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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH

Judul Jurnal Ilmiah (Artikel) : **INITIAL RESPONSE OF HUMAN BONE MARROW-DERIVED STEM CELLS AFTER CONTACT WITH ULTRAHIGH-MOLECULAR-WEIGHT POLYETHYLENE (UHMWPE) MATERIAL: AN IN VITRO STUDY ON CELL VIABILITY AND INTERLEUKIN-6 EXPRESSION**

Jumlah Penulis : 6 orang (Anwar, I. B., Santoso, A., Saputra, E., Ismail, R., Jamari, J. and van der Heide, E.)

Status Pengusul : Penulis Keempat

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- c. Vol, No., Bln Thn : 10
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Unit Kerja : Departemen Teknik Mesin FT UNDIP

Semarang, 11 Maret 2021

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Dr. Agus Suprihanto, ST., MT
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2. Ruang lingkup dan kedalaman pembahasan:

Tata Bahasa yang digunakan serta ruang lingkup pembahasan dipresentasikan dengan baik. Pembahasan meliputi analisis mikroskopis implant UHMWPE. Hasil review yang ada juga mencerminkan tim reviewer artikel jurnal yang memiliki kepakaran yang baik.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

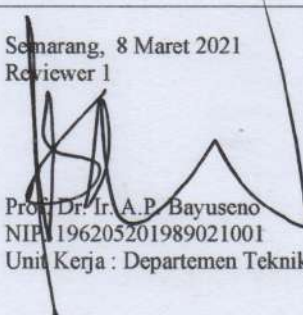
Kebaruan artikel sangat baik. Dari Daftar pustaka yang digunakan, 11 dari 18 pustaka merupakan terbitan kurang dari 10 tahun. Metodologi yang digunakan sangat sistematis dengan tahapan-tahapan kegiatan yang jelas dan runut, terutama pendekatan eksperimen in-vitro. Hasil-hasil eksperimen juga disajikan secara menarik dengan analisis yang mendalam. Turnitin similarity index cukup sebesar 15%.

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2. Ruang lingkup dan kedalaman pembahasan:

Artikel ini menyelidiki respon dari sumsum tulang manusia yang diturunkan sel induk menjadi bahan blok UHMWPE yang menyerupai situasi awal ketika prostesis artroplastik total berada ditanamkan pada sendi manusia. Pembahasan juga cukup mendalam untuk menjawab tujuan ini.

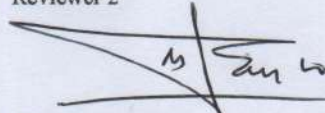
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Turnitin similarity index = 15%. Lebih dari 50% sitasi berasal dari artikel terkini (< 10 tahun). Selain itu, metodologi penelitian dipresentasikan sangat baik. Analisis mikroskopis objek penelitian juga ditulis lengkap.

4. Kelengkapan unsur dan kualitas terbitan:

Kelengkapan unsur penerbit baik. SJR sebesar 0.323.

Semarang, 11 Maret 2021
Reviewer 2



Dr. Agus Suprihanto, ST., MT
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Journal of Pharmacy and Bioallied Sciences [Open Access](#)
Volume 10, Issue 1, January-March 2018, Pages 43-47

Initial response of human bone marrow-derived stem cells after contact with ultrahigh-molecular-weight polyethylene (UHMWPE) material: An in vitro study on cell viability and interleukin-6 expression (Article) ([Open Access](#))

Anwar, I.B.^a, Santoso, A.^a, Saputra, E.^a, Ismail, R.^{a,b}, Jamari, J.^{a,b}, Van Der Heide, E.^{a,c}

^aOrthopaedic and Traumatology Department, Prof. Dr. R. Soeharso Orthopaedic Hospital, Jl. A. Yani Pabelan, Surakarta, 57162, Indonesia

^bLaboratory for Engineering Design and Tribology, Department of Mechanical Engineering, Diponegoro University, Tembalang, Semarang, Indonesia

^cLaboratory for Surface Technology and Tribology, Faculty of Engineering Technology, University of Twente Drienerloolaan, Enschede, Netherlands

Abstract

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Introduction: Ultrahigh-molecular-weight polyethylene (UHMWPE) is a thermoplastic polymer useful in biomaterial applications, especially in orthopedic field. Yet, little is known concerning its initial effect on human bone marrow stem cells (hBMSCs) after implantation. **Materials and Methods:** A cytotoxicity analysis was performed with a 3-(4,5-dimethylthiazol 2-yl)-2,5-diphenyltetrazolium assay after 24, 48, and 72h of incubation of hBMSC culture. Expression of interleukin-6 (IL-6) was measured using enzyme-linked immunosorbent assay. Cell viability was measured with Inhibitory concentration 50% (IC₅₀) formula. **Results:** All treatment groups showed a cell viability of 50% ranging from 78% to 100%. Lower expression of IL-6 of hBMSC compared to control group was found in 48h of incubation period. **Conclusion:** hBMSC showed high cell viability after initial contact with UHMWPE material. Modulation of IL-6 expression was present at the initial stage as a response to foreign material. © 2018 Wolters Kluwer Medknow Publications. All rights reserved.

SciVal Topic Prominence ⓘ

Topic: Osteolysis | Ultra-High Molecular Weight Polyethylene | Tartrate-Resistant Acid Phosphatase

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Cell viability human stem cells interleukin-6 UHMWPE

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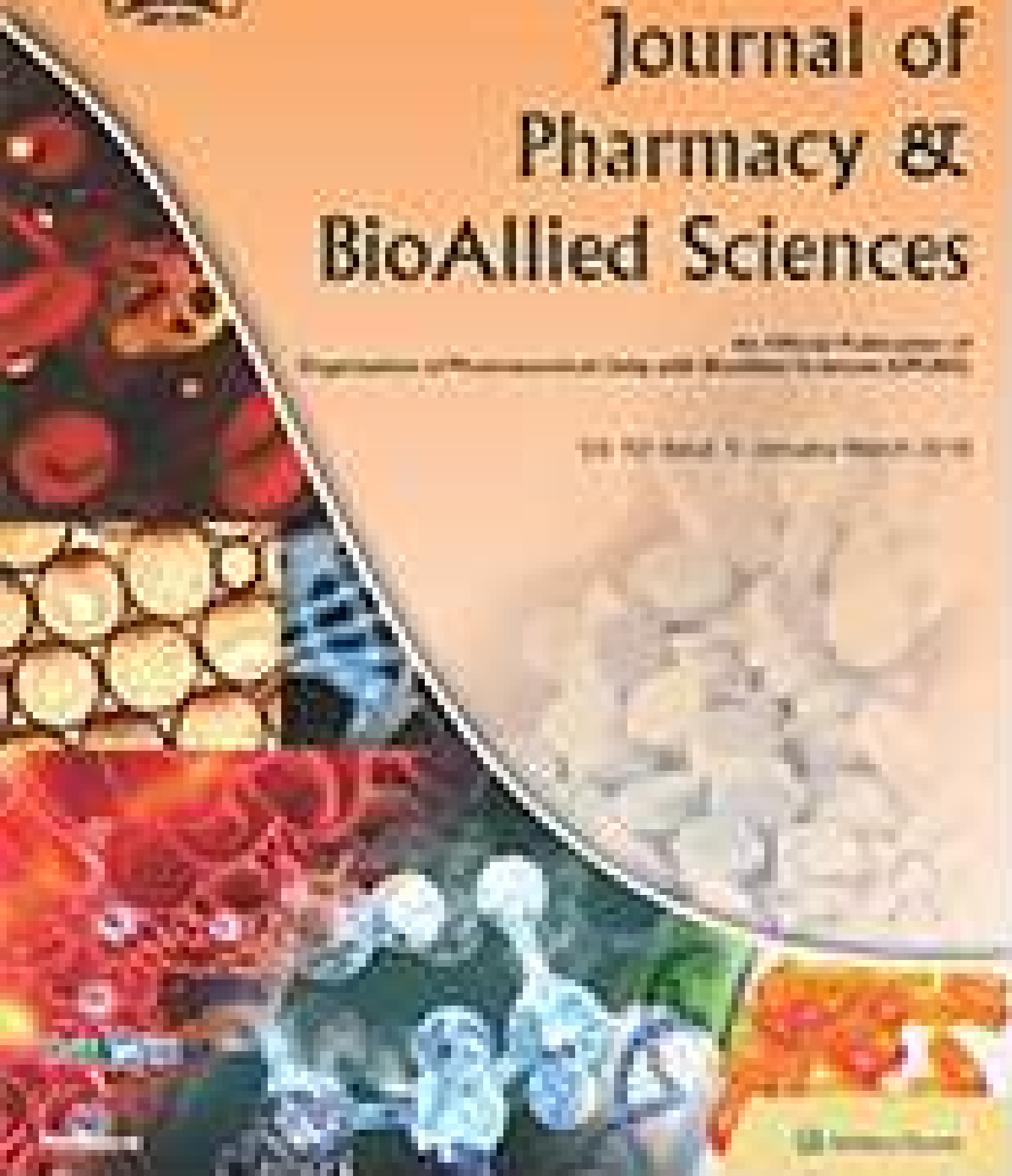


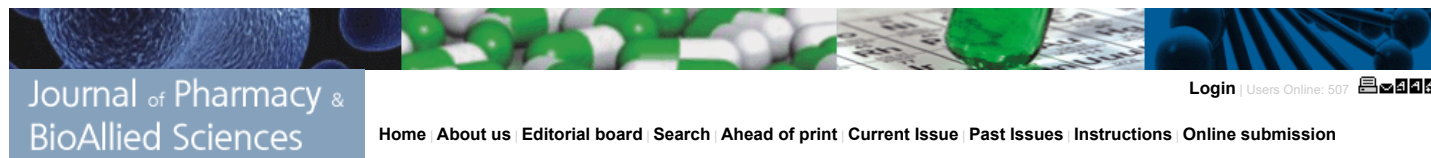
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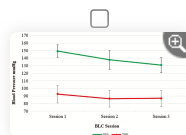
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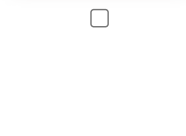
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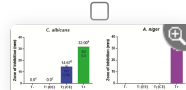
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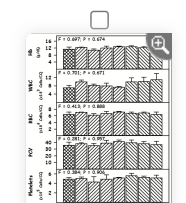
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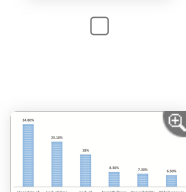
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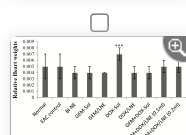
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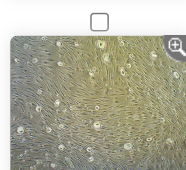
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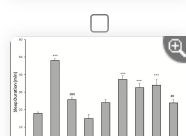
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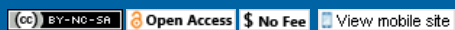
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ORIGINAL ARTICLE

Year : 2018 | Volume : 10 | Issue : 1 | Page : 1-6

Evaluation of bloodletting cupping therapy in the management of hypertension

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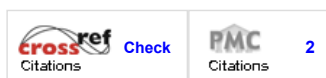
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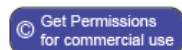
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Background: Bloodletting cupping therapy (Hijama) is a traditional alternative medicine practiced in different cultures. Claims about the therapeutic efficacy of Hijama in hypertension are contradictory. The aim of this project was to determine if Hijama therapy is beneficial in the treatment of patients with hypertension. **Materials and Methods:** In this retrospective study, 60 files for patients treated for hypertension, aged 40–60 years and whose systolic blood pressure (SBP) is at least 140mm Hg, were used. The data from 30 patient files were obtained from three licensed Hijama centers (study group), whereas data from the rest of 30 patient files were collected from a hospital (control group). The data from Hijama centers included age, date of Hijama therapy, and blood pressure measured before each Hijama session. Both diastolic blood pressure (DBP) and SBP data were obtained over 3-month period. **Results:** The results showed a significant reduction in SBP (P value < 0.01) over three sessions of wet cupping (from 149.2 to 130.8mm Hg), but this was not significant for DBP over three sessions ($P = 0.074$). The study also found that the mean SBP in the study group was 9.6mm Hg less than that in the control group (130.8 vs. 140.4mm Hg, $P = 0.019$), whereas there was no significant difference in DBP between the study group and the control group (87.0 vs. 86.0mm Hg, $P = 0.75$). **Conclusions:** Our study shows clear relationship between Hijama and the reduction and control of SBP in patients with hypertension. Therefore, Hijama can be used as an adjunct to conventional therapy, which may allow downtitration of given doses of antihypertensive drugs. The possible association of SBP reduction by Hijama and pain reduction needs an investigation.

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ORIGINAL ARTICLE

Year : 2018 | Volume : 10 | Issue : 1 | Page : 48–53

Hypnotic effect of red cabbage (*Brassica oleracea*) on pentobarbital-induced sleep in miceAzar Hosseini¹, Mohammad-Ali Sobhanifar², Fatemeh Forouzanfar², Azita Aghaee¹, Hassan Rakhshandeh²,¹ Pharmacological Research Center of Medicinal Plants, Mashhad University of Medical Sciences, Mashhad, Iran² Department of Pharmacology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

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Abstract

Objective: The present study was performed to investigate the effect of hydroalcoholic extract of red cabbage and its fractions on sleeping behavior in mice. **Materials and Methods:** The extract and its fractions were injected to mice and sleep duration as well as sleep latency were recorded. Furthermore, toxicity of the extract was determined both *in vivo* and *in vitro*. **Results:** The extract increased sleep duration at doses of 50–200mg/kg ($P < 0.001$). This observed hypnotic effect was comparable to that of diazepam (3mg/kg) ($P < 0.001$ in comparison with control group). Ethyl acetate, *n*-butanol, and aqueous fractions could increase sleep duration ($P < 0.001$). The sleep latency was decreased by the extract ($P < 0.001$) and only ethyl acetate fraction ($P < 0.001$). LD₅₀ value for red cabbage extract was 2.4g/kg. There was no toxic effect on viability of cultured neuronal cells (PC12). Rotarod test results showed that there were no significant differences between the extract groups and the control group. **Conclusion:** The results suggest that red cabbage potentiates pentobarbital hypnosis without any toxic effect. The main component(s) responsible for this effect is most likely to be intermediate polar agent(s) such as flavonoids, which are found in ethyl acetate fraction of this plant.

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Full Text

Introduction

Insomnia is defined as repeated difficulty in falling asleep, difficulty maintaining sleep, and/or experiencing low-quality sleep, which results in some form of daytime disturbance.[1] Low sleeping leads to mental problem and fatigue. According to recent reports, 45% people suffer from sleeping disorder; this problem is higher in women than men.[2] There are some drugs such as benzodiazepines and antihistaminic agents that are used for inducing sleep.[2] γ -Aminobutyric acid receptor A (GABAA) is an important target for sleep-inducing drugs.[3] However, they are not suitable for long-time administration because of their tolerance-related issues and dependence.[4] There is a need to find new hypnotic drugs with lower adverse effects. Natural products have always been good sources for developing new treatments for the management of several diseases.[5] Some of the herbs that are used in insomnia include *Humulus lupulus*, *Ziziphus jujuba* (sour date), *Valeriana officinalis*, *Passiflora incarnata* (passion flower), *Eschscholzia californica* (California poppy), *Piper methysticum*, and *Lactuca sativa*. [6],[7],[8],[9] The red cabbage (*Brassica oleracea* var. *capitata* f. *rubra*) belongs to Brassicaceae family (order: Brassicales). [10] Red cabbage is a cheap source of anthocyanin pigment. [11] Red cabbage contains flavonoids, and recent studies have shown that flavonoids have good therapeutic effects. [10] The pharmacological effects of red cabbage include reducing oxidative stress, decreasing blood glucose, [12],[13],[14] possessing anticancer properties, [15],[16],[17] and reducing blood cholesterol. [18] In some traditional medicinal books, it is reported that red cabbage has sedative–hypnotic effect. [19] There is no pharmacological report about the hypnotic effect of red cabbage. Therefore, this study has been designed to evaluate the sleep-prolonging effect of red cabbage extract and its different fractions. Also, flumazenil was used to guess possible sleep mechanism.

Materials and Methods

Drugs and chemicals

Penicillin–streptomycin, pentobarbital sodium, and flumazenil were purchased from Sigma (St. Louis, MO, USA). Diazepam was purchased from Chemidarou Company (Tehran, Iran). Tween 80 was provided from Merck (Darmstadt, Germany). Dulbecco's modified Eagle's medium (DMEM) and fetal bovine serum (FBS) were purchased from Gibco Life Technologies (Grand Island, NY, USA). Flumazenil, pentobarbital, and diazepam were dissolved in saline to make 30, 2, and 3mg/mL solutions, respectively.

Plant Collection and Extraction

Plant material

The red cabbage was purchased from a local market in Dargaz and the voucher specimen (No. 21373) was deposited in Dargaz Payame Noor University herbarium. The aerial parts of red cabbage were dried in shadow, powdered, and subjected to extraction with 70% ethanol with a Soxhlet apparatus for 48h. Then, the hydroalcoholic extract (HAE) was dried in a water bath, and the yield (19% w/w) was dissolved in saline containing 1% (v/v) of Tween 80. For preparation of fractions, a part of HAE was suspended in distilled water and transferred to a separator funnel. With solvent–solvent extraction, it was fractionated using ethyl acetate or *n*-butanol. The ethyl acetate fraction (EAF) and *n*-butanol fraction (NBF) were separated to obtain water fraction (WF). [9] The resulting fractions were dried on a water bath, and working solutions were made up in saline and saline containing 1% Tween 80 for WF and EAF or NBF, respectively. [20] The yields obtained from the extract fractionation were 73.5% WF, 12.5% EAF, and 14% NBF.

Animals

Male albino mice weighting 20–30g were maintained at a controlled temperature ($22^{\circ}\text{C} \pm 1^{\circ}\text{C}$) with a 12-h light/dark cycle and free access to water and food. The study was carried out in accordance with ethical guidelines of Mashhad University of Medical Sciences (IR.MUMS.REC.1392.206). The animals ($n = 88$) were randomly divided into different groups (the number of animal in each group was 8); group 1 received normal saline and served as a negative control for HAE. Animals of group 2 received 3mg/kg diazepam as positive control. Mice in

ORIGINAL ARTICLE

Year : 2018 | Volume : 10 | Issue : 1 | Page : 15–20

Phytochemical constituents and antimicrobial activity of the ethanol and chloroform crude leaf extracts of *Spathiphyllum cannifolium* (Dryand. ex Sims) SchottArunachalam Dhayalan, Daniel E Gracilla, Renato A Dela Peña Jr, Marilyn T Malison, Christian R Pangilinan
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Abstract

Context: The study investigated the medicinal properties of *Spathiphyllum cannifolium* (Dryand. ex Sims) Schott as a possible source of antimicrobial compounds. **Materials and Methods:** The phytochemical constituents were screened using qualitative methods and the antibacterial and antifungal activities were determined using agar well diffusion method. **Statistical Analysis:** One-way analysis of variance and Fisher's least significant difference test were used. **Results:** The phytochemical screening showed the presence of sterols, flavonoids, alkaloids, saponins, glycosides, and tannins in both ethanol and chloroform leaf extracts, but triterpenes were detected only in the ethanol leaf extract. The antimicrobial assay revealed that the chloroform leaf extract inhibited *Candida albicans*, *Escherichia coli*, *Staphylococcus aureus*, *Bacillus subtilis*, and *Pseudomonas aeruginosa*, whereas the ethanol leaf extract inhibited *E. coli*, *S. aureus*, and *B. subtilis* only. The ethanol and chloroform leaf extracts exhibited the highest zone of inhibition against *B. subtilis*. The antifungal assay showed that both the leaf extracts have no bioactivity against *Aspergillus niger* and *C. albicans*. **Conclusions:** Results suggest that chloroform is the better solvent for the extraction of antimicrobial compounds against the test organisms used in this study. Findings of this research will add new knowledge in advancing drug discovery and development in the Philippines.

How to cite this article:

Dhayalan A, Gracilla DE, Dela Peña Jr RA, Malison MT, Pangilinan CR. Phytochemical constituents and antimicrobial activity of the ethanol and chloroform crude leaf extracts of *Spathiphyllum cannifolium* (Dryand. ex Sims) Schott. J Pharm Bioall Sci 2018;10:15-20

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Full Text

Introduction

Effective treatment is needed for the global challenge of antibiotic resistance.[1] Nowadays, the major problem doctors are experiencing in providing treatment to patients is the continuous emergence of new strains of bacteria that are resistant to narrow- and broad-spectrum antibiotics resulting in prolonged illness or even death.[2],[3] Antibiotic resistance in bacteria can cause diseases that are even more severe than the nonresistant strains.[3] This development challenges the scientific community to discover new, safe, and more effective antibiotic compounds from natural sources apart from the existing synthetic antibiotic agents[4] because almost all available antibiotics cause side effects and are also expensive.[5] Thus, these considerations make it essential to discover new and more potent antibiotics to address the problem of new and emerging antibiotic-resistant pathogens.[1]

From the beginning of human civilization, nature has been a fundamental source of remedy to many ailments.[6] Traditional medicines of both plant and microbial origin provide safe remedies against diseases as advocated by the World Health Organization.[7] Natural products are helpful in drug development as most clinical drugs originated from natural products[8] including plant secondary metabolites. Although the main role of these secondary metabolites is defense against plant predators and pathogens,[9] interestingly, there are now a huge number of reports that explore the activity of these natural products present in leaves and many other plant parts for pharmacological applications including the development of antimicrobial drugs.[10],[11]

Spathiphyllum cannifolium is an evergreen, tropical flowering plant widely distributed across Southeast Asia and is commonly cultivated as an ornamental. Previous studies confirmed the plant has anti-inflammatory effect[12] and antibacterial activity against *Escherichia coli* and *Bacillus subtilis*. [13],[14] The plant, however, has not been extensively studied in terms of the antimicrobial potentials of compounds from its leaves against a variety of other pathogens, including fungi. Hence, the present study intends to investigate the phytoconstituents and the antibacterial and antifungal potentials of the secondary metabolites produced in the leaves of the plant of interest. Results of the study may provide bases for further investigations involving antibiotic-resistant strains of the test organisms.

Materials and Methods

Collection and identification of plant materials

Plant leaf materials weighing about 2kg were collected from the grounds of Manila Central University, Caloocan City, the Philippines, and subjected to solvent extraction. A plant leaf, flower, and photographs of the specimen were sent to the Botany Division of the Museum of Natural History, Manila, the Philippines, for taxonomic identification.

Preparation of ethanol and chloroform leaf extracts

The plant materials were washed thoroughly with tap water followed by sterilized distilled water for the removal of dust and dirt. The leaves were shade dried for 28 days at room temperature and then finely powdered using an electric grinder. The finely powdered leaves were divided into two equal parts. These were soaked in ethanol and chloroform, respectively, and kept in a dark room for 72h. Then, the mixtures were filtered using Whatman filter paper (Sigma-Aldrich, St. Louis, MO) no. 2 and the filtrates were subjected to rotary evaporation at 45°C to eliminate the solvents used for extraction.

Phytochemical screening

Qualitative analysis was performed to detect the presence of plant secondary metabolites in *S. cannifolium* as described by Evans[15] and Guevarra,[16] with minor modifications.

Liebermann–Burchard Test for sterols and triterpenes: Two grams of the concentrated extract was dissolved with acetic anhydride, and the soluble portion was decanted. Two drops of concentrated sulfuric acid were added into the decanted solution and observed for color change. Blue indicates the presence of sterols, whereas red indicates the presence of triterpenes. In the Salkowski's test for sterol, concentrated sulfuric acid was added into the test substance taken with 2mL of chloroform, and two drops of acetic anhydride were added. Positive