LAMPIRAN

Lampiran 1. Jurnal 1

ISOLASI DAN UJI ANTIBAKTERI FLAVONOID DARI DAUN CIPLUKAN (*Physalis minima* Linn)

Isniyetti

Staf Pengajar Jurusan Kimia FMIPA UNP, email: isniyetti@yahoo.com

ABSTRACT

Physalis minima Linn is a medical plant, which has a local name "Ciplukan" in West Sumatera. Traditionally, it is used as antiinfluenza, antianalgesic and antidiabetes. The use of plant as the medicine relates to its chemical compositions. Based on the pre pared test known that " Ciplukan " contained favonoid, saponin and steroid. The objec tives of this research is to isolate flavonoid from Ciplukan life and to know antibacterial activity of the isolated flavonoid. The result showed that Ciplukan contained 5,7,3',4'-tetrahidroksiflavonol-3-O-glikosida strukture. Antibacterial Activity test toward Staphylo coccus aureus and Eschericia coli bacteries showed the big resistantce area: 13 mm and 5,29 mm.

Keyword: *flavonoid, antibacterial activity*, *Physalis minima* Linn

PENDAHULUAN

Indonesia merupakan negara yang kaya dengan tumbuhan tropis. Banyak dari tumbuhan tersebut memiliki khasiat seba gai obat, sehingga masyarakatnya sejak zaman dahulu telah mengenal dan memakai tumbuhan sebagai obat tradidional dalam upaya penanggulangan masalah kesehatan yang dihadapi. Pengetahuan tentang tum buhan obat merupakan warisan budaya bangsa secara turun temurun. Usaha untuk meneliti tumbuhan obat sudah mulai di kembangkan tetapi masih terbatas pada organisme demi kelangsungan hidupnya, misalnya karbohidrat, protein dan lemak, sedangkan metabolit sekunder tidaklah seessensial metabolit primer namun senyawa itu penting dalammempertahankan kehidupan organisme, (Tobing, 1989). Penggunaan tumbuhan sebagai obat berkaitan dengan kandungan kimia tumbuhan tersebut, terutama zat aktif biologis yang merupakan metabolit se kunder seperti alkaloid, flavonoid, terpenoid, steroid dan lain-lain.

Salah satu tumbuhan yang telah diuji kandungan kimianya memberikan hasil po

Lampiran 2. Jurnal 2

Journal of Medical and Biomedical Sciences (2012) 1(4): 21-26

ORIGINAL ARTICLE

Antibacterial activity of the fruit extract of *Physalis angulata* and its formulation

A-M. Donkor[1], R.L.K. Glover[2], J.K. Boateng[1] and V.Y. Gakpo[1]

[1]*Department of Applied Chemistry and Biochemistry,* [2]*Department of Applied Biology, Faculty of Applied Sciences, University for Development Studies, P.O. Box 24, Navrongo, Ghana*

The inhibitory activity of zinc oxide-ointment formulation as well as the unformulated crude extract of fruits of *Physalis angulata* was investigated against clinical wound isolates of *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The zinc oxide-ointment formulation and the unformulated *P. angulata* crude extract were found to be ineffective against *P. aeruginosa* at all concentrations used, but potent against *S. aureus* at varying degrees. The zinc oxide-ointment (100 mg g^{-1}, 125 mg g^{-1} and 150 mg g^{-1}) and *P. angulata* crude extract/zinc oxide-ointment (100 mg g^{-1}, 125 mg g^{-1} and 150 mg g^{-1}) formulations were only slightly active against *S. aureus* at the highest concentration of 150 mg g^{-1}. The unformulated *P. angulata* crude extract alone exhibited the highest inhibitory activity against *S. aureus* at all concentrations used with zones of inhibition between 34.5 mm and 50.5 mm, followed by a formulation of the extract with only oleaginous base (ointment), with zones of inhibition between 12.8 mm and 20.3 mm. A one-way analysis of variance (ANOVA) of these values compared with the activity of Chloramphenicol (positive control) indicated significant inhibitory activity by the unformulated *P angulata* crude extract and the extract and ointment formulation against *S. aureus* thus suggesting their efficacy in treating staphylococcal infections.
Journal of Medical and Biomedical Sciences (2012) 1(4), 21-26

Keywords: Oleaginous base, *S. aureus*, *P. aeruginosa*, zone of inhibition

INTRODUCTION

Wound is defined simply as the disruption of the cellular and anatomic continuity of the tissue (Edwards and Harding, 2000). Wound may be produced by physical, chemical, thermal, microbial or immunological insult to the tissue (Raina *et al.*, 2008). The development of wound infection depends on the integrity and protective function of the skin. It has been shown that wound infection is universal and the bacterial type varies with geographical location, resident flora of the skin, clothing at the site of wound, time between wound and treatment (Anupurba *et al.*, 2006).

Efforts are being made all over the world to discover the cost of hospitalization and save patients from amputation or other severe complications. The continuous development of antibiotic resistance of pathogenic microorganisms and particularly *Streptococcus pneumoniae* to penicillin, *Staphylococcus aureus* to methicillin, and *Enterococcus spp.* to vancomycin is a major health concern worldwide (Melissa *et al.*, 2005). More than 80% of the world's population now depends on traditional medicine for their ailments, especially for wound management (James and Isaac, 2010).

P. angulata L. belongs to the Solanaceae family and includes about 120 species with herbal characteristics and perennial habits. It is distributed through-

Lampiran 3. Jurnal 3

Studies on antimicrobial activity, in vitro, of *Physalis angulata* L. (Solanaceae) fraction and physalin B bringing out the importance of assay determination

Melissa TG Silva/*/+, Sonia M Simas**, Terezinha GFM Batista**, Paola Cardarelli***, Therezinha CB Tomassini*

Programa de Pós Graduação em Vigilância Sanitária *Laboratório de Química de Produtos Naturais, Far-Manguinhos **Laboratório de Controle Microbiológico de Antibióticos ***Laboratório de Biologia Molecular-INCQS-Fiocruz, Av. Brasil 4365, 21040-900 Rio de Janeiro, RJ, Brasil

Complex physalin metabolites present in the capsules of the fruit of Physalis angulata *L. have been isolated and submitted to a series of assays of antimicrobial activity against* Pseudomonas aeruginosa *ATCC 27853,* Staphylococcus aureus *ATCC 29213,* S. aureus *ATCC 25923,* S. aureus *ATCC 6538P,* Neisseria gonorrhoeae *ATCC 49226,* Escherichia coli *ATCC 8739;* E. coli *ATCC 25922,* Candida albicans *ATCC 10231 applying different methodologies such as: bioautography, dilution broth, dilution agar, and agar diffusion techniques. A mixture of physalins (pool) containing physalins B, D, F, G inhibit* S. aureus *ATCC 29213,* S. aureus *ATCC 25923,* S. aureus *ATCC 6538P, and* N. gonorrhoeae *ATCC 49226 at a concentration of 200 mg/µl, using agar dilution assays. The mixture was inactive against* P. aeruginosa *ATCC27853,* E. coli *ATCC 8739;* E. coli *ATCC 25922,* C. albicans *ATCC 10231 when applying bioautography assays. Physalin B (200 µg/ml) by the agar diffusion assay inhibited* S. aureus *ATCC 6538P by ± 85%; and may be considered responsible for the antimicrobial activity.*

Key words: *Physalis angulata* L. - antimicrobial methods - physalins

Physalis is an important genus of the Solanaceae family. Most of the species are herbaceous annuals or perennials, native to tropical North and South America. Some species have edible fruits and the tea of their roots is considered in popular medicine. The medical uses of *Physalis* are numerous: a wide variety of species are used for asthma, urinary problems, rheumatism, and tumors. Their anti-inflammatory and anti-spasmodic properties are also known.

Ray and Gupta (1994) and Tomassini et al. (2000) report some data on therapeutic applications and describe the pharmacological activity of the *Physalis* species as anti-parasitic, anti-viral, and anti-neoplasic.

Trypanocidal activity was described by Freiburhaus et al. (1996) for *P. angulata* L. dichloromethane and ether extracts. Acetone, ethyl acetate, ethanolic extracts from leaves, stems, and roots of the specimen were assayed against *Biomphalaria tenagophila* yielding positive results for molluscicidal activity (Dos Santos 2003).

Antimicrobial activity was described by Ongulana and Ramstad (1975) for methanol/water extracts of *P. angulata* against *Bacillus subtilis*. Cáceres et al. (1995) reported *Staphylococcus aureus* and *Escherichia coli* (Sanches et al. 1997, Silva et al. 1999).

Pietro et al. (2000) described the tuberculostatic activity of *P. angulata* chloroform extracts from epigeal parts against *Mycobacterium tuberculosis*, *M. avium*, *M. kansaii*, *M. malmoense*, and *M. intracellulare*.

Januário et al. (2003) reported activity against *M. tuberculosis* for physalins B and D.

Physalin F isolated from *P. angulata* ethanolic extract (Chiang et al. 1993) shows a potent antineoplasic activity. Soares et al. (2003) described the immunosuppressive activity of physalins B, F and G extracted from the stems of *P. angulata* L.

The continuous development of antibiotic resistance of pathogenic microorganisms and particularly of *Streptococcus pneumoniae* to penicillin (PRSP), *Staphylococcus aureus* to methicillin (MRSA), and *Enterococcus* to vancomycin (VRE) is a major health concern worldwide with economic, social and political implications.

The screening of plant materials and their isolated substances for new antimicrobial compounds represent an important potential source for new effective medicines.

Lampiran 4. Jurnal 4

KARTIKA: JURNAL ILMIAH FARMASI, Des 2017, 5(2), 50-55 50
p-ISSN 2354-6565 /e-ISSN 2502-3438
DOI: 10.26874/kjif.v5i2.114

Pengaruh kombinasi ekstrak etanol herba cecendet (*Physalis angulata l.*) dengan beberapa antibiotik terhadap bakteri *Staphylococcus aureus* dan *Klebsiella pneumonie*

Anna Choirunnisa, Afifah Bambang Sutjiatmo
Fakultas Farmasi Universitas Jenderal Achmad Yani, Jalan Terusan Jend. Sudirman, Cimahi.
Corresponding author email: annachoirunnisa@gmail.com

Abstrak

Penyakit infeksi merupakan salah satu masalah kesehatan terbesar tidak saja di Indonesia, namun di seluruh dunia. Bakteri merupakan agen penting dalam menyebabkan penyakit infeksi. Seringkali masyarakat Indonesia menggunakan antibiotik bersamaan dengan penggunaan obat herbal. Cecendet (*Physalis angulata* L.) merupakan salah satu tanaman tradisional yang memiliki aktivitas antibakteri dan banyak digunakan oleh masyakat Indonesia secara turun menurun. Penelitian ini bertujuan untuk menguji aktivitas antibakteri herba cecendet dan pengaruhnya jika digunakan kombinasi dengan antibiotik. Pembuatan ekstrak herba cecendet dilakukan menggunakan metode refluks dengan pelarut etanol 50%. Terhadap simplisia dan ekstrak yang diperoleh, dilakukan pemeriksaan karakteristik dan penapisan fitokimia. Penentuan aktivitas antibakteri dari ekstrak herba cecendet dilakukan dengan metode uji mikrodilusi dengan menilai konsentrasi hambat minimum (KHM). Penentuan efektivitas kombinasi ekstrak herba cecendet dengan antibiotik (ampisilin/tetrasiklin) terhadap *Staphylococcus aureus dan Klebsiella pneumoniae* dilakukan dengan menggunakan metode papan catur (*Checkerboard*). Hasil penapisan fitokimia menunjukkan bahwa simplisia dan ekstrak etanol herba cecendet mengandung alkaloid, flavonoid, saponin, polifenol, monoterpenoid, seskuiterpen, steroid dan triterpenoid. Hasil uji aktivitas antibakteri menunjukkan bahwa ekstrak etanol herba cecendet mempunyai aktivitas antibakteri terhadap *S.aureus dan K.pneumoniae* dengan konsentrasi hambat minimum berturut-turut adalah 128 µg/mL, 256 µg/mL. Interaksi yang sinergis terhadap *S.aureus* ditunjukkan oleh kombinasi ekstrak herba cecendet dengan tetrasiklin. Interaksi yang aditif/indifferent terhadap *S.aureus* ditunjukkan oleh kombinasi ekstrak herba cecendet dengan ampisilin, dan terhadap *K.pneumoniae* ditunjukkan oleh kombinasi ekstrak herba cecendet dengan ampisilin atau tetrasiklin. Ekstrak etanol herba cecendet memiliki aktivitas antibakteri dan dan kombinasi dengan antibiotik (ampisilin/tetrasiklin) dapat memberikan efek sinergis atau aditif bakteri *S.aureus* dan *K.pneumoniae*.

Kata kunci: Cecendet, *Physalis angulata* L., konsentasi hambat minimum, antibakteri, kombinasi antibiotik

The effect of a combination of ethanol extract of Physalis angulata L. with antibiotic against Staphylococcus aureus and Klebsiella pneumonie

Lampiran 5. Jurnal 5

JFL
Jurnal Farmasi Lampung Vol.6. No.2 Desember 2017

Aktivitas Antibakteri Ekstrak Akar Ceplukan (*Physalis angulata* L.) Terhadap *Staphylococcus epidermidis* dan *Pseudomonas aeruginosa*

Antibacterial Activity of Ceplukan Root Extract (Physalis angulata L.) Against Staphylococcus epidermidis and Pseudomonas aeruginosa

Pratika Viogenta , Lilik Koernia Wahidah, Ika Hanum Saputri

Jurusan Farmasi, Universitas Tulang Bawang Lampung
Email : pratikaviogenta@gmail.com

Abstract

Root ceplukan (Physalis angulata L.) is one of the medicinal plants that contain several active compounds that are antibacterial. This study aims to prove the antibacterial activity of root ceplukan extract againsts Staphylococcus epidermidis bacteria and Pseudomonas aeruginosa bacteria. Root ceplukan was extracted by maceration with ethanol 70%. Root root extracts of phytochemical screening include flavonoids, alkaloids and saponins. The ceplukan root extract was then tested against S. epidermidis and P. aeruginosa bacteria using wells method with concentrations of 20%, 40%, 60%, 80%, 100%, aquades as a negative control and amikacin as a positive control. Inhibitory zone diameter with each concentration for P. aeruginosa bacteria, among others, negative control = 0 mm, positive control = 21,623 mm, 100% = 16.9 mm, 80% = 15.05 mm, 60% = 13.703 mm, 40% = 12.02 mm, 20% = 12.02 mm and S. epidermidis bacteria have inhibitory zone at positive control of 21,623 mm. The results of this study showed that root extract ceplukan proved to have inhibition zone against bacteria P. aeruginosa at all concentrations but has no inhibition zone against S. epidermidis bacteria. Root ceplukan extract has a minimum inhibitory concentration of 14% and a minimum bacterisid concentration of 20%, against P. aeruginosa bacteria. The results of phytochemical analysis showed that root ceplukan positively contain flavonoids, alkaloids and saponins are suspected as antibacterial compounds.

Keywords : *Antibacterial, Staphylococcus epidermidis, Pseudomonas aeruginosa, Ceplukan root extract*

Abstrak

Lampiran 6. Jurnal 6

ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 9, Issue, 08, pp.55482-55486, August, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

IN VITRO ANTIBACTERIAL ACTIVITY OF PHYSAGULIN ISOLATED FROM *PHYSALIS ANGULATA* FRUITS AGAINST PATHOGENIC CLINICALLY IMPORTANT BACTERIA

Swapna Gurrapu and *Estari Mamidala

Infectious Diseases Research Lab, Department of Zoology, Kakatiya University, Warangal - 506009, Telangana State, India

ARTICLE INFO

Article History:
Received 22nd May, 2017
Received in revised form
08th June, 2017
Accepted 26th July, 2017
Published online 31st August, 2017

Key words:

Physalis angulata,
Maceration,
Physagulin,
Human pathogenic bacteria,
Antimicrobial activity, TLC.

ABSTRACT

Background: The extracts or infusion of *Physalis angulata* plant fruits were used in the treatment of a wide range of diseases such as asthma, hepatitis, malaria, dermatitis and rheumatism.
Aim: The aim of this study was to test the susceptibility of five human pathogenic bacteria species to Physagulin isolated from the fruits of *Physalis angulata* plant.
Methods: The crude extracts were prepared using different solvents by maceration method and isolation, purification were done by TLC and column chromatography. The isolated Physagulin was screened for antibacterial activity using agar well diffusion and broth micro-dilution assay.
Results: In the present study, the inhibitory action of the Physagulin was found to increase with an increase in concentration against all bacterial strains. The maximum zone of inhibition was observed at the concentration of 500 µg/ml against all the bacteria. In this study, the *S. aureus* and *E. coli* are the more susceptible than the other selected human pathogenic bacteria.
Conclusion: Based on the observations, *Physalis angulata* appears to be a valuable source for antimicrobial properties and helps to produce antimicrobial agents to treat human pathogenic infections.

Citation: Swapna Gurrapu and Estari Mamidala, 2017. "*In vitro* Antibacterial Activity of *Physagulin Isolated* from *Physalis angulata* Fruits against Pathogenic Clinically Important Bacteria", *International Journal of Current Research*, 9, (08), 55482-55486.

INTRODUCTION

The past few decades have experienced an overwhelming increase in global interest on the practice of traditional medicine and its use of medicinal plants to treat illness they contain a variety of secondary metabolites to which the bacterial species may not be resistant. The plants have used for centuries by human beings. Traditional medicinal systems are important as a number of important modern pharmaceuticals have been derived from plants used by indigenous people

Lampiran 7. Jurnal 7

EFEK ANTIDIARE INFUSA DAUN CIPLUKAN (*PHYSALIS ANGULATA* LINN) PADA MENCIT JANTAN PUTIH (MUS MUSCULUS) YANG TERPAPAR OLEUM RICINI

Nita Fajaryanti[1], Nunik Ida Kurniawati[1]
[1]Sekolah Tinggi Ilmu Kesehatan Kendal
nitafajaryanti@gmail.com

ABSTRAK

Diare merupakan penyakit yang ditandai dengan bertambahnya frekuensi defekasi lebih dari 3 kali/hari disertai berubahan konsistensi tinja (menjadi cair). Berdasarkan pengalaman empiris tanaman ciplukan (Physalis angulata Linn) digunakan sebagai tanaman obat herbal dari berbagai penyakit, salah satunya adalah diare. Penelitian ini digunakan pengujian eksperimental menggunakan teknik non random dengan metode purposive sampling. Desain penelitian yang digunakan yaitu pra eksperimen dengan jenis static group comparison. Tujuan dari penelitian ini untuk mengetahui efek rebusan daun ciplukan (Physalis angulata Linn) sebagai obat diare. Sampel yang digunakan dalam penelitian adalah mencit jantan putih (Mus musculus) sehat, galur Swiss berumur 2-3 bulan dengan bobot 20-30 g. Penelitian ini dibagi empat kelompok yaitu : dosis 25 lembar, dosis 30 lembar daun ciplukan, kontrol positif loperamide dan kontrol negatif CMC Na 0,5%. Bahan uji dibuat metode perebusan yaitu dengan cara merebus daun ciplukan dalam panci perebus selama 15 menit, didinginkan lalu saring dengan kain flanel. Dari hasil uji statistik dapat dilihat bahwa rebusan dosis 25 lembar dan 30 lembar menunjukkan perbedaan yang bermakna dengan CMC Na 0,5% ($p < 0,05$) tetapi tidak menunjukkan perbedaan yang bermakna dengan loperamide ($p > 0,05$).rebusan 25 dan 30 lembar memiliki perbedaan yang bermakna ($p < 0,05$). Dapat disimpulkan bahwa efek rebusan dosis 30 lembar efektif sebagai antidiare.

Kata Kunci: Daun ciplukan (Physalis angulata Linn), Rebusan, Antidiare

THE EFFECT OF CIPLUKAN LEAF STAPLE (PHYSALIS ANGULATA LINN) AS A DRUG DIARRHEA

ABSTRACT

Diarrhea is a disease characterized by increasing frequency of defecation more than 3 times / day accompanied by changes in stool consistency (to liquid). Based on the empirical experience ciplukan plant (Physalis angulata Linn) is used as herbal medicine plants from various diseases, one of which is diarrhea. This research used experimental test using non random technique with purposive sampling method. The research design used was pre experiment with static group comparison type.

Lampiran 8. Jurnal 8

Husada Mahakam : Jurnal Kesehatan *Volume V No. 1 Nov 2019, Hal 51 - 60*

AKTIVITAS DAN EFEKTIVITAS ANTIBAKTERI EKSTRAK DAUN CIPLUKAN (*Physalis angulata* L.) TERHADAP PERTUMBUHAN *Bacillus cereus*

Tiara Dini Harlita[1)], Nurul Anggrieni[2)], Ardiana Finda Widya Rahmawati[3)]

[1,2,3)]Jurusan Analis Kesehatan, Poltekkes Kemenkes Kaltim, Jl. Kurnia Makmur No. 64 Kel. Harapan Baru, Samarinda, Kalimantan Timur 75131
Email: nonaranita@gmail.com

Abstract

Ciplukan leaf (Physalis angulata L.) is one of the plants used by the community as an alternative to avoid side effects of antibiotics. This plant has traditionally been used to cure various diseases. Potential leaf ciplukan as medicinal plants suspected due to the active compounds active ingredients contained in it. This study aims to test the activity and effectiveness of the antibacterial ethanol extract of ciplukan leaf on the growth of Bacillus cereus. Ciplukan leaf were extracted by maceration method using ethanol 96%. Each concentration was tested for antibacterial activity against B.cereus using disc diffusion method. The determination of minimum inhibitory concentrations by solid dilution. Data were analyzed with ANOVA at 95% confidence level. The test results showed that ciplukan leaf ethanol extract (P. angulata L.) had activity and effectiveness on B. cereus growth in vitro. The most effective concentration of ciplukan leaf ethanol extract can inhibit the growth of B. cereus is 30 mg/mL with inhibit zone of 24.2 mm. The minimum inhibitory concentration of ciplukan leaf ethanol extract on B. cereus growth was 5 mg/mL.

Keywords : *Antibacterial activity, Bacillus cereus, Ciplukan Leaf (Physalis angulata L.)*

Abstrak

Daun ciplukan (*Physalis angulata* L.) merupakan salah satu tanaman yang digunakan oleh masyarakat sebagai alternatif untuk menghindari efek samping antibiotik. Tanaman ini secara tradisional mempunyai khasiat untuk menyembuhkan berbagai penyakit. Potensi daun ciplukan sebagai tanaman obat diduga karena adanya

Lampiran 9. Jurnal 9

The 1st International Conference on Fisheries and Marine Science IOP Publishing
IOP Conf. Series: Earth and Environmental Science 236 (2019) 012103 doi:10.1088/1755-1315/236/1/012103

Antibacterial activities of *Physalis angulata* herb extract on white feces diseases (WFD) in *Litopenaeus* shrimp *vannamei*

E Saraswati[1]*), AS Wijaya[1]

[1]Faculty of Agriculture and Fisheries, University of 17 Agustus 1945 Banyuwangi

Corresponding author Email: erikasaraswati@ymail.com

Abstract. *Litopenaeus vannamei* shrimp is one of the leading export commodities in fisheries from Indonesia, however White Feces Diseases (WFD) cause deaths up to 30% and decrease their growth and production. WFD is caused by the accumulation of several *Vibrio* bacteria in shrimp water and intestines. One of the local herbs that has the potential as antiproliferation, antidiabetic, anticytotoxic commonly used in the treatment of humans diseases is *Physalis angulata* known as ciplukan. The aim of this study was to obtain ciplukan extract which has an antibacterial activity of *Vibrio* sp., and to analyze the anti-bacterial effect of ciplukan extract on *Vibrio* bacteria from vannamei infected with WFD. This study used descriptive and experimental methods using a randomized block design. Data collection methods were carried out through direct observation of the object under study. Observation data were analyzed by F-test followed by HSD. The results showed that the extract of ciplukan plants contained antibacterial active ingredients. Chloroform solvent extracts had the best antibacterial activity with 13 mm inhibition zone on green bacterial colonies and 16.5 mm in yellow bacterial colonies derived from shrimp intestinal infected with WFD. The best concentration that provides the highest inhibition zone as obtained by 10% chloroform extract.

1. Introduction

White Feces Diseases (WFD) is one of the diseases that are quite troubling for shrimp farmers in Indonesia. This disease commonly called white defecation generally attacks shrimp at breeding ages of 30 - 80 days, which is marked by the release of white shrimp stools that float on the surface of the water, shrimp appetite decreases, slow growth and chronic death [1]. WFD is closely related to the group *Vibrio* spp. [2]. The types of *Vibrio* bacteria found in WFD include *V. parahaemolyticus* (green colonies), *V. fluvialis* (yellow colonies), *V. vulnificus* (green colonies), *V. mimicus* (green colonies), *V. alginolyticus* and *V. cholera* (non 01) [1]. Shrimp intestine infected by WFD is not filled with food but contains white stool strands. The impact of WFD on shrimp is a decreased appetite, growth inhibition and chronic death [2].

Lampiran 10. Jurnal 10

DOI 10.22236/farmasains.v7i2.5633 Farmasains Vol. 7 No. 2, Oktober 2020

PENGARUH KONSENTRASI HPMC SEBAGAI BASIS GEL EKSTRAK CIPLUKAN TERHADAP AKTIVITAS ANTIBAKTERI

THE INFLUENCE OF HPMC BASE CONCENTRATION OF *Physalis angulata* L. EXTRACT GEL ON *ANTIBACTERIAL ACTIVITY*

Teodhora
Fakultas Farmasi, Institut Sains dan Teknologi Nasional, Jakarta

Naskah diterima tanggal 25 Agustus 2020

ABSTRACT

Physalis angulata L. is a plant that contains antibacterial activity against Staphylococcus aureus and Pseudomonas aeruginosa. This research aimed to investigate the effect of HPMC base variation on the physical quality of the gel and the antibacterial activity against Staphylococcus aureus and Pseudomonas aeruginosa. The results showed that the leaves extract gel Physalis angulata L variation in the use of HPMC base does not affect the organoleptic physical quality, homogeneous, pH and antibacterial activity against Pseudomonas aeruginosa and affect the physical quality of viscosity, and antibacterial activity against Staphylococcus aureus. Physalis angulata L leaves extract gel using 4% HPMC concentration produces a gel with the physical quality and optimum antibacterial activity against Staphylococcus aureus and Pseudomonas aeruginosa, the inhibition obtained is equal to 12.7 mm and 12.9 mm.

Keywords: *Gel, HPMC, Physalis angulata L., Pseudomonas aeruginosa, Staphylococcus aureus*

ABSTRAK

Physalis angulata L. merupakan tanaman yang dapat digunakan untuk mengatasi infeksi yang disebabkan oleh bakteri *Staphylococcus aureus* dan *Pseudomonas aeruginosa*. Penelitian ini bertujuan untuk meneliti pengaruh penggunaan HPMC sebagai basis dalam beberapa variasi konsentrasi terhadap mutu fisik gel dan aktivitas sebagai antibakteri *Staphylococcus aureus* dan *Pseudomonas aeruginosa*. Hasil penelitian menunjukkan bahwa gel ekstrak daun *Physalis angulata* L. pada penggunaan variasi basis HPMC tidak mempengaruhi mutu fisik organoleptik, homogenitas, pH dan aktivitas antibakteri terhadap bakteri *Pseudomonas aeruginosa* dan mempengaruhi mutu fisik viskositas, dan aktivitas

Lampiran 11. Jurnal 11

PHYSICAL STABILITY TEST AND ANTIBACTERIAL ACTIVITY OF 70% ETHANOL EXTRACT CIPLUKAN ROOT (*Physalis angulata* L.) AGAINST *Staphylococcus aureus* IN CREAM FORMULATION

Shinta Yusnita[1], *Lilih Riniwasih K*[2]

[1,2]*Fakultas Farmasi, Universitas 17 Agustus 1945 Jakarta, Jakarta Utara, Indonesia, 14350*

**E-mail: lilih.kardiwijati@yahoo.com*

Diterima: 23/10/19 Direvisi: 13/11/19 Disetujui: 6/12/19

Abstrak

Impetigo merupakan penyakit kulit yang disebabkan oleh *Staphylococcus aureus* atau *Streptococcus pyogenes*, tetapi *Staphylococcus* merupakan patogen primer pada impetigo. Bakteri *Staphylococcus aureus* umumnya merupakan bakteri flora normal yang terdapat dalam kulit, tetapi jika populasinya melebihi batas normal maka dapat menimbulkan penyakit. Tumbuhan di Indonesia yang dapat berpotensi sebagai antibakteri adalah ciplukan (*Physalis angulata* L.). Ciplukan diduga mengandung senyawa kimia alami yang berpotensi sebagai antibakteri. Metode ekstraksi yang digunakan adalah maserasi dengan pelarut etanol 70% lalu akan di uji aktivitas antibakteri dalam formulasi sediaan krim dengan metode silinder cup. Pemilihan sediaan krim dikarenakan krim lebih mudah diaplikasikan, tidak lengket, dan lebih cepat menyerap dikulit. Uji stabilitas krim, meliputi uji organoleptis, uji homogenitas, uji pH, uji daya sebar, uji viskositas, dan uji iritasi.

Kata Kunci: Antibakteri; Akar Ciplukan (*Physalis angulata* L.); Formulasi Krim; Uji Stabilitas Krim

Abstract

Impetigo is a skin disease caused by *Staphylococcus aureus* or *Streptococcus pyogenes*, but *Staphylococcus* is the primary pathogen in impetigo. *Staphylococcus aureus* is generally a normal bacterial flora found in the skin, but if the population exceeds the normal limit it can cause disease. Plants in Indonesia that can potentially be antibacterial are ciplukan (*Physalis angulata* L.). Ciplukan is thought to contain natural chemical compounds that have the potential as antibacterial. The extraction method used was maceration using 70% ethanol solvent and then tested for antibacterial activity in cream preparation formulations using the cylinder cup method. The selection of cream preparations because the cream is easier to apply, not sticky, and absorbs faster in the skin. Cream stability test, including organoleptic test, homogenity test, pH test, dispersion test, viscosity test, and irritation test.

Keywords: Antibacterial; Ciplukan Root (Physalis angulata L.); Cream Formulation; Cream Stability Test

Lampiran 12. Jurnal 12

The Journal Of Muhammadiyah Medical Laboratory Technologist
No.4 Vol.2 November 2021
pISSN: 2597-3681 eISSN: 2614-2805

Uji Aktivitas Anti Bakteri Dari Formula Ekstrak Daun Ciplukan (*Physalis angulata L.)* dan Batang Kayu Manis (*Cinnamomum burmannii*) Secara *In Vitro Test*

Fuad Muzakky [1], Malika ilma alkautsar [1], Anni Hummayroh Syawali [1], Nabila Mirza Azizi [1], Subhan Rullyansyah[1*]
Program Studi S1 Farmasi, Universitas Muhammadiyah Surabaya
*Correspondence to: subhanfarm.umsurabaya@gmail.com

Tanggal Submit:
22 Agustus 2021

Tanggal Review:
23 Oktober 2021

Tanggal Publish Online:
2 Desember 2021

ABSTRACT

Ciplukan leaves (Physalis angulata L.) and Cinnamon (Cinnamomum burmannii) are one of medicinal plants that contain antibacterial active compounds. This study aims to determine the antibacterial activity of the combination formula between extracts of ciplukan leaves and cinnamon sticks against the growth of Staphylococcus aureus bacteria in Vitro. Ciplukan leaves (Physalis angulata L.) and cinnamon (Cinnamomum burmannii) were extracted by the maceration method with 70% ethanol. Ciplukan leaf extract (Physalis angulata L.) and cinnamon (Cinnamomum burmannii) were tested against Staphylococcus aureus bacteria using the good method by measuring transmittance on a spectrophotometer at a wavelength of 580 nm with 3 repetitions, 100 ppml standard Septromycin solution as control positive and aquadest as a negative dick. Inhibition zone diameter of ciplukan leaf extract (Physalis angulata L.) $\bar{x}$ = 12.46 mm, Cinnamon Extract (Cinnamomum burmannii) $\bar{x}$ = 18.93 mm, while in the formulation group $\bar{x}$ = 22.45 mm. One-way analysis of variance (ANOVA) of these data compared with Streptomycin activity (positive control) showed significant inhibitory activity by the formulated extract against S. aureus.

Keywords: *Antibacterial, Staphylococcus aureus, Ciplukan leaves (Physalis angulata L.) and Cinnamon (Cinnamomum burmannii)*

Lampiran 13. Jurnal 13

FORTE JURNAL
FORTE JOURNAL
e-ISSN 2774-4655
Vol 1, No 1, Januari 2021
Hal 26-44

UJI AKTIVITAS ANTIDIARE EKSTRAK ETANOL DAUN CIPLUKAN (*Physallis minima* L.) TERHADAP MENICT JANTAN (*Mus musculus*)

Evi Depiana Gultom[1*], Robiatun Rambe[2], Ratih Paramitha[2], Ovalina Sylvia Br. Ginting[2]
[1]Institusi Deli Tua Deli Husada, Deli Serdang, Indonesia
[2]Universitas Haji Sumatea Utara, Medan, Indonesia
*E-mail: evidepiana1@gmail.com

Abstrak

Daun ciplukan (*Physallis minima* L.) merupakan tanaman herbal yang mengandung flavonoid, saponin, alkaloid dan tanin. Senyawa tanin bersifat *adstringent* untuk mencegah disentri dan diare. Tujuan penelitian ini adalah untuk menguji efektivitas antidiare ekstrak etanol daun ciplukan pada mencit jantan*(Mus musculus*). Penelitian ini dilakukan secara *in vivo* dengan menggunakan hewan mencit. Pengujian aktivitas antidiare ekstrak etanol daun ciplukan (EEDC) diinduksi dengan minyak jarak 0,5 ml dan diamati parameter yang terdiri dari, onset, frekuensi diare, konsistensi dan berat feses, serta durasi diare setiap 30 menit selama 5 jam. Metode antimotilitas dilakukan untuk mengukur panjang usus yang dilintasi marker. Data dianalisis dengan menggunakan uji *One-way ANOVA* dan *Post Hoc Tuckey*. Uji efek antidiare EEDC pada mencit jantan menunjukkan bahwa dosis 50,100, 200 dan 400 mg/kg bb memiliki efek sebagai anti diare dengan menunjukkan perbedaan signifikan dengan kontrol negatif ($p<0,05$). Uji efek antidiare dengan metode induksi oleh minyak jarak menunjukkan bahwa EEDC dosis 200 mg/kg bb dan 400 mg/kg bb efektif sebagai antidiare dan tidak berbeda signifikan ($p>0,05$) dengan kontrol positif sedangkan metode antimotilitas EEDC dosis 400 mg/kg bb efektif sebagai antidiare karena tidak memiliki perbedaan siginifikan ($p>0,05$) dengan kontrol positif.

Kata kunci : *antidiare, antimotilitas, ekstrak etanol daun ciplukan dan minyak jarak, tinta cina, in vivo*

Abstract

Ciplukan leaves (Physallis minima L.*) is an herbal plant that contains flavonoids, saponins, alkaloids and tannins. Tannin compounds are adstringent to prevent dysentery and diarrhea. The purpose of this study was to test the antidiarrheal effectiveness of the ethanol extract of ciplukan leaves in male mice (Mus musculus). This research was conducted in vivo using mice. The*

Lampiran 14. Jurnal 14

UJI AKTIVITAS ANTIDIARE EKSTRAK ETANOL DAUN CIPLUKAN (*Physalis angulata* Linn.) PADA TIKUS JANTAN YANG DIINDUKSI OLEUM RICINI

ABSTRAK

Latar Belakang: Diare merupakan gangguan buang air besar ditandai dengan frekuensi lebih dari 3 kali sehari dengan konsistensi feses lembek sampai cair, dapat disertai darah atau lendir. Tanaman ciplukan (*Physalis angulata* Linn.) termasuk dalam famili Solanaceae. Berdasarkan pengalaman empiris, daun ciplukan digunakan sebagai obat herbal dari berbagai penyakit, salah satunya adalah diare.

Tujuan: Untuk mengetahui aktivitas antidiare dan dosis ekstrak etanol daun ciplukan (EEDC) yang paling efektif pada tikus jantan yang diinduksi *oleum ricini*.

Metode: Serbuk simplisia daun ciplukan dikarakterisasi dan diskrining fitokimia. Kemudian dilakukan pembuatan ekstrak dengan metode maserasi menggunakan pelarut etanol 96%. Metode dalam uji aktivitas antidiare EEDC adalah metode defekasi dengan penginduksi *oleum ricini* sebanyak 2 ml 1 jam sebelum diberikan bahan uji. Hewan percobaan yang digunakan adalah tikus jantan 25 ekor yang dibagi menjadi 5 kelompok perlakuan yaitu CMC Na 1% sebagai kontrol negatif, Loperamid HCL 1 mg/kg BB sebagai kontrol positif dan EEDC dosis 50, 100 dan 200 mg/kg BB sebagai bahan uji yang diberikan oral. Pengamatan dilakukan setiap 30 menit selama 4 jam, kemudian setiap 60 menit selama 2 jam. Data hasil pengujian dianalisis secara statistik menggunakan *one way* ANOVA dilanjutkan dengan uji *Post Hoc Tukey*.

Hasil: Hasil skrining fitokimia menunjukkan bahwa EEDC mengandung senyawa alkaloid, flavonoid, glikosida, tanin, saponin, dan steroid. Hasil uji efek antidiare menunjukkan bahwa EEDC dosis 50, 100 dan 200 mg/kg BB memiliki efek sebagai antidiare terhadap tikus jantan. EEDC dosis 200 mg/kg BB memiliki efek antidiare paling baik dibandingkan dosis 50 dan 100 mg/kg BB. Hasil uji *Post Hoc Tukey* menunjukkan bahwa EEDC dosis 50, 100 dan 200 mg/kg BB tidak berbeda signifikan dengan kontrol positif Loperamid HCL dosis 1 mg/kg BB ($p > 0,05$) dan dosis 100 serta 200 mg/kg BB berbeda signifikan dengan kontrol negatif CMC Na 1% ($p < 0,05$).

Kesimpulan: EEDC dosis 50, 100 dan 200 mg/kg BB menunjukkan efek antidiare yang tidak berbeda signifikan dengan kontrol positif Loperamid HCL 1 mg/kg BB ($p > 0,05$) dan dosis 200 mg/kg BB merupakan dosis paling baik dalam menurunkan frekuensi, konsistensi dan lama terjadinya diare serta meningkatkan waktu awal terjadinya diare dibandingkan dosis 50 dan 100 mg/kg BB.

Kata kunci : *antidiare, oleum ricini, (Physalis angulata* Linn.)