0.81, and the ash content met the standards of the Indonesian Herbal Pharmacopoeia Edition II, which was not more than 6.8%. Antibacterial testing showed that the extract of patikan kebo leaves at concentrations of 6%, 8%, 10% produced an inhibition zone of 8.63 mm ±0.32 (moderate); 11.12 mm ±0.32 (strong); and 13.67 mm ±0.80 (strong). The results of statistical tests using One Way-ANOVA showed a significant value of 0.000 <0.05, which means that there is a significant difference in the antibacterial activity of variations in the concentration of patikan kebo leaf extract. Based on these results, the greater the concentration of the extract, the stronger the antibacterial activity of the ethyl acetate extract of patikan kebo leaves.

Keywords: Antibacterial, Diabetic wounds, Diffusion, Euphorbia hirta L., Phytochemicals

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Antibacterial Activity Test of Clove Flower Essential Oil (Syzygium aromaticum) Against Staphylococcus aureus, Pseudomonas aeruginosa, and Propionibacterium acnes in Pharmaceutical Preparations

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ABSTRACT

Bacterial skin infections such as acne are one of the common health problems caused by bacteria such as Staphylococcus aureus, Pseudomonas aeruginosa, and Propionibacterium acnes. This review aims to determine the antibacterial activity of preparations containing clove flower essential oil against S. aureus, P. aeruginosa, and P. acnes. The search was conducted on Google Scholar and Publish or Perish scientific databases with keywords: antibacterial, clove flower essential oil, staphylococcus aureus, pseudomonas aeruginosa, propionibacterium acnes. The articles searched were those published in the last 10 years (2015-2025). There were 9 articles
that met the criteria with the search results showing antibacterial activity of clove flower essential oil in oil, gel, cream, nanooemulsion, nanoparticle, and emulgel preparations. against S. aureus, P. aeruginosa, and P. acnes bacteria indicated by the inhibition zone value in the range of 2.30-26.30 mm. This shows that clove flower essential oil has potential as an alternative active ingredient in the development of antibacterial pharmaceutical preparations for the treatment of acne on the skin.

Keywords: Nanoparticles, Zone of inhibition, Skin infection, Anti-acne

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Chemical Compounds in Red Betel (Piper crocatum L.) That Have Potential as Diabetic Wound Medicine

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ABSTRACT

Diabetic wounds are one of the most challenging chronic complications due to persistent hyperglycemia that disrupts tissue regeneration and immune response. One promising alternative therapy is the use of medicinal plants, including red betel (Piper crocatum L.). This study aims to review the chemical compounds in red betel with potential wound-healing activity for diabetic ulcers. A narrative review was conducted using the PRISMA approach by screening relevant scientific articles from Scopus and Google Scholar published between 2020–2024. The results show that red betel contains several active compounds, including flavonoids, tannins, saponins, alkaloids, polyphenols, and eugenol. Each compound demonstrates various activities, such as antioxidant, antimicrobial, anti-inflammatory, and tissue regeneration. Among these, flavonoids showed the highest potential, with an ability to reduce wound area by up to 84%, enhance angiogenesis, and increase fibroblast activity. In conclusion, flavonoids are the most promising compounds in red betel for diabetic wound healing and should be further developed as active ingredients in phytopharmaceutical products.

Keywords: Active compounds, Chemical compounds, Diabetic wound, Red betel, Wound healing

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Relationship Between Medication Compliance and Reduction of Blood Pressure in Hypertension Patients: A Narrative Review

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ABSTRACT

Hypertension is one of the most common non-communicable diseases and is a major burden on the health system, both clinically and economically. The use of appropriate and efficient antihypertensive drugs is very important to control blood pressure and minimize complications and treatment costs. This study aims to evaluate the pattern of antihypertensive drug use and analyze the cost of treatment of inpatients with hypertension in hospitals. This study was conducted non-experimental using a descriptive research design of a retrospective health phenomenon. Data were obtained from medical records of outpatients and inpatients with a primary diagnosis of hypertension. The results of the study showed that medication compliance for people with high blood pressure is very important because taking antihypertensive drugs regularly can help control blood pressure, thereby reducing the risk of organ damage such as the heart, kidneys, and brain in the long term. Currently available antihypertensive drugs have been shown to play an important role in controlling blood pressure and reducing the risk of cardiovascular complications in hypertensive patients.

Keywords: Adherence, Blood pressure control, Hypertension

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Quantitative Analysis of Tannin in Bungur (Lagerstroemia speciosa Auct. non (L.) Pers.): Narrative Review

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ABSTRACT

Bungur (Lagerstroemia speciosa Pers.) is one of the medicinal plants that grows in Indonesia. In traditional medicine, this plant is used as a diabetes medicine, generally used in the form of decoction and also used to treat kidney stones, hypertension, diarrhea, dysentery and blood in the urine. Bungur contains chemical compounds, such as saponins, flavonoids, and tannins. This study aims to conduct a quantitative analysis of the tannin content in bungur using the UV-Vis spectrophotometry method. Dried bungur are extracted with 70% ethanol solvent through the maceration method. The extract is then analyzed for its tannin content using tannic acid as a standard. The results showed that bungur has a tannin content of X% w/w. This tannin content supports the potential of bungur as a raw material for phytopharmaceuticals or herbal products.

Keywords: Analysis quantitative, Tannin, Bungur

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Various Methods in the Development of Lipid Nanoparticles: A Narrative Review

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ABSTRACT

Lipid nanoparticles have emerged as a versatile platform for a variety of applications, particularly in pharmaceutical and biomedical fields. This narrative review aims to explore the significant developments in lipid nanoparticle research, covering their composition, primary fabrication methods, diverse therapeutic applications, and challenges faced in their clinical translation. Lipid nanoparticles offer unique advantages in terms of drug stability, bioavailability, and targeting potential. This review summarizes advances in manufacturing techniques, including homogenization, emulsification, and solvent-based methods, and highlights the role of surface modification to enhance nanoparticle performance and specificity. Furthermore, the review discusses the applications of lipid nanoparticles in drug delivery, vaccines, and diagnostic agents for various diseases. Finally, challenges related to characterization, toxicity, and scalability of production are identified to provide perspectives on future research directions in the field of lipid nanoparticles.

Keywords: Lipid nanoparticles, Production methods

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A Literature Review on the Antibiofilm Activity of Red Onion (Allium cepa L.) Extract Against Pathogenic Bacteria

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ABSTRACT

Biofilms represent a major microbial survival strategy that enhances resistance to antibiotics and host immune responses. One alternative approach to combat biofilm-associated infections is the use of natural agents, including red onion (Allium cepa L.) extract, which is rich in antibiofilm compounds such as flavonoids, saponins, and sulfur-containing substances. This narrative review aims to summarize and analyze the scientific evidence regarding the antibiofilm activity of red onion extract and related varieties against various pathogenic microorganisms. A total of nine articles that met the inclusion criteria were evaluated qualitatively. The findings indicate that red onion extract can inhibit the formation and facilitate the degradation of biofilms produced by Gram-positive bacteria, Gram-negative bacteria, and pathogenic fungi. The efficacy is influenced by concentration, type of extract, and testing methods. Some studies also demonstrated significant results in in vivo models. Based on current evidence, red onion extract holds promise as a natural antibiofilm agent. However, further research is required to evaluate toxicity, formulation development, and clinical efficacy for potential medical applications.

Keywords: Antibiofilm, Bacteria, Shallot

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The Influence of Hypoglycemia Polymorphism on the CYP2C9 Gene in Sulfonylurea Treatment

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ABSTRACT

Background: Type 2 diabetes mellitus is a disease characterized by insulin resistance or the body's inability to produce enough insulin to maintain normal blood sugar levels. Sulfonylureas are medications used to treat type 2 diabetes mellitus (T2DM) and are the first-line treatment for T2DM patients. Sulfonylureas have a mechanism of action that stimulates beta cells in the pancreas to produce more insulin. CYP2C9 is a major cytochrome P450 (CYP) enzyme. Therefore, CYP2C9 plays a crucial role in drug metabolism, especially sulfonylurea drugs. If polymorphism occurs in that gene, it will affect the drug's activity, potentially causing hypoglycemia. However, there are several studies that show that if CYP2C9 is combined with the POR gene carrier, the occurrence of hypoglycemia will increase because the POR gene works to reduce drug activity. The CYP2C9 carrier gene that causes a decrease in hypoglycemia is POR *1/*1. Hypoglycemia itself is the occurrence of a decrease in blood sugar levels. Objective: The aim of this narrative review is to investigate the possibility of hypoglycemia arising from CYP2C9 gene polymorphism in sulfonylurea treatment. Method: The method used was a literature review from various national and international journals in the Google Scholar and Pubmed databases for articles published in the last 10 years from the year (2015-2025). Results: From both international journals, it is stated that the genetic analysis of SNPs in the CYP2C9 gene rs1799853 and rs1057910 is not significant for hypoglycemia, but in CYP2C9, carriers of the POR *1/*1 gene can trigger an increase in hypoglycemia compared to carriers of the POR *28/*28 gene. Conclusion: The CYP2C9 gene has not been proven to cause hypoglycemia. However, in CYP2C9 carriers of POR *1/*1, hypoglycemia can increase threefold compared to POR *28/*28.

Keywords: Gene, Sulfonylureas, Polymorphism, CYP2C92, CYP2C93

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Narrative Review: Analysis of Administrative, Pharmaceutical, and Clinical Aspects of Prescription Completeness

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ABSTRACT

Problems in prescription writing are one of the factors that trigger medication errors. Prescription screening in administrative, pharmaceutical, and clinical aspects can be done to prevent medication errors. This narrative review was conducted to collect and analyze various research results on prescription screening with the aim of understanding the problems that often occur, how screening is done, and how the role of pharmacists can be improved to make the use of drugs safer and more effective. This narrative review was written using a literature search method from various sources that have been published online through Google Scholar and Crossref using the search terms "evaluation", prescription screening", "administrative aspects", "pharmaceutical aspects", and "clinical aspects". A total of seven articles meeting the inclusion criteria were collected and analyzed. The review findings revealed significant gaps in important data across administrative aspects such as doctor's SIP number and patient weight, pharmaceutical aspects such as dosage strength information, and clinical aspects such us dosage accuracy and drug interactions. Based on these findings, it is recommended that pharmacists play a more active role in the prescription screening process to support patient therapy safety and effectiveness.

Keywords: Administrative aspects, Pharmaceutical aspects, Clinical aspects, Evaluation, Prescription screening

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Analysis of Prevalence, Incidence, and Prevention Strategies of Leprosy in Indonesia: Epidemiological Review and Public Health Implications

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ABSTRACT

Leprosy is a chronic infectious disease that is still a public health problem in developing countries such as Indonesia. This disease is caused by Mycobacterium leprae and affects the skin, peripheral nerves, upper respiratory tract, and eyes. This study aims to examine the epidemiological trends of leprosy in Indonesia and evaluate the effectiveness of prevention and control strategies that have been implemented. Using a narrative review method, this article synthesizes findings from various scientific literature and official reports in the last 10 years from sources such as Google Scholar, PubMed, Publish or Perish, Connected papper and accredited national journal portals. The results of the study show that although the global prevalence is decreasing, Indonesia still records high number of new cases, with uneven distribution in several provinces. Factors such as late diagnosis, social stigma, and limited access to health services also worsen the situation. Prevention efforts are focused on early detection, multidrug therapy (MDT), public education, and community-based approaches. Aithough the national program has shown progress, strengthening the primary care system and cross-sector collaboration is still needed.

Keywords: Disease prevention, Epidemiology, Incidence, Leprosy, Prevalence

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Antidiabetic Activity of Black Garlic in Animal Model

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ABSTRACT

Black garlic is a fermented product of raw garlic, enriched with compunds such as S-allyl cysteine, flavonoids, and thiosufinates, which contribute to its strong antioxidant activity. These components play a role in reducing oxidative stress, making black garlic a promising natural option for blood glucose in diabetic. This narrative review aims to examine the antidiabetic potential of black garlic based on studies conducted in animal models. Relevant literature was collected from Google Scholar using selected keywords, based on inclusion criteria. The review findings indicate that black garlic significantly lowers blood glucose level and provides beneficial effects on several metabolic parameters. Therefore, black garlic shows potential as a supportive natural therapyfor managing diabetes.

Keywords: Aged black garlic, Antidiabetic, Black garlic, Diabetes, Mice, Rat

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Drug Use in Ischemic Stroke Patients: A Narrative Review

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ABSTRACT

Background: Stroke is an acute clinical manifestation caused by neurological dysfunction in the brain, spinal cord, or retina, either partially or completely, that persists for ≥24 hours or results in death due to vascular disorders. Ischemic stroke, which accounts for the majority of stroke cases, is caused by infarction, as evidenced by radiological, pathological, or other findings indicating ischemia. Objective: This narrative review aims to explore the patterns of pharmacological treatment used in patients with ischemic stroke. Methods: A literature search was conducted using the Google Scholar and PubMed databases. Results: Citicoline is frequently utilized as a neuroprotective agent in the management of ischemic stroke and is commonly prescribed across various ischemic stroke cases. This therapy is often followed by the administration of low-dose aspirin as an antiplatelet agent. For accompanying comorbidities such as hypertension and dyslipidemia, antihypertensive agents like amlodipine and candesartan are administered, while dyslipidemia is treated with atorvastatin. Conclusion: The pharmacological management of ischemic stroke commonly involves multidrug therapy, with citicoline, aspirin, and clopidogrel being the most prominent agents. This strategy addresses both the neurological damage caused by stroke and associated risk factors, supporting better patient outcomes.

Keywords: Antiplatelets, Cerebral activators, Neurotropics, Nootropics, Stroke treatment, Ischemic stroke

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Review: The Effect of Leaf Extract Concentration and HPMC Gelling Agent on the Physical Properties and Antibacterial Activity of Staphylococcus aureus in Gel Preparations

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ABSTRACT

Staphylococcus aureus is one of the bacteria that causes acne vulgaris that is widely found in Indonesia. The use of topical gels made from herbal leaf extracts is a promising alternative treatment because of its active compound content. This narrative review aims to evaluate the effect of variations in the concentration of herbal leaf extracts and gelling agent HPMC on the physical properties of the gel and antibacterial activity against S. aureus. The method used is a literature review of six selected journal articles published between 2020 and 2025. The review results show that increasing the concentration of the extract can increase the diameter of the inhibition zone due to its higher antibacterial content, while increasing the concentration of HPMC tends to increase viscosity and adhesion, decrease the spread diameter, and does not significantly affect pH. However, excessive viscosity due to HPMC can inhibit the diffusion of active compounds, thereby reducing antibacterial effectiveness. A good extract concentration is between 5% -10%, while a good HPMC concentration range is 2% -5%. Thus, the balance between the concentration of the extract and HPMC is very important to produce a stable and effective gel preparation.

Keywords: Gel, Herbal extract, HPMC, Staphylococcus aureus

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The Effectiveness of Lavender Oil on Anxiety Symptoms and Sleep Disorders: A Narrative Literature Review

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ABSTRACT

Anxiety disorders and sleep disorders are two interrelated conditions that significantly impact quality of life. The use of pharmacological therapy often causes side effects, so complementary therapies such as herbal plants are increasingly being researched. Lavandula angustifolia (lavender) is one of the plants with potential as a natural anxiolytic and sedative agent.This narrative review aims to evaluate the effectiveness of lavender in addressing anxiety and sleep disorders. Based on a review of three scientific journals, lavender contains active compounds such as linalool and linalyl acetate that work through the modulation of GABA-A receptors and the brain's limbic system. Clinical studies show that the administration of oral lavender extract (such as Silexan) can reduce anxiety scores (HAMA) and improve sleep quality in patients with generalized anxiety disorder, without excessive sedation effects. Its effects on sleep are demonstrated through increased sleep efficiency, sleep duration, and reduced sleep latency. Lavender also reduces sympathetic nervous system activity, which contributes to a feeling of calm and relaxation before sleep. With promising scientific evidence, lavender can be considered as an adjunct therapy to address anxiety accompanied by sleep disturbances, with a good safety profile and minimal side effects.

Keywords: Aromatherapy, Lavender, Sleep disorder

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Antioxidant and Antidiabetic Potential of Kalangkala and Study of Its Secondary Metabolites

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ABSTRACT

Kalangkala (Litsea angulata), an endemic plant of Kalimantan, has shown significant potential as a natural antioxidant and antidiabetic agent. This potential is based on the identification of various secondary metabolites such as flavonoids, phenolics, alkaloids, saponins, and tannins from various parts of the plant (seeds, fruits, leaves, bark, branches) using polar (ethanol, methanol) and non-polar (ethyl acetate, n-hexane) solvents. This narrative review summarizes the research of the last 10 years, highlighting the correlation between secondary metabolite profiles and biological activities. Phytochemical screening consistently found these metabolites, especially in methanol and ethanol extracts. The study showed strong to very strong antioxidant activity (DPPH method), with the lowest IC_{50} value of 32.84 ppm in the methanol fraction of seeds. Meanwhile, the antidiabetic potential was proven through the inhibition of the **α**-glucosidase enzyme, where the methanol fraction of seeds showed the strongest effect (enzyme activity 6.84 U/L). In particular, phenolic and flavonoid compounds are key in antioxidant activity by neutralizing free radicals, as well as in antidiabetic mechanisms through protection of pancreatic beta cells and modulation of insulin levels. These results strengthen the claims of traditional use of Kalangkala and underline its potential as a source of natural therapeutic agents based on its secondary metabolites.

Keywords: Antidiabetic, Antioxidants, Kalangkala, Litsea angulata, Secondary metabolites

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Ultraviolet Protection Activity of Zingiberaceae Family Extract

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ABSTRACT

Ultraviolet radiation can cause various skin problems, such as the risk of premature aging and skin cancer. The use of natural sunscreen is a useful alternative to reduce the side effects of synthetic materials. Natural ingredients that have the potential to be sunscreens are Zingiberaceae because the compounds contained in the Zingiberaceae family plants can act as sunscreens. The purpose of this article review is to discuss the potential for ultraviolet protection or sunscreen from the Zingiberaceae family. The method used in this review is based on a literature study from Publish or Perish with sources from Google Scholar and using the keywords "sunscreen, zingiberaceae" or "sun protection, family zingiberaceae" and 11 articles were obtained and after screening the exclusion and inclusion parameters, 8 relevant articles were obtained from 2015 to 2025. The results used from several literature studies show that Zingiberaceae plants have compounds that have the potential to be ultraviolet protection with the highest ultraviolet protection activity, namely turmeric rhizomes containing curcumin compounds with an SPF value of 46 and the lowest ultraviolet protection activity, namely kencur rhizomes with an SPF value of 4.50.

Keywords: SPF, Sunscreen, Ultraviolet light, Zingiberaceae

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The Stability and Effectiveness of Chitin Extract Patch on Incision Wounds and Acute Irritation Test in Rat (Rattus novergicus)

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ABSTRACT

Chitin is a structural carbohydrate with antibacterial, non-toxic, and wound-healing properties. This study aimed to evaluate whether chitin at concentrations of 0.5%, 1%, and 1.5% can be formulated into stable patches. It also assessed their potential to cause skin irritation and their effectiveness in healing incision wounds in white rats (Rattus norvegicus). Chitin was extracted from crab shells using the Microwave-Assisted Extraction method, with NADES (Natural Deep Eutectic Solvent) as the solvent. The patch formulations were successfully created at all tested concentrations. Stability testing, performed using the cycling test method, showed that all patches remained stable and met standard quality parameters. In irritation tests, the chitin patches caused no skin reactions in rats, with erythema and edema scores of 0. The wound healing tests demonstrated that all patches were effective, with the 1.5% chitin patch showing the fastest average healing time of 5.6 days. These findings suggest that chitin extract patches are safe and effective, and the 1.5% formulation shows strong potential as a wound healing therapy.

Keywords: Chitin, Incision wounds, Patch

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Narrative Review: A Review of Pharmaceutical Dosage Forms in the Therapy of Chemotherapy-Induced Mucositis

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ABSTRACT

Chemotherapy is a primary cancer therapy that often causes oral mucositis, reducing patients quality of life. This review aims to evaluate pharmaceutical dosage forms used in chemotherapy-induced mucositis (CIM) treatment. A narrative review method was applied by analyzing 10 articles published within the last ten years. Dosage forms such as mouthwash, buccal film, spray, solution, and oral gels showed effectiveness in reducing mucositis severity. Innovative forms like mucoadhesive film and microparticle gel demonstrated enhanced pharmacokinetics and patient compliance. These findings suggest that the choice of pharmaceutical dosage form significantly influences therapeutic outcomes. Further studies are needed to validate these results in larger populations and long-term settings.

Keywords: Chemotherapy, Mucositis, Pharmaceutical dosage form

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Factors Influencing Treatment Satisfaction in Kidney Transplantation Patients

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ABSTRACT

Kidney transplant patients require long-term treatment. Treatment satisfaction is influenced by side effects, access to care, medical support and cost. Good satisfaction supports adherence and therapeutic success. The purpose of this narrative review is to identify and summarize the various factors that influence patients' treatment satisfaction after undergoing kidney transplantation. The narrative review method was conducted using PubMed and Google Scholar databases to identify scientific literature based on inclusion criteria. The inclusion criteria were research articles published between 2015-2025, full text and written in Indonesian or English. The PEO (population, exposure and outcome) question framework helped determine the search strategy. The keywords used were "Kidney Transplant" AND "Treatment Satisfaction" AND "compliance / drug side effects / costs / etc". There were 4 articles that met the criteria for narrative review analysis. The success of transplantation depends not only on organ function after surgery, but also on the extent to which patients are satisfied with the care they receive. The level of satisfaction plays an important role in encouraging adherence to therapy and prolonging the survival of transplanted kidney function.

Keywords: Factors, Kidney transplantation, Transplant recipients, Treatment satisfaction

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Potential of Pearl Grass (Hedyotis corymbosa) as an Anti-Inflammatory Therapy Drug: Narrative Review

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ABSTRACT

Hedyotis corymbosa L., widely used in traditional remedies, contains active constituents such as flavonoids, tannins, and saponins that exhibit anti-inflammatory activity. This review systematically explores the potential of this plant extract as an anti-inflammatory agent, including its application in topical dosage forms. A narrative review was conducted using data from three peer-reviewed articles that investigated the extract's effects via oral administration and topical delivery systems such as gels and ointments. The findings consistently demonstrated that the extract effectively reduces inflammation in carrageenan-induced rat models. The bioactive compounds, particularly flavonoids, likely exert their effects by inhibiting cyclooxygenase enzymes involved in prostaglandin biosynthesis. Additionally, the topical preparations were shown to be physically stable and user-friendly. These results provide a solid basis for the advancement of pearl grass extract in herbal anti-inflammatory product development.

Keywords: Anti-inflammatory, Flavonoids, Hedyotis corymbosa, Pearl grass, Ointment

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Analysis of the Accuracy of Antibiotic Switch in Appendicitis Surgery Patients

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ABSTRACT

Appendicitis is one of the acute surgical conditions that often occurs due to obstruction of the lumen of the appendix, which can be caused by lymphoid hyperplasia, fecaliths, or infection. Treatment of acute appendicitis generally involves appendectomy and/or antibiotic therapy, either intravenously or orally. This study aims to analyze the accuracy of antibiotic switch therapy from the intravenous to the oral route in patients with appendicitis based on medical record data, taking into account clinical parameters such as body temperature, pulse, respiration, and leukocyte count according to the guidelines of the Indonesian Ministry of Health. The results of the review showed that most cases of switch therapy met the established clinical criteria, where the use of oral cephalosporins was proven to be effective and had high bioavailability (60-90%). Appropriate switch therapy can reduce the length of hospitalization and treatment costs without increasing the risk of complications or serious infections. However, there are still several cases of inaccuracy in the timing and dosage of switch therapy which can lead to therapy failure and potential bacterial resistance. Therefore, disciplined implementation of guidelines and strict clinical monitoring are needed to increase the success of antibiotic therapy in patients with appendicitis.

Keywords: Appendicitis, Switch therapy, Antibiotics, Cephalosporins, Intravenous, Oral, Therapeutic accuracy

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Narrative Review: Antioxidant Activity of Herbal Plants as Antiparkinson's Therapy

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ABSTRACT

Parkinson's disease is a progressive nervous system disorder characterized by decreased dopamine due to neuronal damage in the substantia nigra. Mitochondrial dysfunction and oxidative strees are the main factors that accelerate thi degeneration. Current therapy still relies on synthetic drugs that have serious side effect and are expensive. As an alternative, natural compounds with antioxidant activity show potential for antiparkinsonian therapy. This articles aims to discus the potential antioxidant activity of various herbal plants that have been proven to play a role as Parkinson's disease therapy. The method used is a narrative review though a literature study, with a literature search from Google Scholar, PubMed, and ResearchGate, limited to publications in the last ten years. The result show that six herbal plants, namely cinnamon, cubeb, turmeric rhizome, rosella, temulawak, and gambir, have active compouds of flavonoids, polyphenols, catechins and curcumin that can ward off oxidative stress, protect dopaminergic neurons, and improve motor and sensory function in test animals. The best effectiveness is generally achieved at a dose of 200– 800mg/KgBw, characterized by decreased catalepsy and increased survival on the rotarod. Therefore, antioxidant herbal plants have great potential to be developed as safe and natural additional therapy for Parkinson's sufferers.

Keywords: Antioxidant, Neuroprotective, Parkinson's, Herbal plants

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Analisis Kinerja Keuangan Apotek di Indonesia

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ABSTRACT

Pharmacy is a health service facility that not only plays a role in providing medicine, but also as a business unit that must be managed efficiently and sustainably. One important aspect in pharmacy management is financial efficiency, which can be analyzed through the profitability ratio. This ratio reflects the pharmacy's ability to generate profits from its operational activities. This study aims to evaluate the financial efficiency of pharmacies and pharmaceutical companies through profit ratio analysis. Data were obtained from seven recent scientific articles that reviewed financial statements using a quantitative descriptive approach. The parameters analyzed included gross profit margin (GPM), net profit margin (NPM), return on assets (ROA), and return on equity (ROE). The data collected included financial performance based on annual reports, as well as comparisons to industry standards. The results of the analysis showed that most pharmacies showed GPM and ROE that were in accordance with the standards, but NPM and ROA were still below the ideal values. This indicates the need for improvements in cost efficiency and asset management. Evaluation of this financial ratio is expected to be the basis for strategic planning for pharmacy development in a more sustainable direction.

Keywords: Pharmacy, Financial, Profitability ratio, GPM, NPM, ROA, ROE

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Antibacterial Activity of Avocado Plant (Persea americana) Extract Against Bacteria

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ABSTRACT

Avocado (Persea americana) is a medicinal plant known to exhibit antibacterial activity due to its content of active compounds such as flavonoids, saponins, tannins, alkaloids, and polyphenols found in various parts of the plant, including the leaves, peel, seeds, pulp, and bark. This study aims to determine the antibacterial potential of avocado plant extracts against several pathogenic bacteria. The method used is a narrative review by collecting and analyzing scientific literature published between 2015 and 2024 from databases such as Google Scholar and Portal Garuda. Review results from 10 selected articles indicate that extracts from different parts of the avocado plant can inhibit the growth of bacteria such as Escherichia coli, Salmonella Typhi, Pseudomonas aeruginosa, Staphylococcus aureus, Staphylococcus epidermidis, Klebsiella pneumoniae, and Streptococcus mutans. The antibacterial activity varied depending on the plant part, extract concentration, and type of test bacteria. In conclusion, the avocado plant shows potential as a natural antibacterial agent and can be further developed for treating bacterial infections, including P. aeruginosa and Propionibacterium acnes.

Keywords: Agar diffusion, Avocado, Escherichia coli, Pseudomonas aeruginosa, Staphylococcus aureus, Streptococcus mutans

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The Effect of High Salt Food Consumption Due to an Unhealthy Lifestyle on the Risk of Hypertension

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ABSTRACT

Hypertension is a global health problem with increasing prevalence and is a major risk factor for cardiovascular disease in Indonesia. This chronic condition is characterized by systolic blood pressure 2140 mmlg and diastolic blood pressure 290 mmHg. This narrative review aims to analyze the consumption of high-salt foods as part of an unhealthy lifestyle on the risk of hypertension. The method used is a narrative review with article searches through electronic databases such as Google Scholar, PubMed, and ScienceDirect based on predetermined inclusion and exclusion criteria. The eviewed tudies showed hat consumption of high-salt foods significantly increases the risk of hypertension. Excessive salt consumption can trigger increased blood pressure in individuals with unhealthy lifestyles. This narrative review concludes that strong evidence supports the effect of high-salt food consumption on the risk of hypertension, especially in individuals with unhealthy lifestyles. Further studies with stronger designs and larger sample sizes are needed to confirm this relationship and identify the underlying mechanisms.

Keywords: Lifestyle, High salt foods, Risk of hypertension

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Application of Nanotechnology in the Design of Herbal Delivery as Antioxidants: Narrative Review

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ABSTRACT

Oxidative stress caused by an imbalance between free radicals and endogenous antioxidants can trigger various degenerative diseases. Herbal antioxidants have great therapeutic potential but are hampered by low bioavailability, poor stability, and limited solubility. This review is based on the need to examine and analyze various studies on the development of nanotechnology for herbal delivery systems as antioxidants. This review aims to present the application of nanotechnology in the delivery of herbal antioxidants. The method used in this review was a literature review of several international articles searched using Scopus from 2016 to 2025, which were then selected and obtained 17 articles with the keywords "Nanotechnology," "Nanoparticle," "Antioxidant," and "Extract." The results of this review identified the following developed nanocarriers: silver nanoparticles (AgNPs), zinc oxide nanoparticles (ZnONPs), solid lipid nanoparticles (SLNs), gold nanoparticles (AuNPs), selenium nanoparticles (SeNPs), and cerium oxide nanoparticles (CeO_2). Generally, the data showed that plant extracts incorporated into these nanocarriers exhibited lower IC50 values compared to the extracts alone. The conclusion of this review is that nanotechnology has been proven to enhance the efficacy of herbal antioxidants through increased surface area and stability.

Keywords: Antioxidant, Extract, Nanoparticles, Nanotechnology

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Comparison of Drug Self-Medication Education Through CBIA and TANYA 5-O: A Narrative Review

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ABSTRACT

Self-medication is the practice of individuals using medication independently to address health issues without direct medical intervention. This practice has become increasingly important in the context of improving public health literacy. Various educational methods have been implemented to enhance people's knowledge about the proper use of medication, including Tanya 5-O and Community-Based Interactive Approach (CBIA). The Tanya 5-O method focuses on interactive question-and-answer sessions to simplify understanding of medication, while CBIA is more community-based, involving discussions and direct observation to build a deeper understanding. This study aims to compare the effectiveness of both methods in self-medication education and to provide a narrative review of previous research findings on these approaches. Method: This research employs a narrative review approach, gathering articles from sources such as Google Scholar and PubMed to compare the two educational methods in the context of self-medication. The results indicate that both Tanya 5-O and CBIA are significantly effective in increasing public knowledge about the proper use of medication. However, the Tanya 5-O approach is more suitable for younger groups with information that is direct and easy to understand, while CBIA proves more effective in broader and more diverse community settings.

Keywords: Self-medication, Tanya 5-O, Community-based interactive approach (CBIA), Medication literacy, Health education

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Narrative Review: Potensi Antioksidan pada Berbagai Sediaan dengan Bahan Aktif Ekstrak Daun Sukun (Artocarpus altilis)

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ABSTRACT

Free radicals can cause skin cell damage and trigger various conditions such as premature aging and hyperpigmentation, making antioxidants essential to neutralize their effects. Natural antioxidants are preferred over synthetic ones due to their perceived safety. This narrative review aims to provide an overview of the antioxidant potential of breadfruit (Artocarpus altilis) leaf extract in various formulations, based on test results, analytical methods, and active ingredient concentrations, to support the development of antioxidant-based products using breadfruit leaf extract. Articles were collected from Google Scholar and PubMed and selected based on inclusion and exclusion criteria. The results indicate that Artocarpus altilis leaf extract exhibits strong antioxidant potential across multiple formulations, including topical gels, peel-off masks, oral suspensions, and nanoparticles. Antioxidant activity was evaluated using the DPPH and FRAP methods, with most results falling into the strong to very strong categories. These findings support the use of Artocarpus altilis leaf extract as a natural ingredient in health and cosmetic products.

Keywords: Antioxidant, Artocarpus altilis, Breadfruit leaf extract, DPPH, FRAP

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Analysis of the Cost of Illness in Diabetes Mellitus Type 2 Patients: A Narrative Review

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ABSTRACT

Background: Diabetes mellitus is a chronic disease which is a metabolic disorder, caused by the inability of the pancreas to produce sufficient insulin, or the body cannot use the insulin produced effectively. Objective: article review to determine the cost of illness in patients with diabetes mellitus. Method: used narrative review using databases namely Google Scholar and Pubmed. Results: Hospitalized patients with complications bear the highest cost burden per episode of care. Financing systems such as BPJS have not been fully able to cover all cost components, especially in cases with complications. Conclusion: The cost of treating Type 2 DM is greatly influenced by the presence of complications and the severity of the disease. Patients with complications tend to incur much higher costs, both in outpatient and inpatient care. Meanwhile, therapy for patients with complications, which involves the use of new generation drugs and hospital care, shows a very significant increase in costs. The economic burden of Type 2 DM also includes indirect costs such as loss of work productivity.

Keywords: Diabetes mellitus type 2, Cost analysis, Outpatient, Inpatient

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Authentication of Essential Oils from Leaves and Fruit Peels from Various Citrus (Citrus spp.) in Commercial Products Using the Gas Chromatography Mass Spectrometry (GCMS) Method

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ABSTRACT

Essential oils from citrus plants (Citrus spp.) are high-value commodities that are widely used in the food, cosmetics, and pharmaceutical industries due to their aromatic properties and high bioactive compound content. Plants commonly used for essential oil products are oranges (Citrus spp.). The utilization of essential oils from citrus plants can be extracted from plant parts such as leaves and fruit skin. The methods used for isolating essential oils are steam and water distillation. The purpose of this study was to determine the main components of essential oils from the leaves and skin of various types of citrus. Gas Chromatography-Mass Spectrometry (GC-MS) is an instrumental analysis method that excels in detecting and identifying volatile compounds in essential oils. Through chromatographic separation and mass spectrometry analysis, GC-MS is able to produce chemical fingerprints that are specific to each citrus species and plant part used.

Keywords: Essential oil, GCMS, Orange

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Development of Capsanthin Drug Delivery System as an Effort to Improve Effectiveness

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ABSTRACT

Capsanthin is a natural carotenoid compound obtained from red pepper (Capsicum annuum) and is known to have potential biological activities, such as antioxidant, anti-inflammatory, and anticancer. However, the pharmaceutical application of capsanthin is still limited due to its low water solubility, poor stability to light and heat, and low bioavailability. To overcome these limitations, various drug delivery systems have been developed to improve the stability, effectiveness, and absorption of capsanthin in the body. Various nanotechnology platforms such as self-emulsifying drug delivery system (SEDDS), nanoemulsions, liposomes, and micelles have been used as carrier systems to improve controlled release, intestinal permeation, and pharmacological effects of capsanthin in vitro and in vivo. This review aims to summarize the latest developments on the application of capsanthin as an active substance in drug delivery systems, including the types of carriers used, formulation methods, physical characterization results, and release or permeation effectiveness based on various scientific studies, with a deeper understanding of this drug delivery approach.

Keywords: Capsanthin, Drug delivery system, Bioavailability

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Review: Evaluation of Physical Properties of Herbal Toothpaste Based on Variations of Sodium Carboxymethyl Cellulose Concentration

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ABSTRACT

Herbal toothpaste is an alternative in dental care that utilizes natural active ingredients, aiming to reduce dental plaque and promote cleaner, more comfortable teeth without synthetic components such as fluoride, which may cause fluorosis. Sodium carboxymethyl cellulose (CMC-Na) serves as a binder that influences physical properties such as viscosity, spreadability, and adhesiveness. This study aims to evaluate the impact of varying concentrations of CMC-Na on the physical characteristics of herbal toothpaste formulations through a narrative review method. Data were collected from articles published between 2015 and 2025 that are relevant to CMC-Na-based herbal toothpaste formulations. The results indicate that increasing CMC-Na concentration generally enhances viscosity and adhesiveness while reducing spreadability. On the other hand, parameters such as pH and foam height tend to be unaffected by changes in CMC-Na concentration. Therefore, CMC-Na plays a significant role in determining the stability and user comfort of herbal toothpaste. It can be concluded that formulations containing 1–5% CMC-Na can produce toothpaste with favorable physical characteristics.

Keywords: Herbal toothpaste, Physical properties, Sodium CMC

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Narrative Review: Medication Error at the Prescription Stage of Diabetes Mellitus Patients in Health Care Facilities

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ABSTRACT

Background: Medication error is one of the major issues in healthcare systems that directly impacts patient safety, particularly among individuals with chronic diseases such as diabetes mellitus. These errors can have serious consequences for patient health. Objective: This literature review aims to describe the prevalence and types of medication errors occurring at the prescribing stage for diabetes mellitus patients in healthcare facilities. Methods: This review was conducted based on literature searches from PubMed, NCBI, Science Direct, and Google Scholar using the keywords "medication error in diabetes mellitus patients," "prescribing," and "hospital." Results: Based on the reviewed literature, 6 articles were obtained as the basis for analysis and discussion. Medication errors during the prescribing stage in diabetes mellitus patients are generally caused by individual healthcare provider factors, suboptimal healthcare systems, and the complexity of diabetes drug regimens. These errors often result in incorrect drug selection, wrong dosing, and improper routes of administration. Interventions such as the implementation of technology, involvement of clinical pharmacists, and continuous healthcare provider training can help reduce the incidence of medication errors. Conclusion: Medication errors in the prescribing stage are a significant issue in the management of diabetes mellitus patients. Integrated and continuous preventive efforts are essential to enhance patient safety and improve the quality of healthcare services.

Keywords: Medication error, Prescribing, Diabetes melitus, Health care facilities

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Literature Review: Antibacterial Effectiveness of Zingiber zerumbet L. Sm Extract and Its Chemical Constituents

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ABSTRACT

Fragrant ginger rhizome (Zingiber zerumbet L. Sm) is often used as an ingredient in herbal medicine or traditional medicine by the community. The purpose of this review is to determine the potential of fragrant ginger rhizome as an antimicrobial agent against Gram-negative bacteria, Gram-positive bacteria, and pathogenic fungi. This review utilized the Google Scholar and PubMed databases to search for articles without restricting the publication year. From the search results, 20 articles were identified, and only 13 met the inclusion criteria. Fragrant ginger rhizome contains sesquiterpenes, flavonoids, and tannins compounds. Additionally, the essential oil from fragrant ginger rhizome extract contains zerumbone, **α**-pinene, **β**-pinene, caryophyllene oxide, and camphene, which exhibit antibacterial activity. Fragrant ginger rhizome extract demonstrates significant antibacterial effects, with several identified compounds proven to be active against pathogenic bacteria.

Keywords: Antibacterial, Fragrant ginger rhizome, Chemical compounds, Zerumbone

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Narrative Review: Potential of Plant Activity in Increasing Dopamine Levels as an Alternative Antiparkinson's Therapy

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ABSTRACT

Parkinson's disease is a progressive neurodegenerative disorder characterized by a decline in dopamine levels due to the degeneration of dopaminergic neurons in the substantia nigra of the brain. Conventional therapy using synthetic L-DOPA is effective in alleviating motor symptoms but has limitations such as long-term side effects and reduced efficacy over time. Therefore, the search for alternative therapies derived from natural sources has become the focus of many studies. This review explores the potential of several medicinal plants that can increase dopamine levels through various mechanisms. Curcuma longa contains curcumin, which has antioxidant and anti-inflammatory properties and can inhibit dopamine degradation. Mucuna pruriens is known to contain a high level of natural L-DOPA and exhibits acetylcholinesterase inhibitory activity, supporting neurotransmitter balance. Spatholobus suberectus has shown potential in enhancing dopamine neurotransmission through its affinity for dopamine transporter proteins, as evidenced by in silico studies. Meanwhile, Centella asiatica contributes to increasing the expression of tyrosine hydroxylase, a key enzyme in dopamine synthesis, and provides neuroprotective effects. These findings suggest that these plants have promising potential as safer and more effective alternative therapies for Parkinson's disease.

Keywords: Alternative therapy, Antiparkinson, Dopamine, Medicinal plants

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Potential of Polymer as Thermosensitive Hydrogel Bases in Drug Transport in Cancer Therapy

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ABSTRACT

Cancer is one of the major disease affecting global health with a mortality rate of 9 million by 2020. The development of nanotechnology-based drug delivery system such as thermosensitive hydrogel is a promising strategy due to their ability to imptove efficacy, reduce toxicity and enable controlled release of drugs. One of the conjugates used as a drug delivery system is polymer due to the versatility of the material which has controllable physicochemical properties so that polymer nanoparticle preparations can be injected into the body in a liquid state, because it is followed by gelation at physiological human body temperature. This technology is very potential in cancer therapy because it can increase the local concentration of anticancer drugs, extend drug exposure time, and minimize systematic exposure. The purpose of reviewing this article is determine the potential of polymers as a thermosensitive hydrogel base using synthetic polymers and combination of synthetic and natural polymer. The method used was Systematic Literature Review (SLR). The result showed that the use of natural and synthetic polymers can form gels at human body temperature and can release drugs slowly and controlled. Some studies show an increase in the effectiveness of local therapy, inhibition of tumor growth, and reduction of systemic side effects. The conclusion of this study is that thermosensitive hydrogel with polymer base as a drug delivery system has potential to improve more targeted and efficient cancer therapi.

Keywords: Anticancer, Polymer, Thermosensitive hydrogel

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Narrative Review: Measurement Quality of Life in General Population

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ABSTRACT

Quality of life (QoL) is a crucial indicator for assessing an individual's overall well-being, incorporating physical, psychological, and social dimensions., In public health and clinical settings, QoL measurements help evaluate the impact of various conditions, treatments, and policies on individuals and populations. This narrative review aims to provide a general overview of how QoL is measured in the general population and to identify key factors that influence QolL. A literature search was conducted using the PubMed database with the keywords "measurement" AND "quality oflife" AND "general population . Five research articles from different countries were selected and analyzed. The findings indicate that the most widely used instruments to measure QoL are the WHOQOL-BREF, EQ-5D-3L, and SF-8. These instruments assess multiple dimensions of well-being and vary in structure and scope, offering flexibility for different research and policy contexts. Several factors were consistently found to Influence QoL across studies, including age, gender, socioeconomic status, mental health, physical activity, and residential environment These factors reflect both individual characteristics and broader social determinants of health. It is evident that QoL is not solely dependent on physical health, but is significantly shaped by social and psychological conditions as well. Therefore, to accurately capture the complexities of QoL in diverse populations, its measurement must be both comprehensive and context-sensitive. Understanding these influencing factors can assist policymakers and healthcare professionals in designing more targeted and effective health interventions to improve the overall quality of life in the general population.

Keywords: General population, Measurement, Quality of life

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Phytochemistry and Pharmacological Activities of Vitaceae: Antibiofilm Mechanisms as a Strategy to Combat Bacterial Resistance

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ABSTRACT

Bacterial resistance poses a significant threat to healthcare in Indonesia. One key factor is bacteria's ability to form biofilm, protective layers composed of extracellular polymeric substances (EPS) that block antibiotic penetration and reduce drug effectiveness. This study aims to explore the phytochemistry, pharmacological activity, and antibiofilm mechanisms of natural compounds from the Vitaceae family. This study is a narrative study that reviews literature from national and international publications at PubMed and Google Scholar database. Based on article review, Vitaceae are rich in polyphenols such as resveratrol and proanthocyanidins, which exhibit strong antibiofilm effect. These compounds inhibit biofilm formation by disrupting EPS, suppressing bacterial adhesion, and interfering with quorum sensing. The pharmacological properties of Vitaceae support its potential as an effective natural alternative for antibiofilm therapy. Thus, Vitaceae offer promising strategies to combat resistant bacterial infections by targeting biofilm-related mechanisms.

Keywords: Antibiofilm activity, Bacterial resistance, Vitaceae

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Gel-Based Aloe Vera Formulation as an Antioxidant Source for Healthy Skin

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ABSTRACT

Aloe vera is a medicinal plant that contains active compounds such as polyphenols, flavonoids, vitamins, and aloin, which act as antioxidants to neutralize free radicals. This study aims to evaluate the antioxidant potential of Aloe vera in various topical formulations and to examine the influence of extraction methods, concentration, and natural combinations on ICse values. Methods: A literature review was conducted on eight national and international scientific articles published within the last ten years. The parameters reviewed included formulation type, extraction method, Aloe vera concentration, additional ingredients, antioxidant assay methods, and IC% outcomes. Results: Most studies employed maceration with polar solvents such as 96% ethanol or 70% methanol, which effectively extracted active compounds like flavonoids, polyphenols, and vitamin C. The strongest antioxidant activity was found in the formulation containing 15% Aloe vera and 10% basil leaves (10 (ICs = 41.97 ppm), while the highest IC% value was reported in the single Aloe vera formulation at 64.53 μg/mL. Combinations with other natural ingredients such as strawberry, mangosteen peel, and green algae demonstrated synergistic effects that enhanced antioxidant potential. Conclusion: The antioxidant potency of Aloe vera in topical formulations is strongly influenced by extraction techniques, active ingredient concentration, and natural synergistic combinations. Proper formulation strategies significantly support the development of effective, safe, and natural cosmetic or pharmaceutical products.

Keywords: Aloe vera, Antioxidant, IC50, Extraction method, Topical formulation

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Effectiveness of Resveratrol as an Antihypertensive Agent: Literature Review

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ABSTRACT

Hypertension is a chronic disease that is the main cause of cardiovascular disease. In healing with pharmacological therapy is still effective but not free from side effects and also long duration of use because it is already dependent. Therefore, alternative therapy is made with natural ingredients such as resveratrol. Resveratrol is a phenolic compound that can be found in herbal plants such as red grapes, nuts, berries and others which are known to have potential as antihypertensives with antioxidant mechanisms, increased production of nitric oxide (NO) and vasodilation. This writing aims to find out the results of a review of articles related to the effectiveness of resveratrol as an antihypertensive agent. This review was written using a literature search method from various sources that have been published online via google schoolar, and pubmed related to preclinical and clinical research on the effects of resveratrol as an antihypertensive. The reviewed articles were selected based on relevant topics and publications in the last 10 years. The results of the study of administration with resveratrol can lower blood pressure and approach the effectiveness of antihypertensive drugs. There are 5 articles that meet the criteria with the results that resveratrol can lower blood pressure.

Keywords: Antihypertensive, Resveratrol, Herbal

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The Effect of HPMC and PVP Ratio on the Physical Properties of Transdermal Patch Formulations

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ABSTRACT

Transdermal patch is an innovative drug delivery system that provides therapeutic advantages through systemic drug absorption via the skin, with the ability to maintain constant plasma drug levels and prolong drug action duration. A critical factor in patch formulation is the optimization of polymer composition, particularly the combination of hydroxypropyl methylcellulose (HPMC) and polyvinylpyrrolidone (PVP). The objective of this narrative article is to analyze the effect of HPMC:PVP ratio variation on physical patch parameters, including fold endurance test, weight uniformity, and thickness precision. The research method employed a systematic review with literature selection based on criteria of articles evaluating the influence of polymer formulation on the physical properties of transdermal preparations. Analysis results demonstrated that: increased HPMC ratio significantly improved patch folding resistance and thickness, PVP played a crucial role in enhancing weight uniformity and matrix homogeneity, the balanced combination of HPMC and PVP produced patches with optimal physical characteristics, good stability, and comfortable application. The study conclusion emphasizes the importance of optimizing the ratio of these two polymers to obtain transdermal patches with excellent physical quality and effective drug release performance.

Keywords: HPMC and PVP ratio, Physical characteristics, Transdermal patch

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Narrative Review: Formulation of Peel-Off Mask Preparation Against Staphylococcus aureus Bacteria

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ABSTRACT

Peel-off gel mask preparations are cosmetics indicated for skin care. The use of peel-off gel mask preparations is to make it easier for users to care for and improve the appearance of the skin, one of which is to remove excess sebum or often called acne. The purpose of this article review is to determine the activity test of peel-off gel mask preparations that meet physical quality standards. Physical quality tests of peel-off gel mask preparations carried out include: Organoleptic test, pH test, Homogeneity test, Spreadability test, Adhesion test and Drying time test and antibacterial activity test. The reason for conducting the antibacterial activity test is to determine the inhibitory power of the preparation against staphylococcus aureus bacteria. The method used is a narrative review by searching for articles through Google scholar and websites providing Indonesian or international articles. The keywords used are "formulation" OR "formulasi", "peel-off mask" OR "masker peel off", AND "Staphylococcus aureus bacteria". The results of the article search obtained 12 articles that met the inclusion and exclusion criteria. Based on the review results, most articles have standard physical quality test results and inhibitory power tests that meet the requirements. The peel-off gel mask preparation formula that has the highest concentration is the one with the largest inhibition zone.

Keywords: Formulation, Masker gel peel-off, Staphylococcus aureus

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The Use of FTIR Spectroscopy in Combination with Chemometrics for Classification of Coffee: A Narrative Review

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ABSTRACT

Coffee is one of the food ingredients that is widely exported by this country. Coffee is also a popular beverage among the Indonesian people. The aim of this research is to determine the antioxidant activity of coffee beans grown in various regions of Indonesia. To conduct this research, the method used is the Systematic Literature Review (SLR) method by comparing several literatures that investigate the antioxidant activity of coffee beans using the same method, specifically with the addition of the reagent 1,1 Diphenyl-2-picrylhidrazyl (DPPH). The results obtained are the antioxidant activity of each sample measured. The research results show that Arabica coffee has different antioxidant activities based on its growing location. The extraction process of the samples is necessary to obtain extracts from the coffee beans, which will then be tested for their antioxidant activity using the DPPH method. Antioxidant activity is expressed as the percentage of free radical scavenging and the determination of the IC50 value.

Keywords: Antioxidant, Arabica, DPPH, Coffee

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Effect of Oil Variations in Curcumin-Loaded SNEDDS on Physicochemical Characterization

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ABSTRACT

Curcumin is a natural bioactive compound with broad therapeutic potential, but has low water solubility and limited bioavailability. To overcome these challenges, a drug delivery system based on Self-Nanoemulsifying Drug Delivery System (SNEDDS) has been developed to improve the solubility and bioavailability of curcumin. One of the important components in SNEDDS is oil, which can affect the solubility, particle size, polydispersity index (PDI), and zeta potential. This study is a narrative review aimed to evaluate the effect of various types of oil on the physicochemical characteristics of curcumin SNEDDS formulations. The results of the review of five articles showed that IPM oil with a long carbon chain produced the highest curcumin solubility (256.20 mg/ml). However, Capryol PMGC (C11) showed the best physicochemical results at the smallest particle size (13.44 ± 0.19 nm) and low PDI (0.095 ± 0.021) indicating that the system is homogeneous and physically stable. The zeta potential values of all formulations showed relatively low numbers due to the use of non-ionic surfactants, which provide steric stability. Thus, the selection of oils with medium carbon chains such as Capryol PMGC can be an optimal choice in SNEDDS formulation for curcumin.

Keywords: Capryol PGMC, Curcumin, Oil, SNEDDS, Medium chain triglycerides (MCT)

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Patterns of Cytostatic Drug Use and Supportive Therapy in Breast Cancer Patients Undergoing Chemotherapy at the Hospital

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ABSTRACT

Background: Type 2 diabetes mellitus is a disease characterized by insulin resistance or the body's inability to produce enough insulin to maintain normal blood sugar levels. Sulfonylureas are medications used to treat type 2 diabetes mellitus (T2DM) and are the first-line treatment for T2DM patients. Sulfonylureas have a mechanism of action that stimulates beta cells in the pancreas to produce more insulin. CYP2C9 is a major cytochrome P450 (CYP) enzyme. Therefore, CYP2C9 plays a crucial role in drug metabolism, especially sulfonylurea drugs. If polymorphism occurs in that gene, it will affect the drug's activity, potentially causing hypoglycemia. However, there are several studies that show that if CYP2C9 is combined with the POR gene carrier, the occurrence of hypoglycemia will increase because the POR gene works to reduce drug activity. The CYP2C9 carrier gene that causes a decrease in hypoglycemia is POR *1/*1. Hypoglycemia itself is the occurrence of a decrease in blood sugar levels. Objective: The aim of this narrative review is to investigate the possibility of hypoglycemia arising from CYP2C9 gene polymorphism in sulfonylurea treatment. Method: The method used was a literature review from various national and international journals in the Google Scholar and Pubmed databases for articles published in the last 10 years from the year (2015-2025). Results: From both international journals, it is stated that the genetic analysis of SNPs in the CYP2C9 gene rs1799853 and rs1057910 is not significant for hypoglycemia, but in CYP2C9, carriers of the POR *1/*1 gene can trigger an increase in hypoglycemia compared to carriers of the POR *28/*28 gene. Conclusion: The CYP2C9 gene has not been proven to cause hypoglycemia. However, in CYP2C9 carriers of POR *1/*1, hypoglycemia can increase threefold compared to POR *28/*28.

Keywords: Gene, Sulfonylureas, Polymorphism, CYP2C92, CYP2C93

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Antioxidant Activity and Total Phenol Content of Mulberry Extract (Morus alba L.)

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ABSTRACT

Mulberry plants (Morus alba L.) contain phytochemicals that act as natural antioxidants. This narrative review aimed to systematically examine the scientific evidence related to the total phenol content of mulberry plant extract and its antioxidant effect from both plant parts extract (leaves, fruit, stems, stalks, and roots) and the preparations. Article searches were conducted using the PRISMA method within the years 2015–2025. We selected articles that contained data on the antioxidant activity of mulberry plants, taking into account plant parts, extraction methods, and dosage forms. The data were processed in comparative tables and analyzed descriptively. The results showed that the leaves and fruit had the highest antioxidant activity, especially when extracted with polar solvents, such as ethanol and acetone. The fruit had the highest total phenol content compared to other parts of the mulberry plant. Mulberry plants contain various phytochemical compounds, including flavonoids, tannins, alkaloids, saponins, and phenols. Various topical preparations, such as creams and lotions, also demonstrate high effectiveness as antioxidant agents.

Keywords: Antioxidant, Morus alba L., Phenolic, Phytochemical compounds

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Association of Osteoarthritis with Smoking in Indonesia: A Narrative Review

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ABSTRACT

Osteoarthritis is a chronic progressive degenerative joint disease that is common in the elderly. Various risk factors can contribute to the development of osteoarthritis, including age, genetic factors, trauma, comorbidities, obesity and smoking. Smoking has been identified as a modifiable risk factor that can influence the pathophysiology and progression of osteoarthritis through its impact on cartilage health and systemic inflammation. The purpose of writing this article is to determine the relationship between smoking and the incidence of osteoarthritis in Indonesia. The method used in this paper is a literature study by describing various national and international publications related to the effect of smoking on the incidence, severity, and treatment response of osteoarthritis. The articles reviewed included Indonesian and English publications published between 2015 and 2025. The results show that the relationship between smoking and osteoarthritis incidence in Indonesia has not been consistent. Some studies found no statistically significant association between the two, while other studies showed that smoking may increase the risk of OA or even be protective against OA severity. Conclusion Smoking is a potential risk factor that may influence the development of osteoarthritis, but the evidence in Indonesia is mixed.

Keywords: Indonesia, Osteoarthritis, Smoking

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Level of Knowledge of Adolescents on Diabetes Mellitus Prevention Behavior

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ABSTRACT

One of the health problems that is starting to threaten the younger age group in Indonesia is Diabetes Melitus (DM). DM is a chronic disease that occurs due to impaired glucose metabolism and can cause serious complications if not treated early. Adolescence is an important phase in the formation of healthy living habits. However, the current lifestyle of adolescents, such as unhealthy diet and lack of physical activity, is at high risk for DM. The purpose of this narrative review is to find out whether knowledge affects adolescents behavior in preventing DM, and also to find out what factors affect the level of knowledge of adolescents towards DM prevention. The research method used is a narrative review of various national and international scientific journals obtained through Google Scholar and PubMed, with a range of 2015-2025. After selection based on the suitability of the topic and inclusion criteria, 4 articles were obtained which were used as literature sources. Based on the results of the narrative review, it is known that the level of knowledge of adolescents affects DM prevention behavior. Factors that influence adolescents knowledge include the level of education, sources of information, the role of school and family. So it can be concluded that, knowledge plays an important role in shaping DM prevention behavior in adolescents. The better the level of knowledge, the better the preventive behavior shown. Factors that influence the level of knowledge of adolescents include the level of education, access to information, and support from the environment such as family and school.

Keywords: Diabetes mellitus, Preventive behavior, Adolescents knowledge

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Analysis of the Effectiveness of Tenofovir as an Antivirus in Hepatitis B Patients

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ABSTRACT

Chronic hepatitis B infection remains a global health problem with high morbidity and mortality. In Indonesia, the prevalence is around 2.10% and higher in the eastern region. Tenofovir from the nucleos(t)ide analog group is the first-line therapy for hepatitis B due to its effectiveness in suppressing viral replication and improving liver function. The purpose of this review is to evaluate the effectiveness of tenofovir and its variants on the success of hepatitis B treatment. The method used is a narrative review of five scientific articles from the PubMed and Google Scholar databases. The results of the analysis showed that both TDF, TAF, and TMF have high effectiveness, although TAF and TMF have advantages in long-term safety profiles. In conclusion, tenofovir therapy shows clinical success in the treatment of hepatitis B, but a personalized approach to therapy and increased coverage of prevention are still needed.

Keywords: Hepatitis B, Prevalence, Effectiveness, Tenofovir, Prevention

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Development of Self-Nanoemulsifying Drug Delivery System (SNEDDS) of Medicinal Plants from Zingiberaceae Family

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ABSTRACT

Medicinal plants from the Zingiberaceae family, such as ginger, temulawak, kencur, and temu mangga, contain active compounds with high pharmacological potential. However, many of these compounds are lipophilic and difficult to dissolve in water, limiting their absorption in the body. The Self-Nanoemulsifying Drug Delivery System (SNEDDS) is a lipid-based drug delivery technology that enhances the dissolution of active compounds through the spontaneous formation of nanoemulsions in the digestive tract. This narrative review examines SNEDDS formulations derived from Zingiberaceae plants based on literature from databases such as Google Scholar, PubMed, and ScienceDirect. Plants such as Curcuma xanthorrhiza, Zingiber officinale var. rubrum, Curcuma mangga, and Kaempferia galanga L. have been formulated into SNEDDS using VCO as the oil phase, surfactants: Tween 80, and cosurfactant: PEG 400. Characterization results showed transmittance values of 84–100% and zeta potentials ranging from -8.54 to -42.40 mV.

Keywords: Medicinal plants, Zingiberaceae, SNEDDS

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Effectiveness of the Use of Antihypertensive Drugs in Pregnant Patients with Preeclampsia

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ABSTRACT

This study aimed to examine the prescribing profile and theoretical drug interactions in diabetes mellitus (DM) patients with hypertension at RSUD Undata Palu from March to June 2014. It was a non-experimental descriptive study involving 61 patients aged 18–60 years. The most common dosage form prescribed was tablet (94.5%). Sulfonylureas were the most frequently used antidiabetic class (21.1%) with glimepiride (14.9%) being the most common agent, while beta blockers (12.2%) and bisoprolol (9.6%) were the most commonly used antihypertensives. The incidence of theoretical drug interactions was 85.2%, predominantly pharmacodynamic (72.7%). These findings highlight the need for careful monitoring of drug interactions in combined DM and hypertension therapies.

Keywords: Diabetes mellitus, Drug interaction, Hypertension, Pharmacodynamic, Polypharmacy

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Potential of Neem Leaves (Azadirachta indica) as an Antidiabetic Agent Through Inhibition of α-Glucosidase Enzyme Activity

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ABSTRACT

Diabetes mellitus is a chronic metabolic disease with a growing global prevalence, requiring long-term treatment strategies. One therapeutic approach involves inhibiting the activity of the **α**-glucosidase enzyme, which plays a crucial role in carbohydrate digestion. Neem leaves (Azadirachta indica), widely recognized as a traditional medicinal plant, have been studied for their bioactive compounds—such as flavonoids, tannins, and terpenoids—that possess potential as **α**-glucosidase inhibitors. This article is a narrative review aiming to explore the antidiabetic potential of neem leaves through the mechanism of **α**-glucosidase inhibition. The method used involves a comprehensive literature review of relevant scientific journals. This narrative review employs the PRISMA approach, including identification, screening, eligibility, and inclusion stages, to evaluate the potential of neem leaves in reducing **α**-glucosidase activity. Findings indicate that neem leaf extracts demonstrate significant **α**-glucosidase inhibitory activity, comparable to standard antidiabetic drugs such as acarbose. Therefore, neem leaves hold promising potential as a natural antidiabetic agent and may contribute to the development of future phytopharmaceuticals.

Keywords: α-Glucosidase, Antidiabetic, Neem leaves, Phytopharmaceutical, Enzyme inhibitor, Medicinal plant

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Study of Drug Interaction in DM Patients with Hypertension

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ABSTRACT

Cancer or carcinoma is a condition in which the body's cells change and multiply uncontrollably. Treatments include surgery, radiation, chemotherapy, hormone therapy and targeted therapy. Chemotherapy is palliative, which aims to improve the patient's quality of life while inhibiting the growth of cancer cells. Supportive care is needed to reduce side effects and improve drug effectiveness, so that patients can undergo chemotherapy more compliantly and comfortably. The purpose of this narrative review is to determine the description of cytostatic chemotherapy and supportive drugs in breast cancer patients. This research method uses a narrative review with a total of 6 articles that meet the inclusion and exclusion criteria. The patients taken were patients who underwent chemotherapy in hospitals in Indonesia. The results of this study showed that 3 articles showed therapy using CAF and CEF regimens. The supportive therapy from the 3 journals shows that what is widely used is antiemetic drugs to overcome the side effects of nausea and vomiting, one of the drugs is ondansentron. In conclusion, the majority of breast cancer chemotherapy regimens use CAF (Cyclophospamide- doxorubicin- 5-Fluorouracil) with antiemetic in the form of ondansentron.

Keywords: Combination regimen, Breast cancer, Cancer therapy support drugs, Cancer chemotherapy

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Antibacterial Activity on Staphylococcus aureus: An In Silico Study

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ABSTRACT

Staphylococcus aureus is a Gram-positive bacteria that can cause acute and chronic infections, including pneumonia, pseudomembranous colitis, pericarditis, and sepsis. The purpose of this article review is to determine the antibacterial activity of compounds, Moringa oleifera, Nigella sativa, Cladophora sp. against Staphylococcus aureus bacteria through an in silico approach. The method used is a narrative review with a literature search on Google Scholar and Publish or Perish using the keywords "Antibacterial Activity on Staphylococcus aureus, in silico study." Three articles were selected based on inclusion and exclusion criteria. This study shows the presence of compounds that have antibacterial activity. The results show that several compounds have high affinity energy (negative), which indicates antibacterial potential. The compounds with the best binding energy from each study were Genistein (−8.02 kcal/mol) from Moringa oleifera, 2-(1,3-Benzodioxol-5-yl)-4,5,6,7-tetramethyl-1H-benzimidazole (−8.311 kcal/mol) from Nigella sativa, and Palmitic acid (−7.29 kcal/mol) from Cladophora sp.

Keywords: Staphylococcus aureus, Moringa oleifera, Nigella sativa, Cladophora sp., In silico

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The Satisfaction Level of Pharmacy Staff and Inpatient Nurses Toward the Unit Dose Dispensing (UDD) System at RSI Fatimah Cilacap

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ABSTRACT

An effective medication distribution system plays a crucial role in enhancing the quality of pharmaceutical services in hospitals. The Unit Dose Dispensing system is a medication distribution method designed to improve efficiency, safety, and accuracy in administering medications to patients. This study aims to evaluate the implementation of the Unit Dose Dispensing system and the satisfaction level of pharmaceutical personnel and inpatient nurses at Fatimah Islamic Hospital in Cilacap. A mixed-method research design was employed, combining quantitative data collected through structured questionnaires and qualitative data obtained from in-depth interviews. The results showed that four out of five service quality dimensions tangibles, reliability, responsiveness, and assurance demonstrated significant differences in satisfaction levels between professional groups. In contrast, the empathy dimension showed no significant variation. Overall, the satisfaction level with the Unit Dose Dispensing system was considered high. The qualitative findings supported the quantitative results, with respondents indicating that the system enhanced workflow coordination, reduced the risk of medication errors, and increased confidence in performing their duties. In conclusion, the Unit Dose Dispensing system is positively received and perceived to contribute to improved pharmaceutical service quality and interprofessional collaboration.

Keywords: Medication distribution, Job satisfaction, Nurses, Unit dose dispensing system, Pharmaceutical personnel

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Potential of Natural Polymers in the Development of the Thermosensitive Hydrogel Base

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ABSTRACT

The selection of dosage form is important in formula development. Transdermal route of administration offers convenience and comfort. Thermosensitive hydrogels, which have a unique sol-gel transition, are the focus of research. These hydrogels change phase at near-body temperature, making them ideal for medical applications. With temperature stimulation, high-molecular polymers can rapidly form a gel at the application site, transitioning from a dispersed form to a solid network structure. This method is simple and economical. Temperature-sensitive biomaterials are a new innovation in the manufacture of thermosensitive hydrogels. By utilizing natural polymers, it is expected to develop effective and safe hydrogels for medical applications. This study aims to examine the types of polymers that can be used in the development of thermosensitive hydrogels. The method used is Systematic Literature Review (SLR). The results of this study indicate that the use of natural and synthetic polymers can form gels at body temperature and can release drugs in a controlled manner.

Keywords: Potential, Polymer, Thermosensitive hydrogel

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Lemongrass Nanoemulgel (Cymbopogon nardus L.): Chemical Components, Formulation, and Antibacterial Activity

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ABSTRACT

Lemongrass (Cymbopogon nardus L.) is known as a plant that produces essential oils that have active substances such as citronellal, citronellol, and geraniol. These compounds have potential antibacterial activity. This article aims to review the chemical content, preparation formulation, and antibacterial activity of lemongrass essential oil based on literature studies. This article uses the Narrative literature review method with article sources from Google Scholar and Publish of Perish in the period 2016-2025, seventeen articles were obtained and eight articles met the inclusion characteristics. From the eight articles, the results of the P. acnes inhibition zone diameter were 11.7 ± 0.57 - 17 ± 2.64 mm, the Escherichia Coli inhibition zone diameter was 6.43 - 6.81 mm, and the Staphylococcus aureus inhibition zone diameter was 20 mm which shows that nano dosage formulation is proven to increase antibacterial effectiveness by increasing the solubility and penetration of active substances.

Keywords: Antibacterial activity, Cymbopogon nardus, Formulation, Citronella essential oil

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Analysis of Phosphate Levels in Laundry Wastewater

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ABSTRACT

The increase in wastewater activity in urban areas, laundry wastewater has raised concerns about environmental pollution, especially due to phosphate content. One of the compounds that can cause eutrophication occurs from phosphate, thus potentially reducing environmental quality and public health. However, studies on phosphate levels in laundry wastewater are still limited, even though the urgency is high to support sustainable waste management. Writing a narrative review with the aim of analyzing literature related to phosphate levels in laundry wastewater, its impact on the environment, and the analysis methods used. Through a literature review, it is hoped that an overview of phosphate levels, influencing factors, and recommendations for things to expect can be obtained according to scientific data. The results of this narrative review are expected to be a conceptual basis and input in the research plan.

Keywords: Phosphate levels, Liquid waste, Laundry wastewater, Analysis methods, Environmental pollution

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Clinical Outcomes and Adherence to SNRI and SSRI Antidepressants in Youth: A Narrative Review

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ABSTRACT

Depression is a frequently occurring mental health disorder in teenagers and young adults, which can diminish their quality of life and productivity. The treatment of depression in this age group remains challenging, particularly in relation to the efficacy, adherence, and tolerability of SSRI and SNRI medications. This literature review aims to compare the clinical response, adherence, and tolerability of SSRIs and SNRIs in teenagers and young adults based on journal articles from the last 10 years. The method used was a descriptive library research. The results show that SSRIs are generally more effective, with better adherence and tolerability, while SNRIs frequently lead to treatment discontinuation due to side effects and show lower response rates. Therefore, SSRIs may be recommended as the first choice of treatment for young adults and teenagers, while SNRIs can be considered when resistance or an inadequate response to SSRIs occurs. This review can serve as a clinical reference to help achieve effective and safe treatment outcomes in patients.

Keywords: Antidepressant, Treatment continuity, Major depressive disorder, Drug tolerability, SSRI, SNRI

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