

## **ABSTRACT BOOK**

The 2<sup>nd</sup> International Conferences in Pharmaceutical and Health  
Sciences  
**Prevention, Treatment and Development of Drug Formulations for  
Cardiovascular Disease**

Virtually from Health Polytechnic of Gorontalo,  
Ministry of Health, Indonesia  
Wednesday-Thursday, October 19-20, 2022



**Publisher:**  
**POLKESGO Press**  
**Politeknik Kesehatan Kementerian Kesehatan Gorontalo**

## **ABSTRACT BOOK**

**The 2<sup>nd</sup> International Conferences in Pharmaceutical and Health Sciences: Prevention, Treatment and Development of Drug Formulations for Cardiovascular Disease**

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**Editorial Staf**

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Kota Gorontalo

## ACKNOWLEDGEMENT

Bismillahirrahmanirrahim

Assalamualaikum Warrahmatullahi Wabbarakatuh.

Good morning ladies and gentlemen

Honorable

- Director General of Health Workforce, Ministry of Health Republic of Indonesia, drg. Arianti Anaya, MKM
- Director of Health Polytechnic of Gorontalo
- Vice Directors of Health Polytechnic of Gorontalo and the ranks
- Head of Department of Pharmacy
- All invited speakers
- All sponsors
- And All of participants of this conference

First of all, I would like to welcome you to the 2nd international conferences in Pharmaceutical and Health Sciences 2022 which is being held by the Department of Pharmacy, Poltekkes Kemenkes Gorontalo.

This conference is the second conference held by department of Pharmacy with the theme "Prevention, Treatment and Development of Drug Formulations for Cardiovascular Disease".

This conference is the result of collaboration with professional organization PAFI, IAI and APDFI.

For publication of articles, we have collaborated with international journals indexed by Scopus Q3 and also national journals accredited by SINTA

### **Activity Purpose**

The main purpose of this conference is to socialize the prevention, treatment and development of advances in cardiovascular medicine and increase understanding about it to the people of Indonesia and the world.

### **Speaker**

The Speaker of this conference come from several different countries and institutions in some regions worldwide:

1. Prof. Chonlaphat Sukasem, B.Pharm, Ph.D from Faculty of Medicine Ramathibodi Hospital Mahidol University, Bangkok, Thailand

2. Associated Prof. Dr. Jalifa Latip from Faculty of Science and Technology University Kebangsaan Malaysia
3. Prof. Delvac Oceandy, MD., PhD. from School of Medical Sciences, The University of Manchester, UK
4. Prof. Dr. Satibi from Faculty of Pharmacy, Gadjah Mada University, Indonesia
5. Yusnita Rifai, Ph.D from Faculty of Pharmacy, Hasanuddin University, Indonesia

### **PARTICIPANT**

The number of participants is three hundred and seventy eight (378) participants from Indonesia including, lecturers, practitioners, and general participants, with 47 participants in the oral presentation, and 18 title of poster.

### **TIME AND PLACE**

This International Conference was held on 19 and 20 October 2022 at 8 AM to 4 PM in Middle Indonesian Time, and Conducted virtually using Zoom Meeting and broadcast live on Youtube Pharmacy Poltekkes Kemenkes Gorontalo

### **METHOD**

The method of this conferences Plenary Lectures and discussions with Speaker about the theme. All article will publish

### **SOURCE OF FUNDS**

This event is financed from the DIPA Poltekkes Kemenkes Gorontalo in 2022

Next, we request the Director's willingness to give a welcome speech and the Director General Health Workforce Ministry of Health Reublic of Indonesia to be able to officially open this conference.

Thus the committee's report,

Thank you, Wassalamualaikum w, w

Gorontalo, October 19 2022

**Head of Committee**

**Fadli Husain, S.Si.,M.Si**

## PREFACE

### DIRECTOR OF POLTEKKES KEMENKES GORONTALO

Bismillahirrahmanirrahim

- Honorable Director of Director General of Health Workforce Ministry of Health Republic of Indonesia
- All Invited Speakers of the 2nd International Conferences in Pharmaceutical and Health Sciences 2022
- The academic community of Poltekkes Kemenkes Gorontalo
- And all participants of the conference

Assalamualaikum warahmatullahi wabarakatuh

#### ***Ladies and gentleman***

Cardiovascular disease or heart disease is one of the main health problems in both developed and developing countries. Based on the Global Burden of Disease and the Institute for Health Metrics and Evaluation from two thousand fourty until two thousand ninety, heart disease is the leading cause of death in Indonesia. Various efforts have been made by the government to prevent and control this disease, but all return to the pattern and lifestyle of the community. Heart disease is an important health problem and has a socio-economic impact because of the high cost of medicines, the length of time for care and treatment, as well as other supporting examinations required in the treatment process. Prevention efforts through early detection of risk factors and their control efforts are very important.

One of the efforts that we can do to prevent and control this disease is to understand how this disease can arise and how we can overcome or control it.

#### ***Ladies and gentleman***

Poltekkes Kemenkes Gorontalo as one of the universities in the field of Health under the Ministry of Health of the Republic of Indonesia, it always supports the government's efforts, especially in the field of Health, to be able to continue to be a carrier of health messages and information to the public. One of the efforts made by Poltekkes Kemenkes Gorontalo is to consistently hold conference activities that gather experts in their fields to be able to transmit the latest knowledge, especially in the field of Health.

This 2nd ICPHS is one proof of the consistency of the Poltekkes Kemenkes Gorontalo in carrying out the above, with this conference, we collect various kinds of research results and information related to non-communicable diseases, especially cardiovascular disease.

I would like to thank the Department of Pharmacy for successfully holding this conference for the second time.

I would like to thank the speakers from various countries, from Thailand, Malaysia, United Kingdom, and also Indonesia. Also to the entire organizing committee of this conference, I hope it goes well and gets blessings from God. Hopefully this conference can provide great benefits for all of us.

Next, I request the willingness of the Director General of Workforce Ministry of Health Republic of Indonesia to be able to officially open this conference.

That is all and thank you

Wassalamu alaikum warahmatullahi wabarakatuh

Gorontalo, October 19, 2022

**Mohamad Anas Anasiru, SKM.,M.Kes**  
Director of Poltekkes Kemenkes Gorontalo

## **SPEECH BY THE DIRECTOR GENERAL OF HEALTH WORKERS MINISTRY OF HEALTH REPUBLIC OF INDONESIA**

Bismillahirrahmanirrahim

- Honorable Director of Poltekkes Kemenkes Gorontalo and along with the ranks
- All Invited Speakers of the 2nd International Conferences in Pharmaceutical and Health Sciences 2022
- The academic community of Poltekkes Kemenkes Gorontalo
- And all participants of the conference

Assalamualaikum warahmatullahi wabarakatuh

Indonesia is currently facing a double burden of disease, namely communicable and non-communicable diseases. Changes in disease patterns are strongly influenced, among others, by changes in the environment, community behavior, demographic transitions, technology, economy and socio-culture. The increase in burden due to non-communicable diseases (NCD), especially cardiovascular disease, is in line with the increase in risk factors which include increased blood pressure, blood sugar, body mass index or obesity, unhealthy eating patterns, lack of physical activity, and smoking and alcohol.

Concerns about the increasing prevalence of non-communicable diseases have led to an agreement on a global strategy for the prevention and control of non-communicable diseases, especially in developing countries. Non-communicable diseases have become a strategic issue in the SDGs 2030 agenda so that they must be a development priority in every country.

Indonesia is a country that has enormous natural wealth, both flora and fauna on land and in the ocean that can produce various chemical compounds. Indonesia is known as a country that has the second largest flora diversity after Brazil. Various types of medicinal plants have been investigated and explored more deeply for their potential as raw materials in the manufacture of various types of medicinal preparations. This includes the development of the discovery of new drugs from natural ingredients that can be drug candidates for non-communicable diseases, especially heart disease.

The international activities of this conference are expected to be a forum for exchanging information and knowledge as well as in enriching our knowledge in research, especially in the field of prevention and treatment as well as the development of new drug discoveries for cardiovascular disease.

Cardiovascular disease has become a scourge not only for Indonesia, but also for the world. This disease is the top killer disease in humans, so that prevention of treatment and efforts to develop new drugs are very important for a better future. The Ministry of Health strongly supports scientific activities such as this conference, because it can indirectly add to the repertoire of new sciences to at least serve as the basis for future policy making.

We really give the highest appreciation to Poltekkes Kemenkes Gorontalo, especially the Department of Pharmacy, which has consistently held this conference until it has entered its second year of implementation. This international conference is expected to further strengthen the existence of Poltekkes as a State University in the field of Health that is able to provide benefits to the Indonesian people.

By presenting experts from within and outside the country, this conference can provide more knowledge updates and new knowledge which can also be used for lecturers at the Health Polytechnic of the Ministry of Health of Gorontalo to also improve competencies according to their expertise.

Finally, by asking for the grace of the almighty God, I declare that the 2nd International Conferences in Pharmaceutical and Health Science 2022 Wednesday, 19 October 2022 is officially opened, hopefully this conference can contribute ideas in our efforts to achieve a healthy degree for all mankind.

Thank you

Wassalamu alaikum warahmatullahi wabarakatuh

**THE 2<sup>nd</sup> INTERNATIONAL CONFERENCES IN PHARMACEUTICAL  
AND HEALTH SCIENCES 2022**

Wednesday and Thursday, 19 – 20<sup>th</sup> October 2022

**RUNDOWN**

(All Time Were Set in Middle Indonesian Time (GMT+8))

**DAY 1**

TIME	ACTIVITY	DESCRIPTION
<b>Wednesday, 19<sup>th</sup> October 2022</b>		
7 AM – 8.25 AM	Enter Zoom Meeting	
8.30 AM – 9.00 AM	Opening Ceremony	<p>Opening Ceremony (Traditional Dance)</p> <p>National Anthem “Indonesia Raya” <b>Head of Committee Report (Fadli Husain)</b></p> <p>Welcoming Speech</p> <p><b>1. Mohamad Anas Anasiru, SKM.,M.Kes</b> Director of Poltekkes Kemenkes Gorontalo</p> <p><b>2. drg. Arianti Anaya,MKM</b> Director General of Health Workforce Ministry of Health Republic of Indonesia</p> <p><b>Prayer (Saskia Chairunisa,A.Md farm)</b></p>
9.00 AM – 11.00 AM	Plenary Lecture	<p><b>Plenary Speaker 1</b> <b>Prof.Chonlaphat Sukasem,Ph.D</b> (Departement of Pathology Faculty of Medicine Mahidol University,Bangkok,Thailand)</p> <p><b>Title:</b> Integrating Pharmacogenomics and Precision Medicine of Cardiovascular Disease into Clinical Pharmacy Practice</p> <p><b>Moderator:</b> Mohamad Arif Ismail, S.Pd.,MA.Tesol</p>
11.00 AM – 1.00 PM	Plenary Lecture	<p><b>Plenary Speaker 2</b> <b>Assoc.Prof.Jalifah Latif</b> (Departement of Chemical Sciences Faculty of Science and Technology Universiti Kebangsaan Malaysia, Malaysia)</p> <p><b>Title:</b> Natural medicine for the treatment of cardiovascular disease</p> <p><b>Moderator:</b> Rahma Labatjo. S.ST, MPH</p>
1.00 PM – 1.30 PM	Break for Moslem Prayer and Lunch	
1.30 PM – 3.30 PM	Plenary Lecture	<p><b>Plenary Speaker 3</b> <b>Dr. Delvac Oceandy, MD.,PhD.</b> (Division of Cardiovascular Sciences University of Manchester, United Kingdom)</p> <p><b>Title:</b> Molecular Mechanism and Therapy of Cardiovascular Disease</p> <p><b>Moderator:</b> Mohamad Arif Ismail, S.Pd.,MA.Tesol</p>

## DAY 2

TIME	ACTIVITY	DESCRIPTION
<b>Thursday, 20<sup>th</sup> October 2022</b>		
7 AM – 8 AM	Enter Zoom Meeting	
8 AM – 10 AM	Plenary Lecture	<p><b><u>Plenary Speaker 1</u></b> <b>Prof.Dr.Satibi</b> (Faculty of Pharmacy, Universitas Gadjah Mada, Yogyakarta, Indonesia)</p> <p><b>Title:</b> Analysis of Drug Availability and Factors That Affecting in Indonesia</p> <p><b>Moderator:</b> Sitti Rhomlah Jahja, S.Farm.,Apt</p>
10.00 AM – 12.00 AM	Plenary Lecture	<p><b><u>Plenary Speaker 2</u></b> <b>Yusnita Rifai, Ph.D</b> (Faculty of Pharmacy, Hasanuddin University, Makassar, Indonesia)</p> <p><b>Title:</b> Molecular Docking of Phytochemical Compounds as Candidate of Cardiovascular Treatment</p> <p><b>Moderator:</b> Fadli Husain, S.Si.,M.Si.</p>
12.00 – 13.00	Break for Moslem Prayer and Lunch	
13.00-16.30	Oral/Poster Presentation Participants	<p><b>Moderator:</b></p> <ol style="list-style-type: none"> <li>Dwina R. Pomalingo, M.Farm</li> <li>Moh.Usman Nur, S.Farm, M.Farm., Apt</li> <li>Rizka Puji Astuti Daud, S.Farm., Apt</li> <li>Insyira Fadliana Basri, S.Farm., Apt</li> <li>Fitriah Ayu Magfirah Yunus, S.Farm</li> <li>Pratiwi Ishak, A.Md.Farm</li> </ol> <p><b>Judges :</b></p> <ol style="list-style-type: none"> <li>Zulfiayu, S.Si, M.Si., Apt</li> <li>Dr.rer.nat Robert Tungadi, S.Si, M.Si., Apt</li> <li>Nangsih S Slamet, S.Si, M.Si., Apt</li> <li>Fihrina Mohamad, S.Si, M.Si</li> <li>Fadli Husain, S.Si, M.Si</li> <li>Arlan K Imran, S.Farm, M.Farm., Apt</li> </ol>
16.30- 17.30	<b><u>Closing Ceremony</u></b>	

# ORAL PRESENTATION

## **IN SILICO ANALYSIS OF THE NPC1L1 INHIBITOR OF CATECHINS FROM GREEN TEA**

**Susanti ERNA<sup>1\*</sup>, Dhini Ellyvina SETYA<sup>2</sup>**

*<sup>1,2</sup>Academy of Pharmacy and Food Analyst of Putra Indonesia Malang, Indonesia*

*\*Corresponding Author; Susanti Erna*

### **ABSTRACT**

This research aims to predict NPC1L1 inhibitor of Catechins from Green Tea. NPC1L1 inhibitor plays to inhibit atherogenesis. Open Babel in Pyrx was used for analysis. We were using Autodock vina in Pyrx for docking and Chimera v1.8 for visualization. The result of molecular interaction were assigned. This research was using Pose view. Catechins has potential as NPC1L1 inhibitor. Energy bonds, hydrogen bonds and hydrophobic interactions of molecules with NPC1L1 were be the main parameter to predict inhibitory effect. All of isolates from Catechins have little affinity energy and showed a strong affinity to NPC1L1. The most potent as inhibitor NPC1L1 of Catechins showed that Epigallocatechin gallate (EGCG) binds to NPC1L1 at many active sites including Gln 200, Tyr 192, Trp 202, Cys 189, Gly 207, Asp 217, Gly 207, Asp 217, Gly 190, Phe 205, Asp 208. Hydrogen bonds were identified at Thr 219, Ile 218, Asn 204, Asn 211, Arg 201, and Asn 204. The interaction energy between NPC1L1 and EGCG is -7.5 kCal/mol. Further research is needed to prove effect of Catechins as NPC1L1 inhibitor in vitro and in vivo study.

**Keywords:** In silico, atherogenesis, cardiovascular diseases, Catechins, NPC1L1, inhibitor

## **POTENTIAL ANTIBACTERIALS OF MERANG PADI EXTRACT (*ORYZA SATIVA*) ON THE GROWTH OF GRAM POSITIVE AND GRAM NEGATIVE BACTERIA**

**Masniah, Rini Andarwati, Ahmad Purnawarman Faisal, Mimin Wulandari**

*Department of Pharmacy, Poltekkes Ministry of Health Medan, Indonesia*

### **ABSTRACT**

Padi husk (*Oryza sativa*). Padi straw is one type of stem produced from Padi tree trunks. Antibacterial activity testing was carried out by agar diffusion method using paper disc as a backup by observing the formation of a clear zone indicating the presence of antibacterial activity. Variations in the concentration of the Padi straw extract test solution were made with a %w/v ratio between 100% pure Padi straw extract and DMSO adjusted at various test concentrations, namely, 5%, 10%, 15%, 20%, and 25%. The results showed that the n-hexane fraction of Padi husk did not have antibacterial activity because there was no inhibition zone or kill zone indicated by the fraction at both low and high concentrations. While the ethanol extract showed antibacterial activity at a concentration of 15%, the ethyl acetate fraction and the n-butanol fraction had antibacterial activity indicated by the presence of an inhibitory zone at a concentration of 7%. The results of the t-test on the ethanol extract of the test bacteria obtained a T count value of 14,687 which means it is very significant or very significantly different because Tcount is greater than Ttable (5% and 1%). This shows that the oxytetracycline antibiotic is better than the potency of the ethanol extract of straw on the test bacteria.

**Keyword:** antibacterial, *Oryza sativa*, Merang Padi.

## **FORMULATION AND TEST ACTIVITY ANTIBACTERIAL OF STREPTOCOCCUS MUTANS FROM MOUTHWASH PREPARATION OF CLOVE LEAF ETHANOL EXTRACT (*SYZYGIUM AROMATICUM* L.)**

**Prayitno Setiawan\*, A. Juaella Yustisi, Nurfitria Junita<sup>1</sup>, Sri Wahyuningsih<sup>1</sup>, St. Haliya<sup>1</sup>**

*Faculty of Pharmacy, Department of Pharmacy, Megarezky University*

\*Corresponding author. Email: prayitnosetiawan05@gmail.com

### **ABSTRACT**

As a plant Clove (*Syzygium aromaticum* L.) that functions as an antibacterial, contains secondary metabolites, namely flavonoids, alkaloids, saponins, tannins, phenolics and terpenoids. This study aimed to make a mouthwash preparation of ethanol extract of clove leaves (*Syzygium aromaticum* L.) which was stable and formulated to test the antibacterial activity of Streptococcus mutans. The mouthwash preparation of clove leaf ethanol extract (*Syzygium aromaticum* L.) was formulated with varying concentrations of 0.1%, 0.15% and 0.2% which was then tested on Streptococcus mutans using the agar diffusion method. The results showed that before and after the cycling test, organoleptic testing, pH, clarity, homogeneity, density and viscosity had good physical and chemical stability where each formula met the normal range of mouthwash preparations

The results of the antibacterial activity test showed that each inhibition zone of F1 was 15.35 mm, F2 was 16.3 mm, F3 was 16.64 mm, K(-) had no inhibition zone, while K(+) had an inhibition zone of 17.95 mm. In this study it can be concluded that F1, F2, and F3 have antibacterial activity with a strong category.

**Keywords:** Mouthwash, clove leaf ethanol extract, Streptococcus mutans

## **PHYSICAL ACTIVITY BEHAVIORAL INTERVENTION FOR TYPE 2 DM PATIENTS: A LITERATURE REVIEW**

**Zainuddin<sup>ab</sup>, Ansariadi<sup>c</sup>, Andi Zulkifli Abdullah<sup>c</sup>, Nurhaedar Jafar<sup>d</sup>, Suriah<sup>e</sup>, Suharno  
Usman<sup>f</sup>, Syamsuriana Sabar<sup>g</sup>**

*Department of Public Health, Doctoral Student of Public Health, Hasanuddin University, Indonesia<sup>aa</sup>*

*Department of Public Health Promotion, STIKes Tanawali, Indonesia<sup>b</sup>*

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*Department of Nursing, Faculty of Nursing and Midwifery, Megarezky University, Indonesia<sup>g</sup>*

### **ABSTRACT**

Various chronic and acute conditions as comorbid diseases are highly influential to the everyday life of type 2 diabetes mellitus patients, including in physical, psychological, economic, family burden, and quality of life aspects. Therefore, preventive and treatment efforts are needed. To further review forms of behavioral intervention for increased physical activity in type 2 diabetes mellitus patients. A thorough summary in the form of a literature review on physical activity behavioral intervention for type 2 diabetes mellitus patients. The protocol and evaluation of the literature review were based on the PRISMA checklist. Four databases, PubMed, ScienceDirect, Scopus/Web of Science, and ProQuest, were employed. Eight studies conducted in various parts of the world, i.e., the Americas (the U.S.), Europe (the U.K.), and Asia-Pacific (Hongkong-China, Mongolia, and Malaysia), involving the various tribes residing therein, i.e., African-Americans, Korean-Americans, Mongolians, Latin-Americans, and Malays, were focused on populations in the age range 25–70 years. This review used the Randomized Controlled Trial (RCT) study design. Five main physical activity behavioral intervention models for diabetes mellitus patients were discovered: 1. empowerment (individual and familial); 2. diabetes self-management education; 3. web-based digital health intervention; 4. motivational interviewing; and 5. SMS-based education. The five models were focused on strengthening the understanding of the importance of physical activity in diabetes mellitus patients' self-management. Using various forms of interventions, particularly the intervention of health education on the behavior that prediabetes and diabetes mellitus patients must embrace, are critical. It is strongly recommended to use education approaches that are directly integrated to digital health technologies for prevention efforts targeting various behavioral contexts in diabetes mellitus.

**Keywords:** physical activity, education, type 2 diabetes mellitus, digital health, self-management

## **PHYSICAL ACTIVITY (PA) HEALTH MODULE INTERVENTION IN CONTROLLING BLOOD SUGAR LEVELS OF PATIENTS WITH TYPE 2 DIABETES MELLITUS IN TAKALAR DISTRICT**

**Adi Sadlia, Kamrianab Zainuddinc, Salmah Arafahd , Wahyudine**

*Department of Nursing, Stikes Tanawali Takalar a,b,c,d , Department of Medical, Faculty of  
medical jenderal soedirman University, Indonesiae*

### **ABSTRACK**

Physical activity is a part of exercise which is considered as the cornerstone in the treatment of type 2 diabetes. Physical activity is able to control circulating blood glucose directly and increase tissue sensitivity to insulin, reduce the risk of cardiovascular disease and reduce mortality. This study aims to see the difference in changes in blood sugar given through the Physical Activity Health Module (PA) media. This study used a pre-experimental study using two groups of pre-test and post-test. The sample is 50 people who have DMT2 in Takalar Regency. The results of the research show that there is a significant difference between the provision of education through the health module media to changes in blood sugar. Giving the Physical Activity (PA) health module can reduce blood sugar levels in patients with Diabetes Mellitus type. The Physical Activity Health (PA) module is the evidence base to assist decision makers, especially for nurses holding the Diabetes Mellitus program to make relevant policies and design effective promotion and prevention programs to improve health services, especially in terms of promoting physical activity programs for DMT2 patients.

**Keywords:** Diabetes mellitus; Physical Activity; PA-Module

## **THE PARTNERSHIP IN PREVENTING OF OBESITY DURING COVID-19 PANDEMIC IN PINOGU VILLAGE, GORONTALO PROVINCE**

**Arifasno Napu**

*Jurusan Gizi, Poltekkes Kemenkes Gorontalo*

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### **ABSTRACT**

Overweight and obesity tend to increase over time. This can be a risk factor happening various chronic diseases such as: heart disease, diabetes mellitus, hypertension, gout and other diseases. The causes are many factors including nutrition knowledge, dietary habit, and physical activity. This situation can be experienced by anyone, especially during the covid-19 pandemic. Therefore, the Nutrition Study Program the Health Polytechnic of the Ministry Health of Gorontalo implement community dedication in Pinogu Village, Pinogu District, Bone Bolango Regency. The purpose this activities to increase the knowledge of nutrition cadres about overweight and obesity, hence they can implement their knowledge in daily life and deliver to the community in their area. The method used is counseling in the form of presentations and discussions on local-based obesity, learning material: the meaning of obesity, causes obesity, impact of obesity, management and prevention obesity based on local potential. The result, counseling participants consist of nutrition cadres gained addition knowledge as regards obesity and a locally-based balanced diet.

**Keywords:** Pinogu Village; Partnership; Obesity; Counseling

## **DESIGN THE S-VVM (SOFTWARE VACCINE VIAL MONITOR) APPLICATION AS A TECHNOLOGY INNOVATION FOR VACCINE QUALITY ASSURANCE**

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### **ABSTRACT**

In December 2019, the world was shocked by the emergence of a pandemic that made many people nervous. This pandemic is known as the Covid-19 Virus which is caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2). The emergence of this pandemic pays special attention to maintaining the appropriate quality of a vaccine. Vaccines are antigens that are very sensitive to temperature, so vaccine maintenance needs special treatment and must be monitored every day. For the storage of a vaccine, cold chain equipment is needed to keep the vaccine temperature at the ideal temperature. Vaccine vial monitor (VVM) is a label or picture label attached to the vaccine bottle as a monitor for the feasibility of vaccine quality. However, the problem is that errors and doubts are still found by health workers in monitoring VVM. The preparation of the s-VVM (Software Vaccine Vial Monitor) application innovation design aims to provide convenience to health workers in monitoring the feasibility of vaccines that can be used automatically. This application is designed systematically in the Android/iOS software program. This application is carried out by testing the sample by scanning it using an android/iOS camera to see a comparison of the images on the vaccine which will identify whether the vaccine is safe to use or is not feasible to use. From the design of this application, it is hoped that it can provide certainty of vaccine quality for health workers.

**Keywords:** cold chain, Vaccine, VVM, s-VVM

# **BUCIN SYRUP: A CURRENT HERBAL DRINK COMBINATION OF BUNI FRUIT, LEMONGRASS AND GINGER AS AN ALTERNATIVE HEALTH DRINK CONTAINS LOTS OF ANTIOXIDANT**

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## **ABSTRACT**

Herbal drinks are a type of health functional drink that is sourced from natural ingredients. Buni (*Antidesma bunius* L.) or Malahengo (Gorontalo wine) fruit contains vitamin C, protein, fat, carbohydrates and calcium which are useful as antioxidants, antihyperglycemic and antibacterial. Lemongrass (*Cymbopogon citratus*) contains bioactive compounds that are useful as antioxidants, antidiabetics, antimalarials, antihypertensives and overcoming anxiety. Ginger (*Zingiber officinale*) contains nutrients such as magnesium, phosphorus, zinc, folate, vitamin B6, vitamin A and niacin which are useful as anti-inflammatory and antioxidant. Utilization of local ingredients such as buni fruit, lemongrass and ginger is very less in Gorontalo. The purpose of PKMK is to make the herbal drink product " *Bucin Syrup* " as a health drink and to improve the community's economy. The method is the formulation of a combination product of buni fruit with ginger and lemongrass. The stages are carried out starting from preparation, product manufacture, packaging, marketing and evaluation. The target market is all people of productive age, namely teenagers and adults. The results of sales carried out within a month with 4 times of production resulted in 40 bottles of syrup and 80 ready-to-drink cups managed to get a profit of Rp. 720,500,-. which means that the "*Bucin Syrup*" product is feasible to develop and compete with other products on the market.

**Keywords:** Herbal drink, Buni fruit, Lemongrass, Ginger, Antioxidant

## **BUCIN SYRUP: A CURRENT HERBAL DRINK COMBINATION OF BUNI FRUIT, LEMONGRASS AND GINGER AS AN ALTERNATIVE DRINK CONTAINS LOTS OF ANTIOXIDANT**

**Elin Sulfiani\*<sup>1</sup>, Delsa Mawarti R. Aswadi<sup>2</sup>, Siti Rahmi Tapelo<sup>3</sup>, Lidyawati Yusuf <sup>4</sup>,  
Nangsih Sulastrri Slamet\*<sup>5</sup>**

### **ABSTRACT**

Economic growth in Indonesia decreased by 2.41% and increased unemployment due to the Covid-19 pandemic. The strategy to overcome this is entrepreneurship. Herbal drinks are a type of health functional drink that is sourced from natural ingredients. Buni fruit (*Antidesma bunius* L.,) or Malahengo (Gorontalo wine) contains vitamin C, protein, fat, carbohydrates and calcium which are useful as antioxidants, antihyperglycemic and antibacterial. Lemongrass (*Cymbopogon citratus*) contains bioactive compounds that are useful as antioxidants, antidiabetics, antimalarials, antihypertensives and overcoming anxiety. Ginger (*Zingiber officinale*) contains nutrients such as magnesium, phosphorus, zinc, folate, vitamin B6, vitamin A and niacin which are useful as anti-inflammatory and antioxidant. Utilization of local ingredients such as buni fruit, lemongrass and ginger is very less in Gorontalo. The purpose of PKMK is to make the herbal drink product "Sirup Bucin" as a health drink and to improve the community's economy. The method is the formulation of a combination product of buni fruit with ginger and lemongrass. The stages are carried out starting from preparation, product manufacture, packaging, marketing and evaluation. The target market is all groups of people. The development of the herbal drink "Sirup Bucin" as a healthy drink rich in antioxidants and economic booster shows the potential for business sustainability based on 1 year cash flow so that it can be recommended that the development of the Bucin syrup business is feasible.

**Keywords:** Herbal drink, Buni fruit, Lemongrass, Ginger, Antioxidant

## **HEALTHY DRINK BASED ON LOCAL BASIC COMBINATION OF MORNING CORN "SUJAKE" AS ALTERNATIVE TO PREVENT STUNTING AND INCREASE NUTRITIONAL QUALITY OF COMMUNITY IN EAST CITY, GORONTALO CITY**

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### **ABSTRACT**

Stunting is a problem that is still difficult to prevent because of the lack of public knowledge about its prevention from an early age. The number of stunting cases in Gorontalo Province, especially in Padebuolo Village, East City District is still relatively high. Handling stunting in general can be done by pharmacological and non-pharmacological. Non-pharmacological treatment for stunting prevention efforts is pursued through prevention by living a healthy lifestyle by improving the nutritional quality of children and consuming natural ingredients both fruits and vegetables. One of the non-pharmacological treatments is to provide health drinks in the form of processed products with local basic ingredients, a combination of milk, corn and moringa which are packaged in ready-to-drink dosage forms. Based on the above, we aim to create an innovation using Gorontalo local fruit into a health drink with the hope of reducing the number of stunting cases in Padebuolo Village, East City District and also increasing public knowledge about stunting. The method used is a method of preparation, implementation and evaluation. Based on the results of the analysis, both the understanding of early stunting prevention and the use of local basic ingredients as public health drinks increased to 80%. This activity can make people innovate in making their own products or preparations at home in an effort to prevent stunting from an early age.

**Keywords:** Stunting, Health Drinks, Nutritional Quality, Stunting Prevention

## **EFFECT OF DRYING TECHNIQUE VARIATIONS *Chromolaena odorata* L. LEAVES ON ANTIOXIDANT ACTIVITY METHODS ABTS**

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### **ABSTRACT**

*Chromolaena odorata* L. is one of the plants used as an antioxidant. This study aims to determine the effect of variations in drying techniques of *C. odorata* L leaf extract on the antioxidant activity of ethanol extract using the ABTS method. The results of the research on antioxidant activity using the ABTS method using several variations of simplicia drying techniques, namely air drying, direct sunlight drying techniques, indirect direct sunlight and oven temperature of 50°C with comparison using vitamin C, IC<sub>50</sub> values are 28,909 µg/mL, 22,984 µg/mL, 10,645 µg/mL and 27,639 µg/mL, the IC<sub>50</sub> value of vitamin C is 4,558 µg/mL. The conclusion of this study is that there is an effect of variations in the drying method on antioxidant activity, the highest antioxidant activity is found in the drying method using indirect sunlight.

**Keywords:** *Chromolaena odorata*, Extract, Antioxidant, ABTS

## **POTENTIAL OF COWPEA STARCH (*Vigna unguiculate* L. Walp) AS TABLET BINDER**

**Taufiq Dalming, Jumasni Adnan, Yuyun Suryanti**

### **ABSTRACT**

A Starch from various plants has been reported to be used as a binder in tablet formulations. Nuts are a source of carbohydrates, one of which is an cowpea (*Vigna unguiculate* L. Walp). Objectives to determine whether cowpea starch can be used as a binder in tablet formulations using the wet granulation method to meet the criteria for good granules. Material and Methods: Starch was extracted from an cowpea powder by soaking in distilled water which was stored for an 1x 24 hours and stored in the refrigerator. The starch precipitate has obtained was dried and applied to the tablet formula with 5 different concentrations. The evaluation results showed that the moisture content test (Moisture Content) for each test formula was between 3%-0.12%, the drying loss (Loss on Drying) was 0.03%-0.12%, the angle of repose test was 25, 40°-28.81°, flow rate test ranged from 4.46-7.10 seconds with an average of 3.52-5.60 grams/second, true weight test ranged from 1.3553 g/ml-1.4528 g/ ml. The resulting granules are continued for compression and the results are evaluated for uniformity of size and weight, but the results still do not meet the criteria for a good tablet. Conclusions: a starch from an cowpea can be an alternative tablet binder.

**Keywords:** Cowper Starch, Binding Tablets.

## **FORMULATION AND OPTIMIZATION OF LIQUID HAND SOAP FORMULA CONTAINING KALAMANSI ORANGE ESSENTIAL OIL (*CITROFORTUNELLA MICROCARPA*)**

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### **ABSTRACT**

After the Covid-19 pandemic as it is today, hand washing activities are still things that must be done frequently to minimize the spread of the virus through hand touching. The use of liquid soap is chosen because it is more hygienic in use and practical packaging. Kalamansi orange is the specific commodity plant in Bengkulu that has essential oil as an active ingredient gives a refreshing aroma sensation typical kalamansi. This research was purposed to get optimal formula from essential oil Kalamansi orange hand washing soap. Hand washing soap was formulated by three variations of surfactant concentrations of 20%, 18%, and 16%. Each formula had been varied with the number of different foaming agents, namely 2%, 1.5%, and 1%, so that were become nine soap formula to find the most optimum one. Each formula was contains with 1.5% kalamansi orange essential oil. Evaluation of liquid soap preparations was conducted due to organoleptic test, homogeneity test, pH test, foam power test, viscosity test, washing power test and respectively test. The results of color the evaluation of hand washing soap containing kalamansi orange essential oil were yellow soap. Mild kalamansi odor, thick texture, homogeneous, pH 6.6, good foam power, 1550 cP viscosity, good washing power, and most hedonic tests. From all the evaluations of the preparations, the most optimum formula was formula 2b with 18% surfactant, foaming agent 1.5%

**Keywords:** optimization, essential oils, Kalamasi Orange, liquid hand washing soap

# FORMULATION AND CHARACTERIZATION OF SELF NANO-EMULSIFYING DRUG DELIVERY SYSTEM (SNEDDS) FRACTION OF N-HEXANE: ETHYL ACETATE FROM SESEWANUA LEAF (*CLERODENDRUM FRAGRANS WILD.*)

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## ABSTRACT

Sesewanua leaves contain alkaloid compounds as antioxidants, and their leaves can be used to formulate SNEDDS dosage forms, which can effectively deliver the medicine.

This study intended to determine the variation of surfactant concentration (Tween 80) and cosurfactant (PEG 400) towards pH, viscosity, nano-emulsion duration and characterization using the PSA method (particle size and polydispersity index). This study employed a quasi-experimental method and the independent variables in this study were variations in the concentration of surfactant (Tween 80) and cosurfactant (PEG 400), which consist of 3 formulas, such as SFS 1 (6:3), SFS 2 (7:2), and SFS 3 (8:1). The dependent variables in this study including pH, viscosity, nano-emulsion time, particle size and polydispersity index which utilized One Way ANOVA Post Hoc LSD ( $p > 0.05$ ) and Tamhane ( $p < 0.05$ ) tests as the data analysis. The pH test SFS1-SFS3 has a pH value of 7.92, 8.30 and 8.35, followed by the Viscosity test SFS1-SFS3 which has a viscosity value of 1.00 cP, 1.38 cP and 2.91 cP. Further, the SFS1-SFS3 nano emulsified time test had nano emulsified time in gastric and intestinal fluids 35.18s & 43.96s, 43.54s & 47.13s and 44.00s & 50.29s. Characterization of SFS1-SFS3 particle size in gastric and intestinal fluids 23.9nm & 23.0nm, 18.5nm & 22.7nm and 19.1nm & 22.9nm, while characterization of SFS1-SFS3 polydispersity index in gastric and intestinal fluids were 0.433 & 0.348, 0.451 & 0.440 and 0.568 & 0.462. The increase of variations in surfactant concentration and decreased cosurfactant significantly affected pH, viscosity, nano-emulsion time, and particle size of SFS preparations. However, the polydispersity index was not considerably affected.

**Keywords:** Surfactant, Cosurfactant, Polydispersity Index, Particle Size

## **TEST OF THE EFFECTIVENESS OF SNEDDS ORAL FRACTION N- HEXANE: ETYL ACETATE LEAF SESEWANUA (*Clerodendrum fragrans* Wild) AGAINST RHEUMATOID ARTHRITIS INDEX IN RATS (*Rattus norvegicus*) MALE WHITE**

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### **ABSTRACT**

Rheumatoid arthritis is an inflammatory autoimmune disease associated with articular and systemic effects that affect synovial joints covered by special tissue or synovium (Widodo et al., 2016). Rheumatoid arthritis reactions in the hands or feet joints are characterized by swelling, redness, hotness, and pain. Sesewanua leaf has an IC50 value of 2.5 ppm and significant antioxidant activity, which is able to alleviate inflammation. This study at to determine the effect of the n-hexane:ethyl acetate fraction of Sesewanua leaf (SFS) oral SNEDDS preparation on the rheumatoid arthritis index in white male rats (*Rattus norvegicus*). It applied a quasi-experimental method viz. experimental animals are divided into three treatment groups which were administered SFS with varying concentrations of Tween 80 and PEG 400, namely SFS 1 (6:3), SFS 2 (7:2), SFS 3 (8:1), and two control groups (positive and negative) that provided with Diclofenac Sodium and SNEDSS basis without active components. Further, the One-Way ANOVA statistical test was used to analyze the data. The result indicated that CFA administration on the third day could cause rats' feet to develop arthritis with an index value of 1.75%, while SFS can reduce the arthritis index in SFS 1. The value obtained is 24.99%, SFS 2 41.66%, SFS 3 44.44%. In conclusion, the administration of the n-hexane ethyl:acetate fraction of Sesewanua leaf SNEDDS preparations is able to reduce arthritis in rats with CFA-induced, and it was found that the best Sesewanua leaf n-Hexane fraction SNEDDS preparation that can reduce rheumatoid arthritis is SFS 1 with a percentage of 24.99%.

**Keywords:** Anti Rheumatoid Arthritis, CFA, Surfactant, Cosurfactant.

**ANTI-RHEUMATOID ARTHRITIS ACTIVITY TEST ON ORAL  
SNEDDS PREPARATION OF SESEWANUA LEAVES  
(*CLEODENDRUM FRAGRANS WILD.*) IN EXPERIMENTAL  
ANIMALS RATS (*RATUS NORVEGICUS*) INDUCED BY CFA  
(COMPLETE FREUND ADJUVANT)**

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**ABSTRACT**

Sesewanua leaves contain flavonoids and alkaloids which can inhibit inflammation. One of the inflammatory diseases that often occurs is rheumatoid arthritis that appears in the supply of hands and feet and has the characteristics of swelling, redness, heat and pain. This study aims to determine anti-rheumatoid arthritis activity of the oral SNEDDS formula of Sesewanua leaves against rats induced with CFA (Complete Freund Adjuvant). This research method is quasi-experimental with a non-equivalent group post-test design. The independent variable in this study was the SNEDDS preparation formula with the n-hexane:ethyl acetate fraction of Sesewanua leaves (*Clerodendrum fragrans* Wild.) based on variations in surfactant concentration (tween 80) and cosurfactant (PEG 400) in SNEDDS preparations. The dependent variable in this study was the area of the rat's feet. Data analysis of this study used the Shapiro Wilk normality test and the One Way Anova Post Hoc tamhane test. The results of this study showed that giving CFA on the 3rd day with a percentage of 112.93% gave a swelling effect on the rat's feet and SNEDDS of the whole fraction could reduce arthritis in rats induced by CFA with the best formula SFS 2 with a percentage of 79.25%. Conclusion SNEDDS Sesewanua Fraction can reduce arthritis in rats induced by CFA and the best SFS that can reduce arthritis in rats is SFS 2 with a percentage of 79.25%.

**Keywords:** SNEDDS, Sesewanua leaf, Rat, CFA

## **CASE STUDY: SLOW DEEP BREATHING RELAXATION TO REDUCE PAIN LEVEL IN CHILDREN WITH VENIPUNCTURE PROCEDURE**

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### **ABSTRACT**

Severe pain is obtained during hospitalization due to invasive procedures, especially when the venipuncture Procedure for taking venous blood-related needles causes fear in children. One of the non-pharmacological treatments for pain in children is by providing an intervention of slow deep breathing relaxation techniques. This study aims to get an overview and experience and identify the pain scale before and after the application of slow deep breathing therapy by blowing soap bubbles. This research uses a case study approach, namely by describing the implementation of the Slow Deep Breathing relaxation to reduce the pain scale in children when taking venous blood. The results of the case study showed that slow deep breathing relaxation succeeded in reducing the pain scale in children when taking venous blood procedure. In conclusion, children who were given slow deep breathing relaxation showed reducing in pain level.

**Keyword:** Slow Deep Breathing Relaxation; Pain Level

**TEST THE EFFECTIVENESS OF HYDROGEL FILM PREPARATION  
OF TELANG FLOWER WATER EXTRACT (*CLITORIA TERNATE L.*)  
AS DIABETIC WOUND HEALING IN WHITE RATS (*RATTUS  
NOVERGICUS*) WISTAR STRAIN HYPERGLYCEMIA CONDITIONS**

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**ABSTRACT**

Telang flower has antioxidant activity with IC value of 50 470µg/ml in accelerating wound healing. Hydrogel is a good preparation for use in diabetic wound healing because it has physical properties to restrain water, acts as a surface wetting agent and is biocompatible with the body. The research method used in this study is *True Experiment* using 12 rats divided into 4 groups. The control group that treated without Hydrogel Telang Flower Extract (HET) or HET0 in hyperglycemic rats, treatment group 1 (HET1) with a concentration of 2%, the second treatment (HET2) with a concentration of 5%, and the third treatment (HET3) with a concentration of 7.5%. Observations showed that the wounds treated with HET0 healed on day 9 with a wound diameter of up to 11.13 mm (100%), while those given HET1 healed on day 6 with a wound diameter of up to 15.22 mm (100%), furthermore for the wounds treated with HET2 healed. on day 4 with a wound diameter of up to 11.29 mm (100%), then those given HET3 healed on day 8 with a wound diameter of up to 9.05 mm (100%). The results of the effectiveness test showed that the best formula was HET2 (hydrogel film with 5% extract concentration) with a decrease in wound diameter of 11.29 mm with a percentage of 100% on day 4.

**Key-words:** Hydrogel Film, Butterfly Flower

## **EFFECT OF DIABETES SUPPORTIVE GROUP AND NETWORK (DINET) PROGRAMME ON QUALITY OF LIFE FOR DIABETES PATIENTS**

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### **ABSTRACT**

Gorontalo ranks 7th in the number of people with diabetes from 35 provinces in Indonesia, one of the causes is the lack of self-care management which has an impact on low quality of life of diabetes patients. Supportive group existence needed as social support for diabetes patient. This study purpose is to analyze the effect of the Diabetes Supportive Group and Network (DINET) programme on quality of life of diabetic people. The research method used a pre experimental design through one group pre and post test analyses. Supportive group support provided group activities involved diabetes patient include health education, focus group discussion, physical exercise, and the use of chatbot and group chat as communication media of supportive group member. The sample used was 32 people through purposive sampling method. The results of the study showed that there was a significant difference in the quality of life of DM patients after the intervention with p value 0.000 ( $\alpha < 0.05$ ). Supportive group can used as social support for diabetes patient to keep them discipline in self care management so that dangerous complication can be prevented.

**Keywords:** Diabetes mellitus, supportive group, quality of life

## **ANALYSIS OF HUMAN RESOURCES DEVELOPMENT MANAGEMENT SYSTEM AT TOTO UTARA PUSKESMAS**

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*(STIA Bina Taruna Gorontalo)*

### **ABSTRACT**

The purpose of this research is to: (1) analyze and describe the Human Resource Development Management System Analysis at Puskesmas Toto Utara, (2) analyze and describe the inhibiting factors of Human Resource Development Management System Analysis at Puskesmas Toto Utara. The method used in this research is the descriptive qualitative method and using a case study approach. The type of research is qualitative research. Sources of data in this research are primary data and secondary data sources. Data were collected through observation, interviews, and documentation. The result of the research shows that Management of human resource development at Puskesmas Toto Utara in terms of managerial functions includes planning, organizing, directing, and controlling. While, operations include procurement, development, compensation, integration, maintenance/care, and separation or termination of employment. These aspects serve as benchmarks for the success of the implementation of human resource management in an organization, both government and private organizations.

**Keyword:** System, Human Resource, Management

# QUALITY OF LIFE OF MENTAL DISORDER PATIENT IN RECOVERY PROCESS UNDERGOING HORTICULTURAL OCCUPATIONAL THERAPY IN KOTA TIMUR COMMUNITY HEALTH CENTRE WORKING AREA

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## ABSTRACT

The prevalence of people with mental disorders in Gorontalo Province reaches 0.15% of the total population of 1,804 people. Gorontalo City placed in first number of patient with mental disorder in Gorontalo province, which is as many as 672 people. Mental patients who are undergoing the recovery phase are often faced with various social, physical and psychological problems that can have an impact on their quality of life in society. One of the efforts to reduce the recurrence of mental patients in the community is to provide occupational therapy. Horticultural occupational therapy is one of the therapies that can be given to mental patients by means of farming. This study aims to determine the experience of patients with mental disorders in the recovery process undergoing horticultural occupational therapy. This study uses a descriptive qualitative design with a phenomenological approach through in-depth interviews with 10 informants. The sampling technique used purposive sampling method. The results of the study found four themes, namely being more productive, increasing physical fitness, increasing social interaction and increasing self-efficacy. From the themes obtained, it can be concluded that horticultural occupational therapy can improve the quality of life of patients with mental disorders in the recovery period.

**Keywords:** Quality of life, Mental Disorders, Occupational Therapy

# **ANTIOXIDANT ACTIVITY TEST AND CHARACTERIZATION OF VIRGIN COCONUT OIL (VCO) SUPPLEMENTED WITH MORINGA LEAF EXTRACT (*MORINGA OLEIFERA*) "VCELOR" USING FTIR SPECTROPHOTOMETER**

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## **ABSTRACT**

Antioxidant is a compound that have the capability of scavenging free radicals. This compound is found in many plants, such as coconut and moringa. Coconut is a fruit that can be processed into *Virgin Coconut Oil* (VCO). Moringa leaves are one part of the plant that has the potential as a natural antioxidant. This study aims to determine the quality of the organoleptic test and water content as well as antioxidant activity and characterization of VCeLor supplemented with the extract of Moringa (*Moringa oleifera*) leaf. This research is quasi-experimental, and the method of making VCO is fermented with Moringa leaf extract supplementation. The obtained VCO was tested for organoleptic, water content, and antioxidant activity test using the DPPH method and FTIR spectrophotometry characterization. The results showed that the organoleptic test and water content (0.2%) met the SNI: 7381-2008, IC50 value is 64.34679 ppm with strong category and characterization results with 30 peaks, and the compounds contained in the form of phenols, alcohols, alkyl halides, aromatics, carboxylic acids, ethers, amines, esters, and ketones. VCeLor displays the organoleptic quality and moisture content (0.2%) in accordance with SNI:7381-2008 and has potent antioxidant activity, and the results of the characterization of most compounds are phenol and alcohol.

**Keywords:** *Antioxidants, Characterization, VCO, Moringa.*

## **ANTIOXIDANT ACTIVITY TESTING OF ETHANOL EXTRACT AND SESEWANUA LEAF (*CLERODENDRUM FRAGRANS WILD*) ETIL ACETATE EXTRACT USING SOCHLETATION METHOD**

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### **ABSTRACT**

Antioxidants are compounds that inhibit, prevent, and eliminate oxidative damage on target molecules, which can be produced naturally and artificially. Natural antioxidants can be obtained from plants, one of which is the Sesewanua plant. Sesewanua leaf (*Clerodendrum fragrans Wild.*) 96% ethanol extract contains 13.47% flavonoids which have the potential as antioxidants. This study aims to determine the water content, yield, phytochemical screening, TLC (Thin Layer Chromatography), and antioxidant activity test of ethanol extract and ethyl acetate extract of Sesewanua (*Clerodendrum fragrans Wild*) leaves extracted using the soxhletation method. This study employed a true experimental method, and the soxhletation was carried out on Sesewanua leaf simplicia using 96% ethanol and ethyl acetate as solvents. The extract obtained was subjected to a phytochemical screening test followed by stain separation using TLC and antioxidant activity test using the DPPH method. The results showed that the water content obtained by Sesewanua leaf simplicia was 8.73%, the ethanol extract percent yield was 14.3%, and the ethyl acetate extract was 10%. The results of phytochemical screening and TLC showed the positive presence of alkaloids, flavonoids, and tannins. The ethanol extract had an IC<sub>50</sub> value of 15.31 ppm, and the ethyl acetate extract had an IC<sub>50</sub> of 14.54 ppm. In conclusion, the water content of Sesewanua leaf simplicia and the percent yield of ethanol extract and ethyl acetate extract of Sesewanua leaves met the requirements. Phytochemical screening tests and TLC showed that the Sesewanua plant showed the presence of alkaloids, flavonoids, and tannins. Sesewanua leaf ethyl acetate extract has a potent antioxidant activity compared to ethanol extract, with an IC<sub>50</sub> value of 14.54 ppm.

**Keywords:** Antioxidant, Sesewanua Leaf, Thin Layer Chromatography

## **SMARTPHONE UTILIZATION IN BIPOLAR DISORDER PATIENTS**

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### **ABSTRACT**

Bipolar is a mood disorder characterized by extreme changes between feelings of happiness and sadness. According to WHO (2016), there are about 60 million people affected by bipolar. Bipolar disorder causes functional impairment, psychosocial functioning, quality of life and even the risk of suicide. The number of smartphone users and the increase in the computing power of mobile devices can be used as a reference in using smartphones for mental health, especially for bipolar disorder. This paper aims to determine the benefits of smartphones in patients with bipolar disorder. The systematic review method was used to search for articles in the PubMed, Science Direct, and SpringerLink electronic databases and published in 2017-2022. The keywords used in the search are "smartphone", "bipolar disorder" using booleand "AND". Articles that are reviewed must meet several inclusion criteria such as research articles that are relevant to the purpose of writing, articles using English, and free fulltext. The analysis conducted by the author of 16 relevant articles found that the benefits of smartphones for bipolar disorder patients are monitoring signs of symptoms, as a psychotherapy medium, and increasing medication adherence. This can be a reference for health workers in implementing monitoring and management programs for bipolar disorder.

**Keywords:** Smartphone, bipolar, mental disorder

## **SONNERATIA ALBA FRUIT EXTRACT AFFECTED TUNICA MEDIA THICKNESS OF ABDOMINAL AORTA OF HIGH FAT LOW-INDUCED ATHEROSCLEROSIS RATS**

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### **ABSTRACT**

High lipid concentration in blood has been known well as a potential oxidant that can cause inflammation in vessel wall, proliferation of smooth muscle cells and fibro-collagen formation, characterized by thickening tunica media of arteries and it can further lead into atherosclerosis plaque formation. *Sonneratia alba* is a mangrove plant containing high antioxidant compounds in its fruits, leaves and bark, consisting of alkaloids, flavonoids, phenolics, saponins and tannins. Objectives: The aim of this study was to analyze the effect of giving *Sonneratia alba* fruit methanol extract on the thickness of the tunica media of aorta abdominal of Wistar rats (*Rattus norvegicus*). Eighteen male Wistar rats were divided into 3 groups: negative control group (I), positive control group (II) and treatment group (III). Groups II and III were induced to atherosclerosis at initial phase by giving oral vitamin D3 700,000 IU / kg and high fat diet diet for three days. Group III was given *Sonneratia alba* extract 400 mg/kgBW/day for three days. The thickness of the abdominal aorta tunica media was measured microscopically in eight microscopic fields of 400x magnification. Results: The results showed that the average thickness of the tunica media of groups I, II and III measured were  $0.087 \pm 0.009$ ,  $0.095 \pm 0.012$  and  $0.073 \pm 0.008$  respectively. Statistical analysis with One-Way ANOVA showed a significant difference ( $p = 0.009$ ). Further analysis showed a significant difference in the positive control group with the treatment group ( $p = 0.003$ ). It can be concluded *Sonneratia alba* fruit extract had an effect to inhibit the thickness of abdominal aorta tunica media of high fat lipid-induced atherosclerosis rats.

**Keywords:** Atherosclerosis; Mangroves; *Sonneratia alba*; Tunica Media

## **EVALUATION OF PLANTS WITH THE ANTI-INFLAMMATORY ACTIVITY USED BY THE SANGIHE ISLANDS COMMUNITY WITH THE ERYTHROCYTE MEMBRANE STABILIZATION METHOD**

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### **ABSTRACT**

The utilization of medicinal plants that were successfully recorded in the 2015 RISTOJA National Report was 19,871, only 283 types of plants have been registered as medicinal plants and the others were used traditionally. Indonesia is also rich in ethnic diversity, with their respective cultures. One of the ethnic groups inhabiting the islands of North Sulawesi province is the Sangir ethnic group. In each ethnic group, there was various local wisdom of the community, including the use of natural ingredients for traditional medicine, including to reduce swelling or inflammation. The aim of this study was to evaluate the anti-inflammatory activity of plants used as swelling reducers by the Sangihe Islands community using the erythrocyte membrane stabilization method. The research method was used in this research is exploratory survey research and experiments. The location of sample data collection was carried out in the Sangihe Islands region. Respondents in this study were traditional healers or community elders who used plants for the treatment of swelling or inflammation. The selection of respondents was done by purposive sampling. The anti-inflammatory effect was tested using the method of stabilizing rat erythrocyte membranes against heat-induced hemolysis. Data in the form of plant species, parts and how to use them were analyzed descriptively. Data in the form of the percentage of membrane stabilization activity were analyzed using linear regression to determine the IC<sub>50</sub> value. Based on the results of the study, it can be concluded that there are 9 types of medicinal plants that are traditionally used as anti-inflammatory by the people of the Sangihe Islands. Limpa Dalreng leaves, Nonang bark, Bunalre leaves, Duku Bunalre leaves, Pasa thorns, Bakeng leaves, Malrunto herbs and Dumarela herbs show anti-inflammatory activity through the mechanism of stabilizing erythrocyte cell membranes from heat-induced hemolysis, while Pempararaeng stem bark does not go through this mechanism.

**Keywords:** Plants with the Anti-inflammatory Activity, Sangihe Islands Community,

## **ANTIBACTERIAL TEST PATCH OF MUSCLE EXTRACT CORK FISH (CHANNA STRIATA) AGAINST *STAPHYLOCOCCUS AUREUS* AND METHICILIN RESISTANT *STAPHYLOCOCCUS AUREUS***

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### **ABSTRACT**

Infectious diseases produced by pathogenic bacteria, one of which is Methicilin Resistant *Staphylococcus aureus*, are one of the leading causes of disease and even death in developing countries, including Indonesia, which remains at the top. One of the ingredients that can be used to inhibit the work of these bacteria is snakehead fish mucus which is formulated in patch preparations. This study aimed to determine the antibacterial activity of the snakehead fish (*Channa striata*) slime extract patch against Methicilin Resistant *Staphylococcus aureus*. This test uses a type of laboratory experimental research with the well method. The results of the antibacterial test indicated that the patch preparation with a concentration of 5% showed antibacterial activity against *Staphylococcus aureus* with an inhibition zone of 18.28 mm and Methicilin Resistant *Staphylococcus aureus* bacteria with an inhibition zone of 19.2 mm. The conclusion is the patch containing 5% snakehead fish mucus extract can inhibit *Staphylococcus aureus* and Methicilin resistant *staphylococcus aureus* bacteria.

**Keywords:** Patch, Snakehead fish slime, Methicilin resistant *staphylococcus aureus*.

## **EFFECTIVENESS TEST OF PATCHOULI (PATCHOULI OIL.) ESSENTIAL OIL OINTMENT WITH VASELINE ALBUM-CERA ALBA BASE ON HEALING CUTS IN RABBITS**

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### **ABSTRACT**

Patchouli plant (*Pogostemon cablin* Benth) is one of the essential oil-producing plants that contain sesquiterpene compounds and patchouli alcohol which can function as anti-inflammatory and antibacterial. The use of ointment on cuts because the ointment is a semisolid preparation that is easy to apply, soft that can be used as an external drug on the skin and mucous membranes, so it is hoped that the ointment preparation can have a longer contact with the skin. This study aims to determine the effect of wound healing in the preparation of patchouli oil ointment based on vaseline album-cera alba on rabbits. The resulting ointment formulation was tested on rabbit cuts with 6 treatment groups, namely group 1: as positive control (10% povidone iodine ointment), group II: negative control (vaseline album-cera alba base), group III: control without treatment, groups IV, V, and VI: patchouli oil ointment with concentrations of 5%, 7.5%, and 10%, respectively. The test was carried out for 14 days with the duration of giving the ointment 2 times a day. The analysis was carried out by calculating the percentage of the average length of time for wound healing using the one way ANOVA test.

**Keywords:** Wound Healing, Patchouli Oil, Patchouli alcohol, Rabbit, Ointment.

# THE EFFECT ANTIDIABETIC OF ARUMANIS MANGOYOUNG RIND ETHANOL EXTRACT AND HISTOPATOLOGICAL EXAMINATION ALLOXAN INDUCED – IN VIVO METHOD

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## ABSTRACT

Diabetes Mellitus is a disease caused by metabolic disorders characterized by blood sugar levels that are higher than normal. The purpose of this study was to determine the effect of giving *Mangifera indica* var *Arumanis* young rind extract to alloxan-induced mice to determine the effective dose of *Mangifera indica* var *Arumanis* young rind extract that can reduce blood glucose levels in hyperglycemic mice and histopathological features. This research is an experimental type that uses 30 male white mice as experimental animals, divided into 6 groups and each group consists of 5 mice consisting of negative control, positive control, dose variation 50 mg/kgbw, 100 mg/kgbw, 200 mg/kgbw and the comparison group (Glibenclamide 0.65 mg/kgbw). The inducer used was alloxan 150 mg/kgbw. Alloxan induction was carried out for 3 days and then the test preparation was given until the 17th day. Mice blood was collected through the tail lateral vein using a Sinocare glucometer. Based on the results of measurements of blood glucose levels in mice on 17th day, the average value of blood glucose levels was (negative control; 87,5 mg/dl, positive control; 225,5 mg/dl, dose 50 mg/kgbw; 110,5mg/dl). dl, dose 100 mg/kgbw; 125.5 mg/dl, dose 200 mg/kgbw; 95,5 mg/dl, glibenclamide 0.65 mg/kgbw; 92,5 mg/dl). Based on the results of statistical data analysis, two-way ANOVA showed significantly different results ( $p < 0.05$ ). The results of histopathological observations of the pancreas after administration of *Mangifera indica* var *Arumanis* young rind extract at a dose of 200 mg/kgbw showed good healing in the islets of Langerhans, and the decrease in blood sugar levels was good, but on examination it did not show good healing in the islets of Langerhans.

**Keywords:** Antidiabetic, Alloxan, *Mangifera indica* var *Arumanis*, Young Rind Extract

## **KNOWLEDGE AND PERCEPTION OF UNVACCINATED PEOPLE TOWARDS COVID-19 VACCINATION IN BOGOR, INDONESIA**

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### **ABSTRACT**

The Indonesian government had been implementing a vaccination program since early 2021. Bogor Regency is one of the areas with a relatively low vaccination coverage compared to other areas in West Java, which was only 57.45% of the provincial target. The low coverage of Covid-19 vaccination in Bogor Regency can be influenced by perceptions based on public knowledge of the Covid-19 vaccine. This study aimed to evaluate the knowledge and perceptions of unvaccinated people towards Covid-19 vaccination in Tamansari Public Health Center working area, Bogor. A cross-sectional study was conducted between May and July 2022. Unvaccinated people data was collected from Tamansari Public Health Center and the minimum sample size was determined using a 5% alpha error. Total 154 participants were enrolled in this study, with inclusion criteria are age >18 years old, had not received covid-19 vaccination, able to communicate, and willing to participate. Knowledge and perception were measured by a valid and reliable questionnaire. The correlation between knowledge and perception was analyzed using Spearman's test,  $p < 0,05$  considered significant. The present study reported that 100% of participants were not willing to get vaccinated. Demographic data showed that the educational background of most of the participants is an elementary school (88,3%). Knowledge assessment towards Covid-19 vaccination showed that 63,6% of participants had poor knowledge of Covid-19, meanwhile, 32,5% and 3,9% of others had moderate and good knowledge, respectively. The majority of the participant had a negative perception towards Covid-19 vaccination (51,95% very negative, 38,96% negative). The top three negative perceptions opined by participants were Covid-19 vaccination would not affect their health during the pandemic era, hesitant about Covid-19 vaccine effectivity in preventing Covid-19, and afraid that Covid-19 vaccination could induce illness (scored 4,63; 4,49; and 4.47 of 5.00, respectively). Among unvaccinated people in Bogor, a low level of knowledge significantly correlated with negative perception ( $p < 0.05$ ) towards Covid-19 vaccination with a correlation coefficient is 0.404 (moderate). This study concluded that poor knowledge could affect the negative perception towards Covid-19 vaccination, which may be contributed as a barrier to the Covid-19 vaccination program. Our findings may provide information for the authorities and stakeholders to promote and improve knowledge and perceptions towards COVID-19 vaccination among unvaccinated people.

## **COMMUNITY EMPOWERMENT THROUGH AGENTS OF CHANGE IN THE PREVENTION AND CONTROL OF NON-COMMUNICABLE DISEASES AS AN EFFORT TO IMPROVE THE DEGREE OF PUBLIC HEALTH**

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### **ABSTRACT**

Deaths from Non-Communicable Diseases are expected to continue to increase worldwide, the greatest increase will occur in developing countries and poor countries. Non-communicable diseases are the leading cause of death in the world, one of which is heart and blood vessel disease. Heart disease has taken nine million lives in 2019, and increased around two million since 2000. Non-communicable diseases are closely related to human behavior such as smoking, alcohol consumption, lack of activity, obesity, unhealthy diet and lack of knowledge about non-communicable diseases. The purpose of Community Service program is to carry out Community Empowerment through Agent of Change in preventing and controlling Non-Communicable Diseases. The implementation method at the first meeting was providing education of Non-Communicable Diseases and at the second meeting continued with practice on how to measure blood pressure, height, weight, abdominal circumference and how to calculate Body Mass Index. Furthermore, participants were given the task to assess the results of blood pressure measurements and the calculation of the Body Mass Index and then determine the classification of hypertension and Body Mass Index. There are 25 participants in each sub-district, including from the sub-district government, village government, the Family Welfare Development Team, elements of the Public Health Center, religious leaders, community leaders, high school teachers, coordinators of health cadres. There was an increase from the program, proven with participants' knowledge as they gave outstanding answers (90-100). Previously on the pre-test only 60%, and then increased to 90% in the post-test, participants who correctly specified the classification of Body Mass Index 82% and correctly specified the classification of hypertension 64 %. The conclusion is that Community Service program have increased the knowledge and skills of participants as Agents of Change for Non-Communicable Diseases in Dungi sub-district and Kota Barat sub-district, Gorontalo City.

**Keywords:** Agent of Change, Non-Communicable Diseases

## **CHEMICAL DRUG ANALYSIS IN HERBAL MEDICINE USING LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY METHOD**

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### **ABSTRACT**

In accordance with the Decree of the Minister of Health of the Republic of Indonesia No. 007 of 2012 concerning the Registration of Traditional Medicines. Whereas traditional medicine is prohibited from containing medicinal chemicals resulting from isolation or synthetic ones with medicinal properties. Jamu aches and pains is one type of herbal medicine that is often added with medicinal chemicals (BKO). Medicinal chemicals that are commonly added to traditional herbal medicine include NSAIDs, namely phenylbutazone. This study was conducted to determine the possible content of phenylbutazone levels in herbal pain relief. Qualitative analysis using TLC method using n-hexane : ethyl acetate (4:1) mobile phase obtained four positive samples containing phenylbutazone namely samples A, C, D, and E. Quantitative analysis using LCMS using reversed phase with mobile phase isocratic elution system ultrapure water: acetonitrile (90:10% v/v) at a flow rate of 0.2 mL/minute and an injection volume of 10 L, the phenylbutazone content in sample A was 0.63/7 g, in sample C was 0.72 g/7 g , in sample D of 0.19 g/2 g and in sample E of 0.75 g/7 g.

**Key words:** phenylbutazone, herbal pain relief, TLC, LCMS

## **OUTCOME ANALYSIS OF DRUGS USED IN THE THERAPY OF COMORBID-RELATED HEART FAILURE PATIENTS AT GORONTALO HOSPITAL**

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### **ABSTRACT**

Heart Failure is a clinical syndrome characterized by abnormalities in the structure and / or function of the heart. Studies say that, the outcome of the therapy can differ based on the burden of comorbidities. This study aims to determine the drugs used and the therapeutic outcomes of heart failure patients associated with comorbidities in Gorontalo. This study used a Cohort Retrospective design with a total of 159 medical records. The results showed that patients aged 50-59 were the group with the most age with heart failure. Furthermore, we found that men are more at risk of developing this disease than women. Another finding is that the disease is strongly associated with comorbidities. Heart failure patients generally had 3 or more comorbidities with a case count of 107 people (67.3%). The comorbidities can vary from gastrointestinal disorders, hypertension, kidney disorders, diabetes mellitus to respiratory disorders. Hypertension and respiratory distress are two comorbidities that often appear. The drugs used in patient management in this study included furosemid both ampoules and oral, namely 12.82% and 6.41%, respectively. Other drugs that are often prescribed are spironolacton and clopidogrel 11.76% and 11.15%, respectively. Other groups of drugs are angiotensin receptor inhibitors such as candesartan (9.31%), telmisartan as much as 2.90% and valsartan as much as 2 times. In addition, other drugs that are also prescribed are atorvastatin 65 times (9.92%), Nitroglycerin 14 times (2.14%), ISDN (4.73%), beta receptor inhibitor groups such as bisoprolol (7.02%) and Propranolol 1 time (0.15), ACEi groups such as Captopril 18 times (2.75%). In this study we found that the length of this hospitalization is also influenced by comorbidities. The length of treatment of patients without comorbidities was  $3 \pm 1.41$  days while patients with more than 2 comorbidities had LoS of  $8.85 \pm 4.84$  days. From these results, we imply that more comorbidities will generally increase the length of hospitalization of patients.

**Keywords:** Heart Failure, Comorbidities, Outcome, Therapy

**THE EFFECT OF NASTEROL PROBIOTIC DRINKS  
ADMINISTRATION ON REDUCING CHOLESTEROL LEVELS IN  
MALE MICE (MUS MUSCULUS) TEST ANIMALS, PRINCIPAL  
SUPERVISOR: NANGSIH SULASTRI SLAMET, S.SI., M.SI., APT.,  
CO-SUPERVISOR: HARTATI, S.FARM., M.FARM., APT.**

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**ABSTRACT**

Hypercholesterolemia in Gorontalo Province has a prevalence of 52.1%. Some studies mentioned that pineapple peel is one of the plants that can lower cholesterol. The fermented pineapple rind is processed into a probiotic drink which is formulated into supplies of Nasterol as a health functional drink. This study aims to determine the effect of Nasterol probiotic drink on reducing cholesterol levels in male mice (*Mus musculus*). This true experimental study using a pre and post-test control group design. Mice were divided into 4 treatment groups: 2 control groups (negative using distilled water and positive using simvastatin) and 2 test groups (dose 0.4 ml and 0.8 ml) induced by quail egg yolk and 0.02% PTU. The results showed that the significant decrease in cholesterol levels in mice (*Mus musculus*) occurred in the Nasterol probiotic drink group with a dose of 0.4 ml at a dose of 65.67 mg/dL with a percentage decrease of 24.35% and was followed by a Nasterol probiotic drink with a dose of 0.8 ml at 30.33 mg/dL. with a percentage decrease of 13.03%. In conclusion, the probiotic drink Nasterol has an effect on reducing cholesterol levels with a dose of 0.4 ml which is more effective than a dose of 0.8 ml in reducing blood cholesterol levels in mice (*Mus musculus*).

**Keywords:** Pineapple Peel, Fermentation, Probiotic Drink, Cholesterol.

## **THE EFFECT OF HPMC CONCENTRATIONS ON CORKFISH (CHANNA STRIATA) MUCUS ATTACHMENT EMULGEL ON DIABETES MELLITU WOUNDS IN RATS (RATTUS NORVEGICUS)**

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### **ABSTRACT**

Cork fish (*Channa striata*) is a type of freshwater fish that has a high protein content of albumin which plays an important role in the proliferation phase in the process of wound healing. The purpose of this study was to find out that Corkfish mucus extract (*Channa striata*) was able to heal the wounds of Diabetes Mellitus and find out the concentration of gelling agent that is good in the absorption of nutritious substances. This study used a sample of Corkfish mucus extract (*Channa striata*) made in emulgel preparations for diabetic wound healing in 15 male wistar rats (*Rattus norvegicus*) divided into 5 groups, each group consisting of 3 test animals smeared with emulgel preparations during 14 days with a wound length of 2 cm. Based on the results of the data obtained using One way ANOVA, the results showed that it can significantly heal wounds with the occurrence of the process of maturation in the wound.

**Keywords:** Mucus Cork Fish Extract (*Channa striata*), Emulgel, Rat (*Rattus norvegicus*)

## **PREVALENCE OF Hookworm AND Strongyloides stercoralis INFECTION AMONG MINING WORKERS IN TATELU VILLAGE, MINAHASA DISTRICT, NORTH SULAWESI, INDONESIA**

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### **ABSTRACT**

Worm infection is a public health problem that is still widespread throughout the world, especially in developing countries with poor lifestyle and sanitation. Globally, the World Health Organization (WHO) estimates that more than 1.5 billion people in the world suffer from worms or about 24% of the total world population. Soil is an excellent place for the development of Soil Transmitted Helminths (STH). Based on an initial survey conducted by researchers where miners in Tatelu Village, Dimembe District, North Minahasa Regency, often do not use PPE (personal protective equipment), namely footwear and gloves when doing work. In addition, the mining workers often do not wash their hands and feet when they finish their work, namely mining, they still use emergency latrines, and the living conditions of the miners are still on the ground floor, so it is possible that the miners can become infected with worms. This type of research used a cross-sectional study design that aims to determine the infection of Hookworm and Strongyloides stercoralis in mining workers in Tatelu Village, Dimembe District, North Minahasa Regency. Based on the results of the study, 100 respondents had their faeces examined and found 23% of respondents infected with Hookworm and 8% infected with Strongyloides stercoralis. Suggestions need to do health promotion, check regularly and consume deworming medicine regularly for 6 months to prevent and treat helminth infections.

**Keywords:** Hookworm, Strongyloides Stercoralis, miners

## **FORMULATION OF NANOEMULSION EXTRACT ETHANOL BRUCEA JAVANICA (L) MERR. USING TWEEN 20 & TWEEN 80 AS EMULGATOR**

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### **ABSTRACT**

*Brucea javanica* (L) Merr. has the potential to be developed as a topical application as a result of its high flavonoid content. However, advancements in pharmaceutical preparation are constrained by the chemicals' poor bioavailability when prepared conventionally. Nanoemulsion preparation has been an efficient method for enhancing topical preparation absorption. Stable formulation formulation depends on emulgator. This study's objective is to create an ethanol extract of *Brucea javanica* (L) Merr. using tween 20 and tween 80 as emulsifying agent. A pseudo-ternary phase diagram was utilized to formulate the nanoemulsion formula. Physical characteristics such as particle size, polydispersity index, zeta potential, percent transmittance, drug load, viscosity, and pH were then analyzed for the nanoemulsion. At 15 sampling points, the formula tween 20 (surfactant): PEG 400 (cosurfactant) in a 1:1 ratio did not produce a clear preparation. In contrast, tween 80 with the same cosurfactant and ratio formed a formula that was transparent. The formula was then examined for its physical parameters, which included a particle size of 17.90.14 nm, a polydispersity index of 0.0970.012, a zeta potential of 84.63% transmittance, a drug load of 99.97%, a viscosity of 240 cp, and a pH of 7.194. According to the results, tween 80 is the most suited emulsifier for the production of *Brucea javanica* (L) Merr extract nanoemulsion. The study of physical attributes reveals that the nanoemulsion generated satisfies the criteria for nanoemulsions with desirable physical properties.

**Keywords:** *Brucea javanica*, nanoemulsi, antiinflamasi, emulgator

**POTENTIAL FOR ENHANCEMENT OF PHARMACOKINETIC VALUE  
OF NANO SELF NANO-EMULSIFYNG DRUG DELIVERY SYSTEM  
(SNEDDS) ETHANOL EXTRACT OF PUTRI SHALE LEAF (*Mimosa  
pudica* Linn.) AS A HEPATOPROTECTOR BY WILSON  
EXTOPROTECTOR**

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**ABSTRACT**

The Indonesian Ministry of Health reported 18 suspected cases of hepatitis, 7 of which were reported to have died. Riskesdas (2018) stated that Gorontalo Province was ranked the 2nd largest contributor to hepatitis disease. As one of the preventive efforts to reduce hepatitis disease, namely by consuming natural hepatoprotectors, one of which is the Putri malu plant (*Mimosa pudica* Linn.) which contains flavonoid compounds. So that Putri is embarrassed to be thrifty and acceptable to the community and can increase its bioavailability in the body by making SNEDDS preparations. The purpose of this research is to produce products with nanotechnology from natural ingredients which are expected to be able to support government programs in the future to prevent the severity of hepatitis. As well as knowing the formulation of variations in the concentration of oil, surfactant and cosurfactant in the preparation of SNEDDS Putri malu (*Mimosa pudica*) leaf extract on pharmacokinetics including  $C_{pmax}$ ,  $T_{max}$  and  $T_{1/2}$  values. This research method is a quasi-laboratory experiment by varying the concentration of VCO: tween 80: PEG 400, namely F1 (1:6:3), F2 (1:7:2) and F3 (1:8:1). Pharmacokinetic data were analyzed using the One Way Anova test. The formulation of the Self Nano-Emulsifying Drug Delivery System (SNEDSS) of Putri malu leaves has nanoemulsion times at F1 13.65 seconds, F2 14.78 and F3 25.61 seconds. The  $C_p$  max value of the third formula gets a value of 500 ppm, for  $T_{max}$  the three formulas get the same  $T_{max}$  value of 0 hours and for the  $T_{1/2}$  value at F1 is 4.222 hours, F2 is 6836 hours, and F3 is 2.826 hours. The best formula is found in F2, this can be seen at  $T_{1/2}$ , the longer the drug can last in the body, the less frequency of taking the drug.

**Keywords:** Putri malu leaves, SNEDDS, Pharmacokinetics, Nanotechnology, Bioavailability

# THE POTENTIAL OF SOOTHING GEL OF YELLOW WATERMELON (*Citrullus lanatus* (Thunb.) AND CUCUMBER (*Cucumis sativus* L.) JUICE COMBINATION AS SUNSCREEN

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## ABSTRACT

Dry skin issue causes people, particularly women to do skincare. As a matter of fact, formulation which functions to moisturize is soothing gel. In its formulation, it requires active substance with high water content that can be gained from fruit, such as cucumber and yellow watermelon. This research aimed to discover the potential of soothing gel of yellow watermelon and cucumber juice combination as sunscreen based on their Sun Protection Factor (SPF) value. Moreover, in this research, the juice of yellow watermelon and cucumber was processed by extracting it using a juicer. After that, flavonoid test on that juice combination was conducted. Then, that combination of yellow watermelon and cucumber juice was made into soothing gel with concentration of 70%, 80%, and 90%. Furthermore, the SPF value from that soothing gel was determined in vitro using spectrophotometry UV-Vis method. The research result identified that the combination of yellow watermelon and cucumber juice contained flavonoid compounds. The varied concentration of yellow watermelon and cucumber juice resulted in different SPF value in each formula. The SPF value of soothing gel formula, namely 70%, 80%, and 90% of the concentration of the yellow watermelon and cucumber juice combination respectively is 3.51; 4.38; and 3.23. Hence, it can be concluded that based on the SPF value, the soothing gel of the combination of yellow watermelon and cucumber juice had a potential as sunscreen with medium protection category.

**Keywords:** cucumber, yellow watermelon, soothing gel, sun protection factor

## **CORIATIN AND CORIAMYRTIN, A PROMISING ANTICANCER PROPERTIES; 2D AND 3D STRUCTURES**

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### **ABSTRACT**

Loranthaceae is an obligate parasitic plant that attaches to moringa as host plants, containing coriamyrtin and coriatin as sesquiterpenoids and bioactive compounds. Ethnopharmacological study of Situbondo - East Java community, Loranthaceae plants were used as herbal tea to prevent cervical cancer. However, the scientific research about biological studies of Loranthaceae compounds has not been widely reported. Therefore, this study discovered the potential of Loranthaceae sesquiterpene compounds as anticancer through caspase-3 activation. Molecular docking approach was used to discovery anticancer activities of the Loranthaceae compounds. The Loranthaceae sesquiterpene compounds structure, included coriamyrtin, tutin, corianin, and coriatin, were downloaded from the NCBI PubChem database. While the caspase-3 structure was retrieved from protein data bank with PDB ID 1NMS. Ligands and protein were docked with Molegro virtual docker 5 and visualized with Discovery Studio version 21.1.1. docking results presented that four sesquiterpenoids of Loranthaceae showed interaction with caspase – 3 protein. However, only coriatin and coriamyrtin bound to the activator site of caspase – 3 protein, leading to apoptosis. A possible mechanism of coriatin and coriamyrtin was inducing cell apoptosis through stimulating caspase – 3 activity. This interaction indicated that the compounds in the leaves of the Moringa plant parasite were able to induce apoptosis and inhibit the occurrence of cancer cell proliferation. In summary, two sesquiterpene compounds stimulated the caspase-3 activation and promoted apoptosis program death cells.

**Keywords:** cancer, coriamyrtin, coriatin, Loranthaceae, sesquiterpenes

## **THE EFFECTIVENESS OF SALAM LEAF (*Syzygium polyanthum*) ETHYL ACETATE FRACTION GEL FORMULA ON HEALING RATS**

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### **ABSTRACT**

Bay leaves (*Syzygium polyanthum*) are known to have flavonoid compounds that are used in wound healing. This study aims to determine the ethyl acetate fraction of bay leaf which can be formulated into a gel preparation and to determine the concentration formula for the gel preparation of the ethyl acetate fraction of bay leaf which can have a wound healing effect on male Wistar rats. This type of research is an evaluation of the physical and chemical evaluation of gel preparations as well as testing the effectiveness of the bay leaf ethyl acetate fraction gel formula on wound healing in male Wistar rats which were divided into 5 groups, namely group 1, rats given gel formula without extract, group 2, 3, and 4 were groups of rats given the ethyl acetate gel formulation of the bay leaf with a concentration of 5%, 10%, 15%, and group 5 was rats given bioplacenton® gel as a positive control. The results showed that in the organoleptic test, homogeneity, pH, dispersion, and viscosity of physical stability statistically showed no significant difference ( $P>0.05$ ) between before and after the cycle test. In the cut healing effectiveness test in group 1, there was a significant difference ( $P<0.05$ ) against all test groups. For group 4, there was no significant difference ( $P>0.05$ ) against the positive control group. Based on this, the keyword is that the ethyl acetate fraction of bay leaf can be formulated into a gel preparation and can have a wound-healing effect on male Wistar rats.

**Keywords:** Bay leaf, Gel, Cuts, Rats

## FORMULATION AND TEST OF GREEN TEA EXTRACT HAND SANITIZER AGAINST ESCHERICHIA COLI BACTERIA

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### ABSTRACT

Green tea has an important medical component, namely polyphenols. The most common polyphenols found in tea are catechins. The catechins in tea consist of epigallocatechin-3 gallate (EGCG), epigallocatechin (EGC), epicatechin-3-gallate (ECG), and epicatechin (EC). From the review about green tea being used as an antibacterial, this research will develop a hand sanitizer gel formulation made from natural extracts of green tea (*Camellia sinensis*). Green tea leaves are taken from tea plantations in Blitar City. Green tea leaf extract was made using maceration method using 70% solvent. The extracts were tested for organoleptic, specific gravity, and solubility according to the Indonesian Herbal Pharmacopoeia Edition IV. The hand sanitizer gel was made in three formulations with a formula consisting of carbomer 940, aquades, triethanolamine (TEA), glycerin, methylparaben, 70% ethanol. The three formulations were distinguished by the concentration of green tea extract used as the active ingredient, each with a concentration of 7 gr/ml (F1), 10 gr/ml (F2), 15 gr/ml (F3). The physical-chemical evaluation of the hand sanitizer gel preparation consisted of organoleptic tests, stability tests, homogeneity tests, pH tests, dispersion tests, adhesion tests, dry time, specific gravity tests, and viscosity tests. For the microbiological test using the Percentage kill method by counting the number of colonies of *Escherichia coli* bacteria killed in 60 seconds with three repetitions in each formulation. Bacterial colonies were counted using a colony counter instrument. The results showed that the physical test results of green tea leaf extract (*Camellia sinensis*) were in accordance with the Indonesian Herbal Pharmacopoeia Edition IV. In the evaluation results of hand sanitizer gel preparations in accordance with SNI-06-2588-1922, the preparation is homogeneous, stable in 6 weeks storage, pH 5.45-5.97, dry time is less than 60 seconds, viscosity is more from 2000 cps, and for the distribution power is less than optimal or does not meet the requirements. Meanwhile, in the microbiological Percentage kill test on *Escherichia coli* bacteria, the results of the three formulations have an average test value of above 90% so that the hand sanitizer gel preparation is said to have good quality. The preparation of green tea leaf extract (*Camellia sinensis*) hand sanitizer gel has good quality and can kill *Escherichia coli* bacteria.

**Keywords:** Green tea leaf extract, hand sanitizer gel, physico-chemical test, Percentage kill test.

## **ANTIBACTERIAL ACTIVITY OF MACELIGNAN AGAINST STAPHYLOCOCCUS AUREUS AND STAPHYLOCOCCUS EPIDERMIDIS**

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### **ABSTRACT**

Macelignan is one an active compound that isolated from nutmeg and have been reported to have some bioactivity. Objectives: This study was aimed to determined macelignan antibacterial activity against *S. aureus* and *S. epidermidis*. Material and Methods: Macelignan was isolated from *M. fragrans* Houtt. (Myristicaceae) was collected in the year 2002 from the Biofarmaka Research Center of Bogor Agricultural University (Indonesia). Antibacterial activity of macelignan against *S. aureus* ATCC 29737 and *S. epidermidis* ATCC 155 have been determined in term of susceptibility, MIC, MBC and killing time curve by the Clinical Laboratory Standard Institute. Results: Macelignan was had susceptibility against *S. aureus* and *S. epidermidis* with diameter 1 cm and 1 cm. MICs and MBCs of macelignan against *S. aureus* ( $8.06 \times 10^7$  CFU/ml) and *S. epidermidis* ( $2.58 \times 10^5$  CFU/mL) were ranged 1.25 mg/mL - >5 mg/mL and 0.078 mg/mL – 0.156 mg/mL. The killing activity of macelignan fast acting against *S. aureus* and *S. epidermidis*; the reduction in the each number of CFU mL<sup>-1</sup> were >5 log<sub>10</sub> units (99.9%) in 4 h and > 5 log<sub>10</sub> units (99.9%) in 2 h. Conclusions: The result was indicated that macelignan has activity against *S. aureus* and *S. epidermidis*.

**Keywords:** Antibacterial, Macelignan, *Myristica fragrans*, *Staphylococcus aureus*, *Staphylococcus epidermidis*

## **MERCURY TOXICITY TEST AGAINST KIDNEY ORGANS IN WISTAR STRAIN RATS (RATTUS NORVEGICUS) BASED ON UREA EXAMINATION**

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### **ABSTRACT**

Heavy metals have bad effects for the body of animals and humans. Some of the biota that live in the waters are also contaminated with heavy metals that pollute rivers and seas. Water and other foodstuffs are consumed by humans in their daily life. The heavy metal that has the highest toxicity is mercury. That metal can damage several human organs, one of which is the kidney. This study aims to determine the difference in urea levels in white rats (*Rattus norvegicus*) before and after exposure to mercury. In this preclinical study, the toxic compound used was Mercury sulfate in powder form, then dissolved into distilled water. This study used 12 male rats which were divided into 4 groups. The first group, the control group were given aquadest solution, the 3 treatment groups were given Mercury sulfate at a dose of 10 mg/Kg BW, 20 mg/Kg BW, 30 mg/Kg BW. This study lasted for 4 weeks. Examination of urea levels was carried out three times, namely at week 0, week 2, and week 4 during the treatment period. The results of this study showed an increase in the average level of urea in the 2nd week of treatment compared to week 0, but in the 4th week of treatment only the treatment group at dose 1 experienced an increase in urea levels while in the treatment group at dose 2 and dose 3 there was a decrease. There was a change in the mean urea levels of rats from the three treatment groups, namely in the dose group 1 from 41.33 mg/dL at week 0 to 45.33 mg/dL at week 2, and 78.67 mg/dL at week 4. In the 2nd dose group from 47 mg/dL at week 0 to 64.33 mg/dL at week 2, and 43 mg/dL at week 4. In the 3rd dose group from 44.33 mg/dL at week 0 to 54.33 mg/dL at week 2, and 20.67 mg/dL at week 4.

**Keywords:** Toxicity test, Mercury, Kidney, Wistar strain Rat, Ureum.

## **PHYSICAL PROPERTIES EVALUATION AND EFFECTIVITY TEST OF BLACK GARLIC (*Allium sativum* L.) EXTRACT WOUND OINTMENTS WITH DIFFERENT OINTMENT BASES**

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### **ABSTRACT**

Black Garlic (BG) is a processed product of garlic that can be used as a medicine for both internal and external use, for example in the form of an ointment. This study aimed to determine the preparation and effectivity of black garlic (*Allium sativum* L.) extract ointments with different ointment bases. This was descriptive research, the sample BG obtained from Sragen Regency, Central Java, Indonesia. BG was cut into small pieces, macerated with 70% ethanol and then concentrated with a rotary evaporator to obtain a thick extract. The ointments of BG extract made with four different ointment bases, namely a hydrocarbon base (F1), an absorbing base (F2), a water-removed base (F3), and a water-soluble base (F4). The tests carried out were the organoleptic test, homogeneity test, pH test, and dispersion test. The effectiveness of BG ointments tested on rat wounds. Observations made for 14 days by measuring the rat's wound area. The data analyzed by using ANOVA one way. The results showed that all the ointments were in the form of semi-solid, had a characteristic BG odor, were homogeneous, and had a pH of 5. The dispersion of each ointment was 3.5 – 3.6 cm (F1), 2.9 – 3.2 cm (F2), 3.1 – 3.5 cm (F3), 2 – 2.2 cm (F4). These results indicate that the BG extract can be formulated into ointment preparations with the four ointment bases. The ointments met the requirements of the organoleptic test, pH test, and homogeneity test, but did not meet the requirement of the dispersibility test. The effectiveness test results showed that the wound healing effect observed from the 3rd to the 14th day, the results of the statistical analysis showed that the ointments had effectiveness to heal the wound.

**Keywords:** Wound ointments, ointment bases, Black Garlic, physical properties, wound healing.

## **Medicine Treatment Patterns for HIV/AIDS Patients at the Hohidiai Clinic West Tobelo District North Halmahera Regency**

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### **ABSTRACT**

AIDS (*Acquired Immuno Deficiency Syndrom*) is a collection of symptoms of disease due to damage to the human immune system caused by the Human Immunodeficiency Virus (HIV). Treatment for people with HIV/AIDS consists of antiretroviral (ARV) drugs and other drugs to prevent or treat concomitant infections. Hohidiai Clinic is one of two Care, Support and Treatment Training facilities referral services for people with HIV/AIDS in North Halmahera. This study aimed to determine the pattern of medicine treatment for people with HIV/AIDS at the Hohidiai Clininc during the peroid 2018. The was a descriptive study with data collection using a retrospective method. Data was obtained from 20 HIV/AIDS patients who had just started ARV therapy at the Hohidiai Clinic during the 2018 period and routinely received treatment for at least 8 months. The results of this study indicated that the ARV treatment given was using the first–line ARV regimen for adults (TDF + 3TC + EFV) and children (AZT + 3TC + NVP). There were 17 patients who used Cotrimoxazole Preventive Treatment (CPT), in addition there were 12 patients who had oppurtunistic infections. Other drugs used such as antibiotics, analgesics / antipyretics, antituberculosis, antifungals, cough/flu medicines, vitamins, and minerals.

**Keywords:** Medicine treatment Pattern, HIV/AIDS, first-line ARV regimen, Antiretroviral

## **CONSUMPTION OF METFORMIN ON TOTAL CHOLESTEROL LEVELS IN CARDIAC POLYCLINIC PATIENTS OF UNDATA HOSPITAL OF PALU**

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### **ABSTRACT**

Type 2 Diabetes mellitus was disorder of high blood glucose level caused by insufficient insulin production or insulin receptor resistant or both. Metformin was the first line therapy to lower the blood glucose level. Moreover, in some cases proved that Metformin could decrease total cholesterol levels. This study aimed to determined the effect of metformin consumption on total cholesterol levels of type 2 diabetes mellitus patients in Cardiac Polyclinic of Undata Hospital of Palu. The method was prospective cross sectional study, with measurment of total cholesterol levels before and after 3 months of consumption metformin in single use and combination therapy. Then the total cholesterol levels had been analyzed using Wilcoxon statistical trials. The result was 0.114 or  $P = > 0.05$ , indicated that it has no signification between consumption metformin in single use or combination to lowering total cholesterol levels.

**Keywords:** Type 2 Diabetes mellitus, total cholesterol level, metformin, Undata Hospital.

## **IDENTIFICATION OF SECONDARY METABOLITES OF ETHANOL EXTRACTS OF THE *Strobilanthes crispus* (L) Blume) BARK**

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### **ABSTRACT**

*Strobilanthes crispus* (L) Blume has been used as a traditional medicine by the people of Indonesia. Leaves are part of the plant used because they contain active compounds such as polyphenols, flavonoids, saponins, potassium, sodium and calcium. The aim of this study was to identify secondary metabolites in the ethanol extract of the stem bark of *Strobilanthes crispus* (L) Blume. The type of research used is experimental research in the laboratory. Extraction was carried out by maceration method using 95% ethanol as solvent. The obtained maserate was concentrated in a rotary evaporator to obtain a thick extract. The secondary metabolites were identified qualitatively by the color reaction and precipitate method. The results showed that the bark contains alkaloids, saponins and tannins.

**Keywords:** Secondary Metabolites, Bark, *Strobilanthes crispus* (L) Blume

## **ANTIBACTERIAL ACTIVITY TEST FOR LIQUID SOAP ESSENTIAL OIL OF GRAPEFRUIT (*Citrus maxima*)**

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### **ABSTRACT**

Grapefruit (*Citrus maxima*) has several chemical compounds, one of which is essential oil, 6.68 g of essential oil was found in the peel of the grapefruit (*Citrus maxima*) which has an active compound, namely limonene (94.96%). The essential oil provided strong antibacterial activity against *Staphylococcus aureus* isolates. The purpose of the study was to formulate the essential oil of grapefruit peel (*Citrus maxima*) into liquid soap preparations that met physical stability and to test the antibacterial activity of liquid soap preparations of grapefruit (*Citrus maxima*) peel essential oil against *Staphylococcus aureus* bacteria. The method used in testing the stability of liquid soap preparations is cycling test and in the antibacterial activity test using the Disk diffusion method. The results obtained that the essential oil of grapefruit peel (*Citrus maxima*) can be formulated in the form of liquid soap because it meets the physical stability test, namely before and after the cycling test in the form of organoleptic tests, pH, foam height, specific gravity, as well as viscosity tests and activity tests. antibacterial against *Staphylococcus aureus*. at 1% concentration of 18.9 mm (strong), 3% of 20.4 mm (very strong), and 5% of 21.1 mm (very strong). Based on this, the essential oil of bali orange peel (*Citrus maxima*) can be made into liquid soap preparations that meet the physical stability test and have antibacterial activity in a strong category at a concentration of 1%, a very strong category at a concentration of 3%, and a very strong category at a concentration of 1%. 5% in inhibiting the growth of *Staphylococcus aureus* bacteria.

**Keywords:** Grapefruit peel, essential oil

## **ANTIBACTERIAL ACTIVITY OF HERBAL SYRUP “JEMMA” WHICH COMBINES MIANA LEAF EXTRACT, KALAMANSI ORANGE JUICE, AND HONEY, AGAINST *Staphylococcus Aureus* AND *Escherichia Coli* BACTERIA**

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### **ABSTRACT**

The trend of consuming herbal drinks has increased significantly since the Covid-19 pandemic until now. Herbal beverage products are an alternative to reducing the incidence of infectious diseases by microorganisms, including viruses, fungi, and bacteria. JEMMA syrup is a herbal syrup that combines Miana leaf extract, Kalamansi Orange juice, and Honey. These three natural ingredients contain secondary metabolites that have antibacterial activity. To evaluate the antibacterial activities of the herbal syrup "JEMMA," which combines Miana leaf extract, kalamansi orange juice, and honey, against *Staphylococcus aureus* and *Escherichia coli* bacteria. This research method is quasi-experimental. "JEMMA" herbal syrup (Miana: Kalamansi Orange: Honey) is formulated in four formulas M0 (0:35:65), M1 (10:25:65), M2 (15:20:65) and M3 (20:15):65. The four syrup formulas were analyzed for their inhibitory activity against *Staphylococcus aureus* and *Escherichia coli* bacteria using the disc diffusion method based on the diameter of the barrier, compared to the positive control Amoxicillin. The average inhibition diameter of the herbal syrup "JEMMA" against the pathogenic bacteria *Staphylococcus aureus* was based on the highest inhibition, which was M0 22.35 mm (Very strong), M1 20.82 mm (Very strong), M3 20, 28 mm (Very strong), and M2 19.60 mm (Strong), respectively, in comparison to 17.65 mm Amoxicillin positive control (Strong). Based on the highest levels of inhibitory power, the herbal syrup "JEMMA" had an average inhibition diameter against pathogenic *Escherichia coli* of 24.16 mm (very strong), 23.05 mm (very strong), 19.55 mm (strong category), 16.79 mm (strong category), and 24.16 mm (very strong) for the positive control (20.63 mm). Conclusion: The herbal syrup "JEMMA" has inhibitory activity against *S. aureus* and *E. coli*, making it a possible alternative health beverage with antimicrobial activities.

**Keywords:** miana, kalamansi orange, honey, JEMMA, and antibacterial activity.

# POSTER PRESENTATION

## FORMULASI HAND SANITIZER BUNGA KECOMBRANG

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### ABSTRACT

Kecombrang flower (*Etlinger elatior* Jack) has activity as an antiseptic because it contains flavonoids and essential oils with an aromatic odor, and has traditionally been used to stop bleeding and eliminate body odor. Phytochemical screening was carried out on fresh and dried kecombrang flowers and then formulated them into preparations hand sanitizer liquid gel. The dosage formulations were made with concentrations of 5%, 10%, and 15%. Evaluation of the preparations included organoleptic tests with hedonic tests, homogeneity, pH, dispersibility, stability, irritation to volunteer skin, and antibacterial activity against *Staphylococcus aureus* and *Escherichia coli* by agar diffusion using metal shields, as well as total plate number of specimens. hand wash water. The results showed that the preparation with a concentration of 10% was the best because it was highly favored by volunteers, was stable at room temperature for 12 weeks, did not cause irritation, and a concentration of 15% was most effective in killing *Staphylococcus aureus* and *Escherichia coli* bacteria in a strong category. for hand sanitizer from bacteria, which is easy, practical, and safe to use without using water.

**Keywords:** kecombrang flower, hand sanitizer liquid gel, antibacterial activity, *Escherichia coli*, *Staphylococcus aureus*.

## **SUNSCREEN ACTIVITY OF NUTMEG SEED OIL IN NANOEMULSION SYSTEM USING ISOPROPYL MYRISTATE AS AN ENHANCER**

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### **ABSTRACT**

Nutmeg seed oil contains myristicin which has sunscreen activity. Nanoemulsion system can increase the effectivity and absorption of sunscreen product. The purpose of this study was to determine the effectivity of nutmeg seed oil in nanoemulsion system (NSN) using isopropyl myristate (IPM) as skin enhancer. Nutmeg oil nanoemulsion was prepared using 6,4% of the essential oil and IPM variation of 1% (F1); 3% (F2) and 5% (F3). Sunscreen activity was determined by in vitro and ex vivo test. The in vitro test was using spectrophotometer with Sun Protection Factor (SPF) value as the parameter. The ex vivo test was using rabbits' skin with minimum erythema dose (MED) as the parameter. The data obtained were analyzed using one way Anova. The SPF value of all formula did not show any significant difference. SPF values were  $16,34 \pm 5,50$  (F1);  $16,70 \pm 5,20$  (F2) and  $17,80 \pm 3,20$  (F3). The MED of F3 was significantly different compared to F1 and F2. The result showed that the presence of IPM plays an important role on increasing the effectivity of sunscreen. Isopropyl myristate with a concentration of 5% can increase the sunscreen activity of nutmeg seed oil nanoemulsion.

**Keywords:** Minimum erythema dose, nanoemulsion, nutmeg seed oil, sunscreen

## **UTILIZATION OF COCONUT TOMBONG (*COCOS NUCIFERA* L.) FROM COPRA PRODUCTION WASTE AS A SOURCE OF PRODUCING ANTIBACTERIAL COMPOUNDS**

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### **ABSTRACT**

Waste is a waste material that is considered to have no benefits and is generally produced from the processed production process of factories or households. Coconut tombong is one of the wastes of copra production (raw material for producing coconut oil) that is not used by the community. This study aims to determine the presence of antibacterial compounds contained in coconut tombong lyophilicate against *Escherichia coli* and *Staphylococcus aureus* bacteria. The research started from sample collection, sample processing and making lyophilisate by the Frezee drying method. The next stage of the antibacterial activity test is carried out using the diffusion method. The results of the test are as preliminary data to be continued at the stage of determining the group of compounds by phytochemical screening method by thin layer chromatography which has the potential to be antibacterial with the diffusion method. Based on the results of the study, it showed that coconut tombong lyophilicate at a concentration of 10%, 15%, 20% was able to inhibit the growth of *Escherichia coli* and *Staphylococcus aureus* bacteria. Phytochemical screening of the coconut tombong lyophilicate compound group showed that there was a content of the flavonoid compound group as evidenced by the presence of yellow patches on the thin layer chromatography profile after spraying  $AlCl_3$  reagents.

**Keywords:** Coconut tombong, Copra waste, Antibacterial

## **PHYSICAL CHARACTERISTICS OF PROCESSED FOOD MEATBALLS BASED ON BLOOD SHELLFISH (*Anadara granosa*)**

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### **ABSTRACT**

Seafood is great for consumption by different age groups because it is rich in proteins, fats, vitamins, and also minerals. One of the seafood that is often consumed by the public is shellfish. Blood shellfish (*Anadara granosa*) are a type of shellfish commonly eaten by Asians because they have economic value and excellent nutritional content for consumption, especially protein and mineral sources. One of the processed forms of blood shellfish is meatballs. The purpose of the study was to determine the results of physical quality (organoleptic, pH), chemical quality (fatty, protein) in Blood shellfish meatballs (*Anadara granosa*). The methods and types of research carried out are quantitative research using a descriptive design. Test parameters include organoleptic test, pH test, protein content test using biuret method and fat content test using sokletasi method. The results of the study from the organoleptic test showed the results of a blackish-green color, a normal smell typical of meatballs, a characteristic normal taste of meatballs, a chewy texture and a pH value of 6.807. The results of the protein level test on blood shellfish meatballs were 2.972% and the fat content test had a level of 9.1186%.

**Keywords:** blood shellfish meatballs, Physical Characteristics, protein content test

## **ANALYSIS OF WAITING TIME FOR OUTPATIENT PRESCRIPTION SERVICES AT THE PHARMACY INSTALLATION OF RSU MANADO MEDICAL CENTER**

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### **ABSTRACT**

One of the health services in Indonesia is a hospital. The cycle of drug prescription service procedures in hospital pharmacies starts from receiving, checking availability, reviewing prescriptions, preparing, examining, delivering along with drug information services. The total waiting time for prescription services required for one cycle of prescription service from the patient submitting the prescription to receiving the drug. The purpose of the study was to find out how long the waiting time for outpatients was with concoction and non-concoction prescription services. This type of research is a descriptive qualitative research. The study was conducted at the Manado Medical Center General Hospital with a total sample of 218 consisting of 14 prescription sheets, while 204 non-concoction recipes. Data obtained through direct observation or observation using data collection sheets, stopwatches and stationery. It is presented in tabular form and the percentage is calculated. The results of the study were those who met the requirements of 8 or 57.15% concoction recipes and did not meet the requirements of 6 or 42.85%. Meanwhile, those who met the requirements for non-concoction recipes were 89 or 43.62% and those who did not meet the requirements were 115 or 56.38%. The average waiting time required for the concoction recipe service is 32 minutes, while the non-concoction recipe service is 21 minutes. The waiting time for outpatient prescription services does not meet the standards specified in Permenkes No. 73 2016, namely the length of waiting time for prescription drug concoction services 30 minutes and non-concoction prescription drugs 15 minutes.

**Keywords:** Waiting time, concoction recipe, non concoction recipe PP08

**BRAZILIN AND 3 – O- METHYL BRAZILIN; POTENTIAL  
HOMOISOFLAVONOID ACTIVE COMPOUNDS FOR ECZEMA:  
PHARMACOINFORMATICS STUDY**

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**ABSTRACK**

Caesalpinia heartwood is a local wood plant in Indonesia, containing several bioactive metabolites and was used for natural cloth dye, herbal medicines, and others [1, 2]. Caesalpinia sappan heartwood extract was reportedly contains 29 compounds that perform antidiabetic, antioxidant, antibacterial, and anti-inflammatory activities [2, 3]. One of inflammatory diseases is eczema, that expressed on the skin. This study identified the potential activity of the brazilin and 3-O-methyl brazilin as therapeutic agents for eczema through molecular docking approach. The JAK-STAT protein pathway for eczema, included JAK3, RORC, PRKCQ, and IL-6, were used as an eczema protein target therapy. Those 3D structures were downloaded from Protein Data Bank. Brazilin and 3 – O – methyl brazilin were a bioactive ingredients of Caesalpinia sappan heartwood were retrieved from the PubChem NCBI database with the CID 73384 and CID 13846641. Those proteins and compounds were docked by Molegro virtual Docker 5 in the active sites of proteins, then were visualized by using Discovery studio and PyMol version 2.2 [4]. Molecular docking showed the interaction both brazilin and 3 – O- Methyl brazilin at the inhibitor sites of JAK3 protein. furthermore, 3D complex structure also revealed binding activity of Brazilin and 3 – O – methyl brazilin with RORC, PRKCQ, and IL6 at the active sites. Two-dimensional complex structures performed hydrogen bonds, hydrophobic interactions, and van der Waals, which were contributed to the low binding energy of those ligand – proteins complex. We summarized that brazilin and 3 -3 – O methyl brazilin inhibited the JAKSTAT pathway revealing low erythema and might have potential as eczema antagonist. Further in vivo experiment was required for supporting in silico study.

**ANTIBACTERIAL ACTIVITY OF ETHANOL AND N-HEXANE  
EXTRACT OF PATCHOULI LEAVES (*POGOSTEMON CABLIN  
BENTH*) COMPARISON AGAINST *STAPHYLOCOCCUS AUREUS*  
AND *ESCHERICHIA COLI***

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**ABSTRACT**

A great chance of taking the advantage of medicinal plants' potential has arisen due to the increase in bacterial resistance to various antibiotics. Patchouli is a well-known plant in society and used in traditional medicine and it brings many benefits, one of which is as an antibacterial. This study intended to compare the antibacterial activity of ethanol extract and n-hexane of patchouli (*Pogostemon cablin* Benth) leaves with two variations of concentration (60% and 80%) against *Staphylococcus aureus* and *Escherichia coli* bacteria, respectively. It relied on quasi-experimental laboratory method where the antibacterial activity test used disk diffusion method in triplo and the resistance capability category is based on resistance diameter size. The result indicated that: patchouli (*Pogostemon cablin* Benth) ethanolic extract had an antibacterial action against *Staphylococcus aureus* bacteria at the concentrations of 60% inhibition diameter of 10.0 mm (strong) and 80% inhibition diameter of 13.3 mm (strong). Meanwhile, the *Escherichia coli* bacteria at 60% concentration of the inhibition diameter was 6.3 mm (medium), and 80% of the inhibition diameter was 8.1 mm (medium). It is followed by n-hexane extract of patchouli (*Pogostemon cablin* Benth) against *Staphylococcus aureus* with a concentration of 60% inhibition diameter 6.9 mm (medium) and 80% inhibition diameter 7.1 mm (medium), while for *Escherichia coli* bacteria at a concentration of 60% the inhibition diameter was 5.9 mm (medium) and 80% the inhibition diameter was 6.4 mm (medium). Conclusion: At the 80% concentration, patchouli leaf ethanol extract (*Pogostemon cablin* Benth) demonstrated a higher inhibitory effect on *Staphylococcus aureus* than at a 60% concentration, while the n-hexane extract of patchouli (*Pogostemon cablin* Benth) at concentrations of 60% and 80% had moderate inhibition against *Staphylococcus aureus* and *Escherichia coli* bacteria.

**Keywords:** Patchouli Leaf, Ethanol Extract, N-Hexane Extract, *Staphylococcus aureus*, *Escherichia coli*

**THE EFFECT OF CONTROLLING INJECTION WITH MMSL  
METHOD (MINIMUM MAXIMUM STOCK LEVEL) TO THE  
INVESTMENT VALUE INPATIENT PHARMACEUTICALS IN PKU  
MUHAMMADIYAH YOGYAKARTA HOSPITAL**

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**ABSTRACT**

Inappropriate control of pharmaceutical preparations allows for an increase in costs that must be incurred by hospitals related to financing, excessive stock storage, expiration and stock outs. The purpose of this study was to determine the effect of the application of injection control with the MMSL method on the investment value of inpatient pharmacy at PKU Muhammadiyah Hospital Yogyakarta. This research method is a quasi-experimental research (quasi-experimental). The sampling technique was saturated sampling from retrospective data in June-November 2021 and implemented in January-March 2022. The number of research samples was 248 drug items in the injection dosage category. Data analysis using Wilcoxon statistical test. The investment value of injection preparations before the implementation of MMSL was Rp 237,001,145, while the investment value before the implementation of control using the MMSL method was Rp 177,563,774, with p value = 0.000 < 0.05.

**Keywords:** hospitalization, injection preparation, MMSL

# THE DIFFERENCE BETWEEN REFLUX AND SOXHLET METHOD OF TURMERIC (*CURCUMA LONGA* LINN) LEAF ETHANOL EXTRACT AGAINST INHIBITORY POWER *PROPIONIBACTERIUM* *ACNES*

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## ABSTRACT

Objective: This Study was aimed to identify the effect of concentration oil phase, surfactant, and co-surfactant on the characterization of SNEDDS in The Toluene: Etil Acetate Fraction of Sesewanua (*Clerodendrum fragrans* Wild.) Leaves. Method: It applied a quasi-experimental method using two groups: treatment and control groups. Furthermore, the treatment groups are comprised of F<sub>1</sub> (100%) reflux and F<sub>2</sub> (100%) Soxhlet, based on the total addition of turmeric leaf ethanol extract and F<sub>3</sub> Clindamycin 300 mg capsule as a positive control and F<sub>0</sub> Aquades as a negative control and followed by phytochemical screening tests, TLC tests and antibacterial activity tests which carried out by diffusion method. Further, the One-Way ANOVA test was used to analyze the data Result: The result showed that the phytochemical screening test was positive for flavonoids, alkaloids, and saponins yet were not positive for tannins. TLC test result found that all compounds had an R<sub>f</sub> value of 0.230, which was assumed to be quercetin. Antibacterial activity test with reflux method was 24.6 mm, followed by socket method was 30.3 mm, as well as a positive control was 38 mm and negative control was 15 mm. Conclusion: In conclusion, the ethanol extract of turmeric (*Curcuma longa* Linn) leaves is antibacterial effectiveness against *Propionibacterium acnes* bacteria growth using reflux and Soxhlet methods. Soxhlet had an inhibition zone against *Propionibacterium acnes* bacteria higher than reflux, measuring at 30.3 mm (very strong).

**Keywords:** Turmeric leaves, reflux method, Soxhlet method, *Propionibacterium acnes* bacteria

## **ANTIBACTERIAL ACTIVITY TEST OF AFRICAN LEAF EXTRACT (VERNONIA AMYGDALINA DEL.) WITH VARIATION OF LIQUID FILTERS AGAINST SALMONELLA TYPHI BACTERIA**

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### **ABSTRACT**

Typhoid fever is often found in developing countries and the tropics, this causes typhoid fever is still a serious problem in society. This acute infectious disease is caused by the microorganism *Salmonella enterica* serotype *typhi*, known as *Salmonella typhi*. One of the natural ingredients that have the potential as an alternative treatment is African leaves (*Vernonia amygdalina* Del.). This study aims to determine the antibacterial inhibitory activity of African leaf extract with a variety of solvents against *Salmonella typhi* bacteria. The sample extraction process was carried out using the maceration method using variations of 70% ethanol, ethyl acetate and n-hexane as a solvent. The antibacterial activity was tested using the Kirby Bauer method (disc diffusion) on each liquid extract with a concentration of 2.5%, 5% and 10% extract, 10% DMSO negative control and chloramphenicol positive control. The results showed that 70% ethanol extract and ethyl acetate gave antibacterial activity while n-Hexan extract had no activity against *Salmonella typhi* bacteria. The optimal inhibitory concentration as an antibacterial was 10% ethyl acetate extract (17.28±1.4 mm).

**Keywords:** African Leaf, Antibacterial, *Salmonella typhi*, Variation of filter fluid, *Vernonia amygdalina* Del.

## **COUNSELING ON THE BENEFITS OF MORINGA LEAVES AS NATURAL COSMETICS**

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### **ABSTRACT**

Improving health knowledge through Active Mother Learning is an effort/activity to assist individuals, groups, and communities in improving their abilities, both knowledge, attitudes and skills to achieve an optimal healthy life. This activity aims to increase knowledge, change attitudes and behavior and improve compliance and quality of life. . This 2021 community service has been carried out with the topic: Counseling on the Use of Moringa Leaves to Mothers in Utan Kayu Utara Village, East Jakarta. Increased knowledge about natural cosmetics is packaged in the form of Active Human Learning (Education). The target of the counseling was given to adult residents, especially housewives. The counseling stage was carried out twice, the first session was counseling Moringa Leaves as a family medicinal plant and natural cosmetics and the second session was counseling about how to use Moringa leaves as a natural mask. There was an increase in the average score of 15.7 points. The skills of the extension participants also increased with the practice of making Moringa leaf cold masks through videos that were uploaded to social media and sent to community service implementers. This shows that the purpose of this counseling is achieved

**Keywords:** counseling Moringa leave, natural cosme

## **ANTIOXIDANT AND ANTIBACTERIAL EXTRACT ACTIVITY TEST**

### ***Turmeric (Curcuma longa Linn) LEAF ETHANOL WITH METHODS***

### **REFLUX AND SOXHLETATION**

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#### **ABSTRACT**

Turmeric leaf (*Curcuma longa* Linn) is a traditional medicinal plant that has secondary metabolite compounds such as flavonoids, terpenoids, triterpenoids, and saponins as antibacterial and curcumin compounds which act as antioxidants. Free radicals can cause degenerative diseases in humans. *Escherichia coli* lives in the intestines of humans (and animals) which trigger diarrhea and *Staphylococcus aureus* that can cause skin infections. This *quasi-experimental* study aimed to compare the antioxidant and antibacterial activity of ethanol extract of turmeric leaves using reflux and soxhletation methods. Turmeric leaves were extracted with 96% ethanol using reflux and soxhletation methods. The ethanol extract obtained was tested for antioxidant activity using the DPPH method and the antibacterial activity used the disk diffusion method against *Escherichia coli* and *Staphylococcus aureus*. Further, data analysis of antibacterial activity test results used the One Way Anova test. The results showed that the ethanol extract of turmeric leaves with reflux and soxhletation methods had the antioxidant activity of 22.23 ppm and 23.39 ppm which were categorized as very strong. In the antibacterial activity test, the ethanol extract of turmeric leaves with the reflux method had the highest inhibitory power on *Escherichia coli* bacteria of 12.34 mm, including the strong category, while the ethanol extract of turmeric leaves with the Soxhlet method had the highest inhibition on *Staphylococcus aureus* bacteria which obtained 9.80 mm and was included in the medium category. Based on the results of the study, it can be concluded that the ethanol extract of turmeric leaves using reflux and soxhletation methods has a very strong antioxidant activity and is in strong category of antibacterial activity against *Escherichia coli* bacteria and in moderate category against *Staphylococcus aureus* bacteria.

**Keywords:** Turmeric Leaf, Reflux, Soxhletation, Antioxidant, Antibacterial

## **ACUTE TOXICITY AND ANTIPYRETIC TEST OF FALOAK (*STERCULIA QUADRIFIDA*, R.BR) LEAVES AS TRADITIONAL MEDICINE**

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### **ABSTRACK**

The aim of the study was to provide information about the efficacy and safety of Faloak leaves in the development of new traditional medicines. Identification and characterization of the extract was carried out at the beginning. In the acute toxicity test, a single oral dose of 2000 mg/KgBw of extract was given to five mice at 24 h intervals. Animals were observed individually for any clinical signs of toxicity or mortality for 14 days. DPT-Hb was used as a fever inducer in the antipyretic test of infusion and ethanol extract of faloak leaves. For acute treatment, the extract did not reveal any signs of toxicity or mortality in any animal, during the 14 days observation period. The LD50 of extract was estimated to be greater than 2000 mg/KgBw. A dose of 2000 mg/KgBw in mice for 14 days showed significant side effects on the liver and spleen which were marked by organ weights that were significantly different from the control group. Paracetamol as positive control, IDF 100% and EEDF 400 mg/KgBw showed a significant difference ( $p < 0.05$ ) with the negative control group. The results showed that faloak leaf has potential as an antipyretic, but liver function must be monitored, even though the LD50 value is above 2000 mg/KgBw.

**Keywords:** Faloak, Extract, Acut toxicity, Antipyretic

## **HEPATOPROTECTIVE EFFECTS OF PROBIOTIC DRINKS MADE FROM PINEAPPLE PEEL (*ANANAS COMOSUS L.*) NASCOVER ON ISONIAZID-INDUCED RATS**

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### **ABSTRACT**

Background: Long-term isoniazid (INH) use causes liver cell damage, which correlates with increased levels of Serum Glutamic-Pyruvic Transaminase (SGPT) and Serum Oxaloacetic-Pyruvic Transaminase (SGOT). Numerous flavonoids in pineapple peel have pharmacological effects, such as antioxidants and hepatoprotective potential *Nascover*, the most well-known traditional fermented beverage, is a practical preparation made from pineapple peel (*Ananas comosus L.*) which functions as a hepatoprotective. Objective: This study aimed to identify the hepatoprotective effect of probiotic drinks administration made from pineapple peel (*Ananas comosus L.*) *Nascover* towards isoniazid-induced rats. Method: This experimental research employed a Quasi-Experimental with a post-test design. Result: The result revealed that the average level result of SGPT was 80 for Normal Control, 73 for Negative Control, 85.33 for Test 1, 101.33 for Test 2, 66.67 for Test 3, and 64.33 for Test 4. In contrast, SGOT's average level result was Normal Control 147, Negative Control 94.33, Test 1 116, Test 2 157, Test 3 143.33, and Test 4 135.33. Conclusion: It was concluded that the administration of pineapple peel probiotic drink (*Ananas comosus L.*) *Nascover* at a dose of 4 mL given 1 hour after INH induction reduces SGPT levels, while at a dose of 2 mL given 1 hour before INH induction, it reduces SGOT levels. Organoleptic test of probiotic drink made from pineapple skin *Nascover* produces a brownish red color, sweet and sour taste, and distinctive pineapple aroma.

**Keywords:** Peniapple, Probiotic, Hepatoprotective, SGPT, SGOT

## **TRANSDERMAL DELIVERY OF SNAKEHEAD FISH (*OPHIOCEPHALUS STRIATUS*) POWDER NANOEMULGEL FOR BURN**

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### **ABSTRACT**

Snakehead fish powder (SFP) contains hydrophobic compounds having poor solubility and unstable thermodynamics. The aims of this research to formulate and characterize SFP nanoemulgel (NEG) and also to determine permeation rate and effectiveness of SFP nanoemulgel in vitro and vivo study. The research method used spontaneous emulsification method by using olive oil, PEG400, and tween 80 (1:10, 1:11, 1:12) to form nanoemulsion which was added gelling agent i.e. HPMC 2%. All formulations of nanoemulsion were done characterization and stability tests in vitro and vivo study. The particle size results of SFP nanoemulsion characterization were got below 200 nm and PDI (polydispersity index) below 0.2. Furthermore, the results of the 90-day stability test of SFP nanoemulsion showed that it was physically stable having particle size around 100 – 200 nm. The permeation rate of SFP nanoemulgel showed NEG 3 0.5% is the highest (66.75%) through snake skin membrane compared to the positive control (SFP cream) only 49.80%). The effectiveness test of SFP nanoemulgel for burn described that NEG 3 0.5% is the best result in accelerating burn wound healing on rabbit treatment groups which marked faster reduction in wound area than the other groups. It can be seen the presence fibrin threads on burn surface and dry wound on the 9th day. The novelty of SFP nanoemulgel with suitable viscosity is successfully formulated for transdermal application based on the results of evaluation and stability test which can be seen that SFP nanoemulgel is 1.5 times higher penetration than SFP cream.

**Keywords:** snakehead, emulgel, size, permeation, burn

