LAMPIRAN

LAMPIRAN

Lampiran 1. Jurnal literatur review aktivitas antibakteri *Streptococcus mutans* rimpang famili *Zingiberaceae*

MENARA *Ilmu* Vol. XIII No.6 April 2019

DAYA HAMBAT EKSTRAK RIMPANG TEMU PUTIH (Curcuma zedoaria) TERHADAP Streptococcus mutans DAN Staphylococcus aureus

Busman, Edrizal, Siska Desri Wirahmi

Abstract

Oral cavity is a place of entry of various kinds of bacteria into the body. The main causes of dental caries are *Streptococcus mutans* and *Staphylococcus aureus*. White gathering has benefits for the body including toothache medicine, eliminating bad breath and sore throat. The purpose of this study was to determine the inhibitory effect of rhizome extract of white intersection *(Curcuma zedoaria)* against *Streptococcus mutans* and *Staphylococcus aureus*. The type of research used is laboratory experimental, the research sample is bacterium *Streptococcus mutans* and *Staphylococcus aureus* obtained from laboratory of Microbiology University of Indonesia. This study used concentrations of 20%, 40%, 60% and 80% as well as positive control using amoxicillin and negative control using DMSO. Data analysis using *One Way Anova* test. The results obtained sig value = 0.000 <0.05. From this research, it was found that white rhizome extract *(Curcuma zedoaria)* can inhibit the growth of *Streptococcus mutans* and *Staphylococcus aureus* bacteria in the extract concentrations of 20%, 40%, 60% and 80%. The conclusion of this research is the inhibition of white rhizome extract extract *(Curcuma zedoaria)* against Streptococcus mutans with 40% concentration of 16.96 mm and in Staphylococcus aureus bacteria with 80% concentration of 23.98 mm.

Key Word : Ekstrak rimpang temu putih (*Curcuma zedoaria*), *Staphylococcus aureus* dan *Streptococcus mutans*

Daya Hambat Ekstrak Rimpang Temu Putih (*Curcuma zedoaria*) Terhadap *Streptococcus mutans* Dan *Staphylococcus aureus* (Busman *et al*. 2019)

UJI AKTIVITAS ANTIBAKTERI DARI EKSTRAK ETANOL TEMU KUNCI (Boesenbergia pandurata Roxb) TERHADAP BAKTERI Streptococcus mutans

Article *in* Jurnal Penelitian Saintek · August 2017

DOI: 10.21831/jps.v22i1.15380

CITATIONS 5

READS 7,728

2 authors, including:

Sri Atun

Universitas Negeri Yogyakarta

58 PUBLICATIONS **185** CITATIONS

SEE PROFILE

Uji Aktivitas Antibakteri Dari Ekstrak Etanol Temu Kunci (*Boesenbergia pandurata*) Terhadap Bakteri *Streptococcus mutans* (Sriatun 2017)

Analysis of Antibacterial Effectiveness of Red Ginger Extract (Zingiber Officinale Var Rubrum) Compared to White Ginger Extract *(Zingiber Officinale Var. Amarum)* In Mouth Cavity Bacterial *Streptococcus Mutans (In-Vitro)*

Hendrastuti Handayani[1]*, Harun Achmad[1], Andam Dewi Suci[2], Marhamah Firman[1], Surijana Mappangara[3], Sri Ramadhany[4], Rini Pratiwi[5], Dwi Putri Wulansari[6]

1. Department of Pediatric, Faculty of Dentistry, Universitas Hasanuddin, Makassar, Indonesia.
2. Clinical Dental Student of Hasanuddin University, Indonesia.
3. Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Universitas Hasanuddin, Makassar, Indonesia.
4. Department of Public Health, Faculty of Medicine, Universitas Hasanuddin, Makassar, Indonesia.
5. Department of Public Health, Faculty of Dental Medicine, Universitas Hasanuddin, Makassar, Indonesia.
6. Department of Dental Radiology, Faculty of Dentistry, Universitas Hasanuddin, Makassar, Indonesia.

Abstract

Ginger has an active compound of phenol, flavonoids, terpenoids and essential oils that can inhibit microbial growth. Streptococcus mutans bacteria play an important role in the development of dental caries.

To know the Antibacterial Effectiveness Analysis of Red Ginger Extract (*Zingiber Officinale Var. Rubrum)* Compared to White Ginger Extract *(Zingiber Officinale Var. Amarum*) In Mouth Cavity Bacterial *Streptococcus Mutans (In-Vitro).*

Type of research used is laboratory experimental. The sample is a red Ginger extract (*Zingiber officinale var. Rubrum)* and white ginger extract (*Zingiber officinale var. Amarum*) and Bacteria used are*Streptococcus mutans* using the inhibitory test method.

The highest average value of the highest group is shown in red ginger extract 60% of 15.90 mm, 40% by 14.73 mm and 20% by 12.70 mm. For White Ginger extract 60% by 11.90 mm, 40% by 11.15 mm, and 20% by 10.08 mm. Based on the normality test, Mann-Whitney test and T-test obtained p value <0.05 which means there is significant difference between inhibition between treatment group and overall measurement.

Red Ginger Extract(*Zingiber officinale var. Rubrum)* and White Ginger Extract (*Zingiber officinale var. Amarum*) has an antibacterial effect on*Streptococcus mutans*. Red ginger extract at concentration of 60% has greater antibacterial effect inhibiting Streptococcus mutans compared to white ginger extract. Based on the results of the study the higher concentration of red ginger extract and white ginger the greater the inhibitory power diameter against *Streptococcus mutans.*

Clinical article (J Int Dent Med Res 2018; 11(2): pp. 676-681)

Keywords: Red Ginger, White Ginger, *Streptococcus mutans.*

Received date: 06 February 2018 **Accept date:** 26 March 2018

Analysis of Antibacterial Effectiveness of Red Ginger Extract (*Zingiber Officinale Var Rubrum*) Compared to White Ginger Extract (*Zingiber Officinale Var. Amarum*) In Mouth Cavity Bacterial *Streptococcus Mutans* (In-Vitro) (Handayani *et al*. 2018)

Scholars Academic Journal of Biosciences (SAJB) **ISSN 2321-6883 (Online)**
Sch. Acad. J. Biosci., 2014; 2(12B): 953-956 **ISSN 2347-9515 (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublisher.com

Research Article

Antimicrobial Activity of Clove and Ginger Powder Extracts on *Streptococcus mutans*

Dr. Abhishek Sharma[1], Dr Bharat Sankhla[2], Dr Sujal M Parkar[3], Dr Setu Mathur[4]
[1,3]Assistant Professor, Dept. of Public Health Dentistry, Government Dental College & Hospital, Jaipur, India
[2]Assistant Professor, Dept. of Oral Pathology, Government Dental College & Hospital, Jaipur, India
[4]Assistant Professor, Dept. of Periodontics, Government Dental College & Hospital, Jaipur, India

***Corresponding author**
Dr. Abhishek Sharma
Email: drabhi712@gmail.com

Abstract: The aim of present work is to evaluate the antimicrobial activity of clove and ginger powder extracts on Streptococcus Mutans. An in-vitro study was conducted to assess effectiveness of 5%, 10%, and 50% clove and ginger powder extracts on Streptococcus mutans. The ditch plate method was used to test the antimicrobial activity. Ditches were prepared on blood agar plates with the help of punch having 6-mm diameter. The plates were left for 1 hr at room temperature and then incubated at 37°C for 48 hours and examined for zone of inhibition. There was no zone of inhibition observed with 5% clove and ginger powder extracts. There was significant difference in mean diameter of zone of inhibition of 10% and 50% clove and ginger extract. Results showed that both clove and ginger powder extracts had antimicrobial activity against streptococcus mutans, while antimicrobial activity was significantly higher in clove aqueous extract than ginger aqueous extract.
Keywords: streptococcus mutans, clove buds, ginger, extracts, zone of inhibition, antimicrobial activity.

Antimicrobial Activity of Clove and Ginger Powder Extracts on Streptococcus mutans (Sharma, 2014)

JOURNAL OF THE INDIAN ASSOCIATION OF
PUBLIC HEALTH DENTISTRY Vol:2011 ISSUE:17 SUPPL. I

Antibacterial activity of some spice extracts on *Streptococcus mutans*: An *invitro* study

Dr.Mahesh Hiregoudar[1], Dr.Suubramaniam R[2], Dr.Simpy Mittal[3], Dr.Muralikrishna K.S[4], Dr.Sakeenabi B[5], Dr.Prashant G.M[6], Dr.Chandru G.N[7],

ABSTRACT

Background: Spices has been described down the ages for their medicinal effects apart from their routine use for flavour and aroma. The antimicrobial properties of spice extracts have been recognized and used since antiquity. *Streptococcus mutans* plays a major role in initiating dental caries process. Hence timely prevention and control of *Streptococcus mutans* in the oral cavity is necessary.

Objectives: To evaluate the antimicrobial activity of turmeric (*Curcuma longa*), clove (*Syzygium aromaticum*) and ginger (*Zingiber officinale*) and to assess the minimal inhibitory concentration of spice extracts against *Streptococcus mutans*.

Methodology: The spices were dried and powdered. Solvent extracts were obtained by treating spices in soxhlet extractor with ethanol followed by evaporation and concentration. The antimicrobial activity of spice extracts were assessed using agar well technique and minimum inhibitory concentration (MIC) of spice extracts were tested.

Results: The ethanolic extracts of spices were effective as antibacterial against *Streptococcus mutans*. Clove showed maximum antibacterial activity followed by turmeric and ginger. Among the concentrations tested, 50% concentration of all spices, showed maximum zone of inhibition followed by 25% and 12.5%. The clove had the lowest MIC value compared with the turmeric and the ginger.

Conclusion: All the spice extracts were found to inhibit *Streptococcus mutans* effectively. Clove emerged as a potent inhibitor of *Streptococcus mutans*. These plant extracts may be useful sources for the development of novel herbal antibacterial formulations against *Streptococcus mutans*.

Keywords: turmeric (*Curcuma longa*), clove (*Syzygium aromaticum*) and ginger (*Zingiber officinale*), agar well diffusion technique, MIC.

Antibacterial activity of some spice extracts on Streptococcus mutans: An invitro study (Hiregoudar *et al*. 2011)

Lampiran 2. Jurnal literatur review kandungan senyawa kimia rimpang famili *Zingiberaceae*

UJI AKTIVITAS SITOTOKSIK DARI TUMBUHAN TEMU PUTIH (*Curcuma zedoaria*) ASAL KABUPATEN OGAN KOMERING ULU

Apria Wilinda Sumantri
AKADEMI KEPERAWATAN AL-MA'ARIF BATURAJA
Apria.wilinda@yahoo.co.id

ABSTRAK

Latar belakang: Kanker adalah suatu penyakit yang disebabkan oleh pertumbuhan sel-sel jaringan tubuh yang tidak normal. Pengobatan kanker selain menggunakan obat kimia, juga dapat menggunakan agen *phytotherapeutic*, yaitu obat herbal standar yang terdiri dari bahan aktif yang berasal dari bagian tanaman. Beberapa penelitian mengatakan bahwa temu putih (*Curcuma zedoaria*) merupakan salah satu tumbuhan berkhasiat yang dapat diolah menjadi obat herbal. Kandungan senyawa kimia pada kunyit putih mengandung banyak manfaat seperti antikanker, antifungal, antiamebic, larvasida, antimikroba, antioksidan, antiplasmodial, antialergi, dan analgetik. **Hasil:** Hasil skrining fitokimia terhadap serbuk simplisia dan ekstrak etanol tumbuhan temu putih (*Curcuma zedoaria*) asal Kabupaten OKU mengandung senyawa aktif golongan flavonoid, tanin dan saponin. Tumbuhan sarang semut ini memiliki potensi aktivitas sitotoksik yang tinggi dengan nilai LC50 < 1000 ppm, yaitu dengan nilai LC50 sebesar 22,86 ppm terhadap ekstrak etanol temu putih (*Curcuma zedoaria*). **Kesimpulan:** **temu** putih mengandung senyawa kimia kurkuminoid, RIP (*Ribosome Inacting Protein*), *isocurcumenol, demothxycurcumin, bisdemothxycurcumin, epicurzerenone, curdione*, dan *ethyl p- methoxycinnamate* yang berfungsi menonaktifkan perkembangan sel kanker dan menghambat pertumbuhan sel kanker. Selain itu, kunyit putih juga mengandung senyawa kimia seperti *curzerenone, zedoaron,* minyak atsiri, *diferuloylmethan,* flavonoid, kurkumin, trimethoxyflavone, tetramethoxyflavone, *tetrahydrodemethoxycurcumin*, *dihydrocurcumin*, dan polifenol yang bermanfaat secara farmakologis.

Kata kunci: antikanker, antimikroba, C*urcuma zedoaria*, temu putih

Uji Aktivitas Sitotoksik Dari Tumbuhan Temu Putih (*Curcuma zedoaria*) Asal Kabupaten Ogan Komering Ulu (Sumantri 2019)

Indonesian Journal of Pharmacy and Natural Product
http://jurnal.unsw.ac.id/index.php/ijpnp
Volume 02, Nomor 02 , September 2019
p-ISSN : 2656-3215
e-ISSN : 2615-6903

Penetapan Kadar Flavonoid Dan Uji Aktivitas Antibakteri Ekstrak Sereh (*Cymbopogon nardus)* Dan Temu Kunci (*Boesnbergia pandurata Roxb)* Terhadap Bakteri *Streptococcus Mutans*

Determination Of Flavonoid Levels And Antibacteria Activities Of Lemongrass (Cymbopogon nardus) And Fingerroots Extract (Boesnbergia pandurata Roxb) Against Streptococcus Mutans Bacteria

Anita Kumala Hati[(1)],Niken Dyahariesti[(1)], Richa Yuswantina[(1)]
[(1)]Program Studi Farmasi,Universitas Ngudi Waluyo
E-mail : anitakumalahati@gmail.com

ABSTRAK

Indonesia kaya akan jenis tanaman obat, diantaranya yang mempunyai daya menghambat pertumbuhan bakteri yaitu tanaman sereh *(Cymbopogon nardus)* dan rimpang temu kunci *(Boesenbergia pandurata)*. Bakteri *Streptococcus mutans* merupakan bakteri penyebab karies gigi. Penelitian uni bertujuan untuk mengetahui kandungan senyawa kimia dan aktivitas antibakteri ekstrak sereh dan rimpang temu kunci terhadap bakteri *Streptococcus mutans*. Penelitian dilakukan secara eksperimental dengan dengan sampel tanaman sereh dan rimpang temu kunci. Ekstrasi menggunakan metode maserasi menggunakan pelarut Etanol 70%. Uji skrining fitokimia dengan uji warna dan penetapan kadar flavonoid total menggunakan spektrofotometer. Uji aktivitas antibakteri menggunakan metode difusi cakram terhadap bakteri *Streptococcus mutans*. Hasil skrining fitokimia ekstrak sereh dan temu kunci dengan uji kualitatif reaksi warna menunjukkan positif mengandung flavonoid, saponin dan tanin. Pada uji penetapan kadar flavonoid total, menunjukkan rata-rata kadar flavonoid total pada ekstrak sereh sebesar 48,61 mgQE/g dan pada ekstrak rimpang temu kunci sebesar 24,71 mgQE/g. Hasil uji antibakteri terhadap *Streptococcus mutans* diperoleh data rata-rata diameter zona hambat paling besar pada ekstrak temu kunci 5% $^{b}/_{v}$ (11,167 mm), kemudian konsentrasi 5% $^{b}/_{v}$ kombinasi sereh:temu kunci 1:2 (10,83 mm), kombinasi 2:1 (10,067 mm). sereh (9,33 mm), kombinasi 1:1 (9,133 mm), Berdasarkan hasil uji Post Hoc yang sebanding dengan kontrol positif adalah ekstrak temu kunci 5%, kombinasi sereh:temu kunci 1:2, dan kombinasi 2:1. Rata-rata kadar flavonoid total ekstrak sereh lebih besar dibandingkan kadar flavonoid Ekstrak temu kunci, namun pada konsentrasi yang sama Ekstrak Temu kunci 5% memberikan daya penghambatan antibakteri paling besar.

Kata kunci : Sereh, Temu Kunci, Flavonoid, *Streptococcus mutans*

Penetapan Kadar Flavonoid Dan Uji Aktivitas Antibakteri Ekstrak Sereh (*Cymbopogon nardus*) Dan Temu Kunci (*Boesenbergia pandurata* Roxb) Terhadap Bakteri *Streptococcus Mutans* (Hati *et al*. 2019)

NPC Natural Product Communications

2018
Vol. 13
No. 6
739 - 740

A New Compound from the Rhizomes of *Boesenbergia pandurata*

Truong Nhat Van Do[a], Hai Xuan Nguyen[a], Tho Huu Le[a], Trang My Thi Ngo[a], Phu Hoang Dang[a], Nghia Hieu Phung[a], Nghia Trong Vo[a], Duc Minh Nguyen[b], Nhan Hong Thi Le[b], Thanh Thanh Le[d], Mai Thanh Thi Nguyen[a,c], Suresh Awale[e] and Nhan Trung Nguyen[a,c,*]

[a]*Faculty of Chemistry and [c]Cancer Research Laboratory, VNUHCM–University of Science, 227 Nguyen Van Cu, District 5, Ho Chi Minh, Vietnam*

[b]*Faculty of Chemical Engineering, VNUHCM–University of Technology, 268 Ly Thuong Kiet Street, District 10, Ho Chi Minh City, Vietnam*

[d]*Faculty of Natural Sciences, Thu Dau Mot University, 06 Tran Van On, Phu Hoa, Thu Dau Mot City, Binh Duong Province, Vietnam*

[e]*Division of Natural Drug Discovery, Institute of Natural Medicine, University of Toyama, 2630 Sugitani, Toyama 930-0194, Japan*

ntnhan@hcmus.edu.vn

Received: January 24th, 2018; Accepted: March 29th, 2018

Phytochemical investigation of the methanol extract of the rhizomes of Vietnamese *Boesenbergia pandurata* resulted in the isolation of a new secondary metabolite named panduratin P (**1**). The structure of this compound was elucidated by NMR spectroscopic analysis. Compound **1** exhibited a mild activity against PANC-1 human pancreatic cancer cell lines in nutrient-deprived medium (NDM) with PC_{50} value of 55.9 μM.

Keywords: *Boesenbergia pandurata*, Secondary metabolite, PANC-1 cell.

A New Compound from the Rhizomes of *Boesenbergia pandurata* (Nguyen hai xuan *et al*. 2018

Skrining Senyawa Antibakteri dari Minyak Atsiri Rimpang Temu Kunci (*Boesenbergia pandurata*) terhadap *Staphylococcus aureus* dengan Metode Bioautografi Kontak

Indah Christiana dan Lisa Soegianto*
Fakultas Farmasi, Universitas Katolik Widya Mandala Surabaya, Indonesia

Rimpang temu kunci di masyarakat umumnya digunakan sebagai obat rematik, radang lambung, radang selaput lendir, peluruh air seni, malaria, gangguan usus besar, perut kembung, penyakit kulit, diare, sariawan, dan cacingan. Minyak atsiri yang terdapat pada rimpang temu kunci umumnya digunakan sebagai antibakteri. Tujuan dari penelitian ini adalah menentukan ada daya antibakteri minyak atsiri rimpang temu kunci terhadap *Staphylococcus aureus* dan golongan senyawa dalam minyak atsiri rimpang temu kunci (*Boesenbergia pandurata*) yang mempunyai aktivitas antibakteri terhadap *Staphylococcus aureus* dengan metode bioautografi kontak. Minyak atsiri rimpang temu kunci diperoleh dengan metode destilasi Stahl. Penentuan golongan senyawa berkhasiat dilakukan dengan uji bioautografi kontak dan dianalisa menggunakan skrining fitokimia *anisaldehid asam sulfat* dan *vanillin sulfat*. Hasil penetapan kadar minyak atsiri dengan destilasi Stahl diperoleh kadar minyak atsiri rimpang temu kunci segar sebesar 0,38%. Hasil pengujian bioautografi kontak menunjukkan golongan monoterpen yang memiliki aktivitas antibakteri terhadap *Staphylococcus aureus*.

Kata kunci: Temu kunci (*Boesenbergia pandurata*), minyak atsiri, aktivitas antibakteri, *Staphylococcus aureus*, bioautografi kontak

Skrining Senyawa Antibakteri dari Minyak Atsiri Rimpang Temu Kunci (*Boesenbergia pandurata*) terhadap *Staphylococcus aureus* dengan Metode Bioautografi Kontak (Christiana *et al*. 2020)

Boesenbergia pandurata Roxb., An Indonesian Medicinal Plant: Phytochemistry, Biological Activity, Plant Biotechnology

Agus Chahyadi [a,b], Rika Hartati[a], Komar Ruslan Wirasutisna[a], Elfahmi[a]*

[a]*Pharmaceutical Biology Research Group, School of Pharmacy, Bandung Institute of Technology, Jl. Ganesha 10 Bandung, Indonesia, 40132*
[b]Pharmacy Department, Faculty of Pharmacy, Universitas Haluoleo, Kendari, 93231, Indonesia

Abstract

Boesenbergia pandurata Roxb. (Zingiberaceae), known as "temu kunci", is one of the Indonesian medicinal plants. Its rhizome has been traditionally used in folk medicine for treatment of several diseases. Rhizome of *B. pandurata* contains essential oils and many flavonoid compounds that showed many interesting pharmacological activities, such as antifungal, antibacterial, antioxidant, etc. Interestingly, this plant has several prenylated flavonoid compounds, panduratins, that showed very promising of biological activities, especially as strong antifungal and antibacterial, anti-inflammatory, and anti-cancer. This paper aims to review chemical constituents of this plant and their pharmacological activities and also to give a brief view through biotechnological perspective concerning the several possibilities to produce several valuable prenylated flavonoids from this plant.

Peer-review under responsibility of the School of Pharmacy, Bandung Institute of Technology

Keywords: *Boesenbergia pandurata*, Essential oil, Prenylated flavonoid, Panduratin, Antibacterial

Boesenbergia pandurata Roxb., An Indonesian Medicinal Plant: Phytochemistry, Biological Activity, Plant Biotechnology (Chahyadi *et al*. 2012)

OPTIMASI EKSTRAKSI JAHE MERAH (*Zingiber officinale* Roscoe) DENGAN METODE MASERASI

Santi Rahmadani[1], Siti Sa'diah[2], Sri Wardatun[3]
[1, 3] Program Studi Farmasi FMIPA UNPAK
[2] Pusat Studi Biofarmaka LPPM. IPB ,
[3] Departemen Anatomi Fisiologi dan Farmakologi, FKH IPB

ABSTRAK

Jahe merah merupakan jenis rimpang yang banyak digunakan sebagai salah satu bahan obat tradisional di Indonesia. Khasiat jahe merah telah banyak dikaji diantaranya efektif sebagai anti bakteri, anti inflamasi dan anti emetik. Salah satu komponen utama jahe merah adalah golongan senyawa gingerol dan shogaol. Penelitian ini bertujuan untuk mendapatkan cara ekstraksi yang paling optimal untuk menghasilkan kadar golongan gingerol (6-gingerol, 8-gingerol, 10-gingerol) dan 6-shogaol. Metode ekstraksi dibedakan dari tiga jenis pelarut etanol yaitu 96%, 70%, dan 30% pada perbandingan bahan baku pelarut 1:10 yang dimaserasi selama 2×24 jam. Penentuan kadar senyawa aktif menggunakan HPLC UFLC (*Ultra Fast Liquid Chromatograph*) Shimadzu dengan kolom ODS (*Okta Desil Silika*) C 18. Hasil penelitian menunjukkan bahwa ekstrak etanol 96% jahe merah dengan metode maserasi memiliki kadar 6-gingerol , 8-gingerol, 6-shogaol dan 10-gingerol yang paling tinggi dibandingkan dengan ekstrak etanol 70% dan 30% kadar 6-gingerol sebesar 35,36 mg/g, 8-gingerol sebesar 8,04 mg/g, 6-shogaol sebesar 3,07 mg/g, dan 10-gingerol sebesar 11,37 mg/g.

Kata kunci : Jahe merah (*Zingiber officinale* Roscoe), maserasi, gingerol, shogaol.

Optimasi Ekstraksi Jahe Merah (*Zingiber officinale* Roscoe) Dengan Metode Maserasi (Rahmadani *et al*. 2018)

J-PhAM Journal of Pharmaceutical Care Anwar Medika

Artikel Penelitian

Pengaruh Perbedaan Metode Ekstraksi Rimpang Kunyit (*Curcuma domestica*) Terhadap Rendemen dan Skrining Fitokimia

Arista Wahyu Ningsih[1], Iif Hanifa[1],A'yunil Hisbiyah[1]
Program Studi S1 Farmasi STIKES RS ANWAR MEDIKA, Sidoarjo, Indonesia
Email:ariessmkkes@gmail.com/081334006809

ABSTRAK : Kunyit (*Curcuma domestica*) adalah tanaman yang berada di daerah Asia Tenggara yang digunakan sebagai tanaman rempah dan obat. Tanaman ini kemudian mengalami perseberan ke Indonesia. Kunyit adalah tanaman obat yang memiliki peluang untuk dieksplorasi dalam pemanfaatannya. Tujuan dari penelitian ini yaitu untuk mengetahui perbedaan % rendemen dan skrining fitokimia dengan membandingkan metode ekstraksi maserasi dan remaserasi menggunakan pelarut etanol 96%. Hasil rendemen paling tinggi adalah rendemen dengan menggunakan metode ekstraksi remaserasi sebesar 23.3% sedangkan ekstraksi menggunakan maserasi menghasilkan rendemen ekstrak sebesar 22%. Hasil uji penapisan fitokimia terhadap ekstrak rimpang kunyit dengan teknik remaserasi dan maserasi keduanya sama-sama mengandung golongan senyawa alkaloid, flavonoid, tannin, polifenol, antrakuinon, triterpenoid dan steroid. Hasil dari analisis kualitatif dengan metode penapisan fitokimia menunjukkan bahwa metode ekstaraksi maserasi dan remaserasi tidak mempengaruhi kandungan senyawa kimia dalam tumbuhan tetapi mempengaruhi % rendemen ekstrak yang dihasilkan.
Kata kunci : Rendemen, maserasi, remaserasi

Pengaruh perbedaan metode ekstraksi rimpang kunyit (Curcuma domestica) terhadap rendemen dan skrining fitokimia (Ningsih Arista Wahyu et al. 2020)

Profil Fitokimia Ekstrak Etil Asetat Temu Kunci (*Boesenbergia rotunda L.*) dan Serai (*Cymbopogon citratus*)

Muhammad Priyadi, Nurul Chusna, Isnawati, Opi Indriani

Program Studi Farmasi, Fakultas Ilmu Kesehatan, Universitas Muhammadiyah Palangkaraya, Palangka Raya, Kalimantan Tengah, Indonesia
Email: muhammad.priyadi@umpalangkaraya.ac.id

ABSTRAK

Senyawa bahan alam yang terdapat pada tanaman memiliki banyak khasiat bagi kesehatan yang telah dibuktikan melalui pengobatan tradisional secara empiris. Identifikasi senyawa kimia sangat penting untuk mengetahui kemungkinan adanya senyawa yang dapat memiliki aktivitas farmakologi. Tanaman yang telah banyak digunakan oleh masyarakat termasuk pengobatan adalah temu kunci (*Boesenbergia rotunda* L.) dan serai (*Cymbopogon citratus*). Temu kunci dan serai diekstraksi menggunakan pelarut etil asetat. Uji fitokimia pada ekstrak etil asetat temu kunci dan serai dilakukan dengan uji kualitatif pereaksi warna dan pengendapan serta kromatografi lapis tipis untuk melihat gambaran pemisahan senyawa kimia yang terkandung. Ekstrak etil asetat temu kunci dan serai mengandung senyawa golongan alkaloid, terpenoid, flavonoid, fenol, dan kuinon. Senyawa pada temu kunci dan serai dapat dipisahkan menggunakan kromatografi lapis tipis dengan fase gerak etil asetat : n-heksan (8:2).

Kata Kunci: Fitokimia, Temu Kunci, Serai, Ekstrak Etil Asetat, Kromatografi Lapis Tipis

Profil Fitokimia Ekstrak Etil Asetat Temu Kunci (*Boesenbergia rotunda* L.) dan Serai (*Cymbopogon citratus*) (Priyadi *et al*. 2021)

Herb-Medicine Journal ISSN: 2620-567X

Penapisan Fitokimia, Kadar Kurkuminoid dan Aktivitas Antibakteri Temu Hitam (*Curcuma aeruginosa* (Christm) Roscoe.), Temu Putih (*Curcuma zedoaria* Roxb.) dan Temulawak (*Curcuma xanthorrhiza* Roxb.)

Lia Marliani[1], Ika Kurnia Sukmawati[1], Dadang Juanda[1], Elmadhita Anjani[1], Ira Anggraeni[1]

[1]*Fakultas Farmasi, Universitas Bhakti Kencana, Bandung*
Email: lia.marliani@bku.ac.id

Abstract

The content of secondary metabolites in the rhizome of the Curcuma genus such as Black turmeric (*Curcuma aeruginosa* Roxb.), White turmeric (*Curcuma zedoaria* (Christm.) Roscoe) and Java turmeric (*Curcuma xanthorrhiza* Roxb.) play a role in various pharmacological activities. One of them is the content of the curcuminoid compounds which have been proved to have antibacterial activity. This study aims to screen the content of secondary metabolite compounds, determine curcuminoid content and verify the antibacterial activity of the extracts of Black turmeric (*Curcuma aeruginosa* Roxb.), White turmeric (*Curcuma zedoaria* (Christm.) Roscoe) and Java turmeric (*Curcuma xanthorrhiza* Roxb.). Extraction was carried out by the maceration method using 95% ethanol as solvent. Phytochemical screening was tested for the content of alkaloid, polyphenols, flavonoids, quinones, tannins, saponins, and steroids/ triterpenoids compounds. Determination of curcuminoid content by UV-Vis Spectrophotometry method. The antibacterial activity test was carried out by the microdilution method against *Staphylococcus aureus*, *Staphylococcus epidermidis*, and *Propionibacterium acne* bacteria. The results of phytochemical screening showed that the three extracts contained polyphenols and flavonoids. Quinone compounds are only contained in the extract of Black turmeric and Java turmeric. Saponin compounds were only detected in Black turmeric and White turmeric extracts. Meanwhile, steroid/ triterpenoid compounds were detected in the extract of White turmeric and Java turmeric. The results of curcuminoid content determination on the three extracts showed that the Java turmeric extract had the highest content of curcuminoids (16.07 ± 0.023 mg CE/g extract). The results of the antibacterial test showed the strongest activity of the three test samples shown by Java turmeric extract with a minimum inhibitory concentration (MIC) value of 64 *µg/mL* against *Staphylococcus aureus* bacteria; 256 *µg/mL* against *Staphylococcus epidermidis* bacteria; and 32 *µg/mL* against the *Propionibacterium acne* bacteria. These results indicate that Java turmeric extract is more active against *Propionibacterium acne* bacteria.

Key word: Curcuma, Zingiberaceae, Curcuminoid, Antibacterial

Penapisan Fitokimia, Kadar Kurkuminoid dan Aktivitas Antibakteri Temu Hitam (*Curcuma aeruginosa* (Christm) Roscoe.), Temu Putih (*Curcuma zedoaria* Roxb.) dan Temulawak (*Curcuma xanthorrhiza*) (Marliani *et al*. 2021)

UJI AKTIVITAS ANTIBAKTERI EKSTRAK ETANOL RIMPANG KUNYIT (*Curcuma longa* L.) TERHADAP *Staphylococcus aureus* DAN *Pseudomonas aeruginosa*

[1] Lia Fikayuniar M.Si., [2] Neni Sri Gunarti M.Si., Apt.,[3] Mellya Apriliani
[1] Prodi Farmasi Fakultas Teknologi dan Ilmu Komputer Universitas Buana Perjuangan Karawang (lia.fikayuniar@ubpkarawang.ac.id)
[2] Prodi Farmasi Fakultas Teknologi dan Ilmu Komputer Universitas Buana Perjuangan Karawang (neni.gunarti@ubpkarawang.ac.id)
[3] Prodi Farmasi Fakultas Teknologi dan Ilmu Komputer Universitas Buana Perjuangan Karawang (fm15.mellyaapriliani@mhs.ubpkarawang.ac.id)

ABSTRAK

Kunyit (*Curcuma longa* L.) merupakan salah satu jenis tanaman obat yang termasuk dalam keluarga *Zingiberaceae*. Senyawa aktif yang terkandung dalam rimpang kunyit (*Curcuma longa* L.) mampu bekerja sebagai antibakteri. Penelitian ini bertujuan untuk mengetahui aktivitas antibakteri dari ekstrak etanol rimpang kunyit (*Curcuma longa* L.) terhadap *Staphylococcus aureus* dan *Pseudomonas aeruginosa*. Ekstraksi dilakukan dengan cara refluks menggunakan pelarut etanol 96%. Pengujian aktivitas antibakteri dilakukan menggunakan metode difusi *paper disk* dengan masing-masing konsentrasi ekstrak 10%, 20%, 30%, 40% b/v. Kontrol positif yang digunakan adalah Ciprofloxacin sedangkan kontrol negatif yang digunakan adalah DMSO. Hasil skrining fitokimia ekstrak etanol rimpang kunyit mengandung alkaloid, flavonoid, fenol, tanin dan terpenoid. Berdasarkan hasil penelitian, ekstrak etanol rimpang kunyit dapat menghambat bakteri *Staphylococcus aureus* dan *Pseudomonas aeruginosa* pada konsentrasi 10%, 20%, 30%, 40% dan konsentrasi 40% merupakan konsentrasi yang memberikan diameter zona hambat terbesar terhadap kedua bakteri uji yaitu 8,63 mm dan 7,8 mm.

Kata Kunci : *aktivitas antibakteri, Curcuma longa* L., *Staphylococcus aureus,*

Uji Aktivitas Antibakteri Ekstrak Etanol Rimpang Kunyit (*Curcuma longa* L.) Terhadap *Staphylococcus aureus* dan *Pseudomonas aeruginosa* (Fikayuniar *et al*. 2019)

Lampiran 3. Literatur *review* aktivitas antibakteri formula sediaan obat kumur dan pasta gigi rimpang famili *Zingiberaceae* terhadap *Streptococcus mutans*

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 1 Issue 10, December- 2012

Antimicrobial Activity Of Medicinal Plants On *Streptococcus Mutans,* A Causing Agent Of Dental Caries

Tazeena H. Islam, Abul Hayat Bin Azad, Selina Akter, Suvamoy Datta*

Abstract— *Streptococcus mutans* plays a significant role in dental caries and control of its activities can promote prevention of dental caries. Use of herbal agents is a notable issue in recent researches in dental caries. The study was designed to evaluate of antimicrobial activity of ethanolic extracts of leaf and bark of *Azadirachta indica*, bark of *Vitex negundo*, leaves of *Spinacia oleracea*, fruits of *Momordica charantia*, *Phyllanthus embilica*, *Piper nigrum*, and *Tamarindus indica*, rhizome of *Curcuma longa* and *Zingiber officinale* against *Streptococcus mutans*. Considerable zone of growth-inhibition was observed for the extracts of *Curcuma longa*, *Tamarindus indica* and *Phyllanthus embilica*. The MIC of the extracts ranged between concentrations of 50 mg/ml and 3.125 mg/ml and MBC ranged between concentrations of 100 mg/ml and 12.5 mg/ml. Commercially available antibiotics were used as control for comparative study. Combinations of different extracts were also used and the mixture of *Tamarindus indica* and *Curcuma longa* extracts was the most efficient. The efficiency of the extracts in a toothpaste formulation was checked with proven stability. Further study needs to be conducted to check the stability of active ingredients in commercial production condition and to prove the potential of these plant extracts to be formulated in dental care products.

Index Terms— *Curcuma longa*, Dental caries, Medicinal plants, *Phyllanthus embilica, Streptococcus mutans*, *Tamarindus indica*, Toothpaste,

Antimicrobial Activity Of Medicinal Plants On StreptococcusMutans, A ausing Agent Of Dental Caries (Islam *et al*. 2012)

FORMULASI DAN UJI AKTIVITAS SEDIAAN OBAT KUMUR EKSTRAK RIMPANG TEMU HITAM (*Curcuma aeruginosa* Roxb) TERHADAP *Streptococcus mutans*

Rusmin[*)]

[*)]Akademi Farmasi Yamasi Makassar

ABSTRAK

Telah dilakukan penelitian tentang formulasi dan uji aktivitas sediaan obat kumur ekstrak rimpang temu hitam (*Curcuma aeruginosa* Roxb) terhadap bakteri *Streptococcus mutans.* Penelitian ini bertujuan untuk memformulasi sediaan obat kumur dari ekstrak rimpang temu hitam dan efektifitasnya dalam menghambat pertumbuhan *Streptococcus mutans***.** Bahan yang digunakan dalam pembuatan obat kumur adalah ekstrak rimpang temu hitam kemudian diformulasikan dengan variasi konsentrasi 0,5%, 1% dan2%, control negatif, dan control positif sebagai pembanding. Hasil pengamatan organoleptis terhadap sediaan obat kumur ekstrak rimpang temu hitam menunjukkan bahwa obat kumur yang dibuat tidak mengalami perubahan bentuk, warna, dan bau, Sedangkan Pengujian aktivitas anti mikroba yang dilakukan dengan menggunakan metode difusi agar diameter hambatan terhadap bakteri *Streptococcus mutans* dengan menggunakan piperdics pada Medium Muller Hilton agar (MHA), setelah di inkubasi 24 jam zona hambatan untuk konsentrasi 0,5 % 11.33mm, konsentrasi 1% zona hambatan13.78 mm, konsentrasi 2% zona hambatan sebesar 15.28 mm, control negatif sebesar 0 mm, dan control positif sebesar 16.72mm. Berdasarkan analisis statistic menggunakan metode Analisis Varian menunjukkan bahwa ada perbedaan yang nyata antar perlakuan ($\alpha = 0,5$). Hasil uji lanjutan rentang Newman-Keuls menunjukan tidak ada perbedaan pada konsentrasi yang digunakan.

Kata kunci : Formulasi, Obat kumur, ekstrak rimpang temu hitam, Uji efektivitas, *Streptococcus mutans*

Formulasi Dan Uji Aktivitas Sediaan Obat Kumur Ekstrak Rimpang Temu Hitam (*Curcuma aeruginosa Roxb*) Terhadap *Streptococcus mutans* (Rusmin 2017)

Assessment of Toothpaste Formulations Containing Turmeric and Neem Extract for Prevention of Dental Caries and Periodontal Diseases

Baburao N. Chandakavathe[1] · Deepak K. Deshpande[2] · P. V. Swamy[2] · Shivsharan B. Dhadde[1]

Received: 31 December 2016 / Revised: 1 June 2017 / Accepted: 19 July 2017

Abstract In the present work, toothpastes were prepared for preventing dental caries and periodontal diseases. Nine formulations (TN_1 to TN_9) were prepared using neem extract and turmeric powder as active principles. These prepared formulations were evaluated for homogeneity, spreadability, fineness, pH, foaming power, tube extrudability, and stability as per the guidelines of the Bureau of Indian Standards and in-vitro antimicrobial activity. The in-vitro antimicrobial activity studies were performed using standard strains such as *Candida albicans* (ATCC No. 10231), *Streptococcus mutans* (MTCC No. 497) and *Porphyromonas gingivalis* (oral gingival swab). A comparative evaluation of the promising toothpaste formulations against selected marketed toothpastes was also carried out. Among the nine prepared formulations TN_1 to TN_9 (different concentrations of neem and turmeric powder), formulation TN_3 (toothpaste containing 0.5% of neem extract and 0.9% of turmeric powder) has shown promising results (inhibition zone diameters of 23.5, 22.5 and 19.5 mm respectively against *C. albicans, S. mutans* and *P. gingivalis*). TN_3 emerged as the overall best formulation indicating their potential usefulness in preventing various dental problems.

Keywords Dental care · Turmeric powder · Neem extract · Toothpaste

Introduction

Oral diseases continue to be a major health problem worldwide [1]. Dental caries and periodontal diseases are most common global oral health problems, although conditions such as oral and pharyngeal cancers and oral tissue lesions are also significant health concerns [2]. Despite general advances in the overall health status of the people living in industrialized countries, the prevalence of dental caries in school aged children is up to 90% and the majority of adults are also affected [1].

There is also evidence linking poor oral health and systemic diseases, such as cardiovascular diseases, diabetes, rheumatoid arthritis and osteoporosis [3], while

Assessment of Toothpaste Formulations Containing Turmeric and Neem Extract for Prevention of Dental Caries and Periodontal Diseases (Chandakavathe *et al*. 2017)