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*"Data Integrity in Herbal Drug Research"*

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"Research in Male Anti-fertility Drugs"

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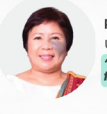
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University of the Philippines, Philippines
"Science and Indigenous Knowledge for Sustainability"

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Universitas Brawijaya, Malang, Indonesia
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Prof. Dr. Eko Suhartono, Drs., M.Si.
Universitas Lambung Mangkurat, Banjarmasin, Indonesia
"Phytochemical Analysis, Anti-Inflammatory, and Antioxidant Activity of Selected Medicinal Plants in Mandiangin Rainforest in South Kalimantan, Indonesia"

Prof. dr. Bambang Wirjatmadi M.S., M.CN., Ph.D., Sp.GK(K).
Universitas Ciputra Surabaya, Indonesia
"Bajakah's Role in Lowering Blood Glucose in Patients with Diabetes Mellitus"

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Universitas Airlangga, Surabaya, Indonesia
"The Prospect of Herbal Medicines for the Treatment of Malaria Disease"

Assoc. Prof. Dr. Roslina Abdul Rahim
International Islamic University Malaysia, Malaysia
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K.R.M.H. Tatas H.P. Brotosudarmo, Dipl.Chem., Ph.D., MRSC.
Universitas Ciputra Surabaya, Indonesia
"Current Progress in Exploring Structural Changes in Brown Algae Fucoxanthin and Its Potential Bioactivity for Human Health"

Dr. dr. Salmon Charles P.T. Siahaan, Sp.OG.
Universitas Ciputra Surabaya, Indonesia
"The potential of Moringa oleifera as an alternative therapeutic agent for PCOS patients"

Prof. Dr. dr. Nyoman Kertia, Sp.PD-KR, FINASIM.
Universitas Gadjah Mada, Yogyakarta, Indonesia
"Anti inflammatory and Immunomodulatory Activity of the Herbal Drugs"

dr. Erna Sulistyowati, M.Kes., Ph.D.
Universitas Islam Malang, Malang, Indonesia
"The Role of Centella asiatica, Justicia gendarusa and Imperata cylindrica combination in the treatment of hypertension"

dr. Dyan Pramesti, M.Kes., Sp.And., Subsp.FER.
Universitas Airlangga, Surabaya, Indonesia
"The Development of Justicia gendarussa Burm. F. as Male Contraception"

Prof. Dr. dr. David Sontani Perdanakusuma, Sp.B.P.R.E., Subsp.E.L(K).
Universitas Airlangga, Surabaya, Indonesia
"The Role of Arbutin in activating the collagenase enzyme for the treatment of Keloids"

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Universitas Ciputra Surabaya, Indonesia
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ORAL PRESENTATION

Aloe Vera (*Aloe barbadensis miller*) in Diabetes Mellitus: Accelerating Wound Healing through Herbal Medicine - A Literature Review

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ABSTRACT

Diabetes Mellitus (DM) is a chronic condition characterized by elevated blood glucose levels, leading to various complications, including impaired wound healing. This literature review explores the potential benefits of Aloe Vera (Aloe barbadensis miller) in accelerating wound healing among diabetic patients. Aloe Vera, a succulent plant known for its medicinal properties, contains numerous active compounds such as polysaccharides, glycoproteins, anthraquinones, and vitamins, which contribute to its therapeutic effects. The review highlights the mechanisms by which Aloe Vera enhances wound healing, including its anti-inflammatory, antimicrobial, and antioxidant properties, as well as its ability to stimulate collagen synthesis and fibroblast activity. Clinical evidence from various studies demonstrates the efficacy of Aloe Vera in improving wound closure rates and preventing infections in diabetic wounds. Despite its potential benefits, the variability in potency and the need for more extensive clinical trials to establish standardized treatment protocols are noted as limitations. Overall, Aloe Vera presents a promising, natural, and cost-effective option for enhancing wound healing in diabetic patients, warranting further research and clinical application.

Keywords: Aloe Vera; diabetes mellitus; diabetic wounds; herbal medicine; wound healing.

Anticancer Potential of *Moringa oleifera* Extract in Human Cancer Cells via Induction of Apoptosis

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ABSTRACT

Cancer remains as one of the largest contributors to the burden of health and mortality around the world. A study estimated 19.3 million new cases of cancer in the year 2020. The prevalence of cancer in Indonesia had increased from 1.4 for every 1000 people in 2013 to 1.79 per 1000 people in 2018, followed by an astounding number of 396,914 cases (1.45 per 1000) with 234,511 fatalities reported in 2020. *Moringa oleifera* (MO) is a herbal medicine originating from India which possesses antioxidant properties, and its leaves in particular have been used for its anti-inflammatory and anticancer benefits. MO leaf extract functions as an antiproliferative agent due to its ability to carry out apoptosis which is contributed by the numerous bioactive components it posessess, including flavonoids. This study employed a literature review guided by the PICOS framework, encompassing materials published from 2014 to 2024 with its attempt to summarize studies of MO leaf extracts to determine their specific antiproliferative, anti-inflammatory, and related effects for its anticancer properties. Data for this literature were obtained from diverse sources such as PubMed central, the Cochrane registry, and other sources including Google Scholar, scientific journals, articles, and books. The analysis proceeded through three stages: data reduction, presentation, and formulation of conclusions. Studies fulfilling the inclusion criteria were selected. This literature review will increase understanding of the effects of MO leaf extract which has the potential to be an anticancer agent.

Keywords: Anticancer; apoptosis; *Moringa oleifera*

Bibliometric analysis of *Centella asiatica* in Cardiovascular: Scopus-based Study

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ABSTRACT

Background: *Centella asiatica*, a potential medicinal plant is a native of tropical and subtropical herb in Asia. The use of *C. asiatica* in health-related fields has been the subject of several studies. Therefore, biometric analysis is required to manage this massive volume of data. **Methods:** Papers about *C. asiatica* were taken out of the Scopus database. An analysis was conducted on 347 documents that were published between 2009 and 2024 and fitted the inclusions criteria. Subsequently, VOSviewer was utilized to conduct an extensive bibliometric data analysis. **Results:** After analysis, it was found that the most productive affiliations were University of G. d'Annunzio Chieti and Pescara. Further, the most productive countries were India and China, while the most productive journals were Evidence Based Complementary and Alternative Medicine. In addition, the most frequently occurring keywords *Centella asiatica*. **Conclusion:** The bibliometric analysis of *C. asiatica* in this work was helpful to other researchers in identifying opportunities for future research, opportunities for collaborating with other authors or institutions, and influential journals for the publication of any studies on this subject.

Keywords: Bibliometric; cardiovascular; *Centella asiatica*; oxidative stress; VOSviewer

Centella asiatica Extract Repairs Neurological Dysfunction due to Deoxygenation

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ABSTRACT

Background: Oxygen deprivation (OD) is a critical condition that can lead to brain damage. Current hypoxia management approaches are limited in effectiveness. *Centella asiatica*, known for its neuroprotective properties, offers a potential alternative for OD treatment. **Objectives:** To investigate the neuroprotective effects of *Centella asiatica* (CA) on the expression of BDNF and VGLUT1 in zebrafish larvae under oxygen-deficient conditions. **Methods:** Embryos were subjected to low oxygen levels for 3 days post-fertilization, simulating the early stages of OD. Subsequent treatment involved varying concentrations of CA (1.25-5 µg/ml) up to 9 days post-fertilization. The expression levels of BDNF and VGLUT1 were measured using PCR methods. Statistical analysis was conducted using Two-way ANOVA. **Results:** CA significantly influenced the expression of BDNF and VGLUT1 under oxygen deprivation (p<0.001). An increase in BDNF expression (p<0.001) and a decrease in VGLUT1 (p<0.01) were observed in zebrafish larvae experiencing OD and treated with CA. There was no significant difference in BDNF and VGLUT1 expression across age variations in zebrafish larvae at 3 dpf and 9 dpf in the treatment groups (p>0.05). CA concentration of 2.5 µg/ml effectively enhanced BDNF and reduced VGLUT1 in 3-9 dpf zebrafish larvae. **Conclusion:** CA demonstrates potential as a neuroprotective agent, modulating increased BDNF expression and reduced VGLUT1 under OD conditions. These findings lay a foundation for further research in developing therapies for oxygen deficiency.

Keywords: *Centella asiatica*; neuroprotectivel; neurotoxicity; oxygen

Current Studies and Hotspots in Usage of *Imperata cylindrica*: A Bibliometric Analysis

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ABSTRACT

Background: *Imperata cylindrica* is a medicinal plant native to Asia and the tropical and subtropical zones. There have been many studies conducted on the use of *I. cylindrica* in the health-related sector, so bibliometric analysis is needed to deal with this large amount of data. **Methods:** Publications regarding *I. cylindrica* were extracted from the Scopus database. A total of 222 documents published between 2009-2024 that met the inclusion criteria were analyzed. Bibliometric analysis was then performed using VOSviewer for comprehensive bibliometric data analysis. **Results:** Having been analyzed, it was found that CSK Himachal Pradesh Agriculture University was the most productive affiliation and the Biodiversitas and Journal Of Ethnopharmacology were the most productive journal on the topic of *I. cylindrica*. India and Indonesia were the most productive countries in publishing the most papers about *I. cylindrica*. And the recent keyword trends in publication about *I. cylindrica* were about antiinflammatory, antimicrobial and antioxidant activity. **Conclusion:** In this study, bibliometric analysis of *I. cylindrica* was useful to help other researchers in finding prospects for future study, prospects for collaboration with other institutions or authors, and impacted journals for publication of any study on this topic.

Keywords: Bibliometric; *Imperata cylindrica*; Scopus; VOSviewer

Deciphering the Research Trends in Potential Roles of *Justicia gendarussa*: A Bibliometric Analysis

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ABSTRACT

Background: *Justicia gendarussa* is a herbal plant that has long been used for medicine and has many potentials in the helath field as antioxidant, anti-fertility, anti-inflammation, anti-fungal, antibacterial and antimicrobial, cardioprotective, hepatoptrotective, and anti-cancer. **Methods:** Papers related to *Justicia gendarussa* have been documented from Scopus database. 138 documents that met the inclusion criteria and were published between 2004-2024 were analyzed. VOSviewer was then used to carry out an accurate bibliometric data analysis. **Results:** On analysis, it was found that the most productive source was the Journal of Ethnopharmacology, and the most discussed subjects were pharmacology, toxicology, and Pharmaceutics. The most productive authors with documents that have been cited were Wang, Dong-ying, Zhang, and Hong-jie, and the most frequently occurring keywords were Justicia gendarussa. **Conclusion:** The analysis of *Justicia gendarussa* from the term occurrence network can help academics find the most popular topics and recent advancements in a field where no conflicts of interest exist.

Keywords: Bibliometric; *Gendarussa vulgaris*; *Justicia gendarussa*; Scopus; VOSviewer

Effectiveness of Analgesic Drug Consumption on Diabetic Neuropathy Pain (DNP) in Patients with Type 2 Diabetes Mellitus at the Trowulan Health Center, Mojokerto Regency

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ABSTRACT

Diabetic neuropathy pain (DNP) is a common symptom experienced by diabetic patients due to nerve damage, resulting in pain that can interfere with daily activities. Pain management using non-steroidal anti-inflammatory drugs (NSAIDs) is one of the interventions to reduce pain. The purpose of this study was to determine the relationship between the effectiveness of analgesic drug consumption in patients with type 2 diabetes mellitus and the incidence of DNP. This study was an analytical observational study with a cross sectional study approach conducted at the Trowulan Health Center, Mojokerto Regency. The study sample was 93 people using total sampling technique, involving patients with type 2 diabetes mellitus who were registered in the Chronic Disease Management Program (PROLANIS). Data analyzed included demographics (age, gender, BMI, family history of diabetes, duration of diabetes), diagnosis of DNP/no, type of medication, and medication compliance. The results showed that 51.6% of respondents experienced DNP. The drugs received by respondents from the health center were paracetamol and mefenamic acid, but only 51.6% of respondents consumed the medicine. Based on the results of the analysis, there was a relationship between the effectiveness of analgesic drug consumption and the incidence of DNP (p=0.000; OR=12). Patients who did not consume analgesic drugs had a 12 times greater risk of experiencing DNP compared to patients who consumed drugs. This study concluded that consumption of analgesic drugs had an effective relationship with the incidence of DNP. Single dose paracetamol or paracetamol with mefenamic acid may be considered to reduce DNP.

Keywords: Diabetic neuropathy pain; mefenamic acid; paracetamol

Herbal Monographs and Role of *Physalis angulata* in Indigenous Herbal Systems: A Literature Review

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ABSTRACT

Physalis angulata L. is an edible and annual herb of the Solanaceae family, known in Indonesia as Ciplukan plant. The fruit which is widely known internationally as Groundcherry is widely consumed by Indonesian people because it has quite high nutritional content and a very delicious taste. In its application in the world of herbal medicine, *Physalis angulata L.* contains many bioactive compounds which are useful as antifungal, antioxidant, anti-inflammatory, etc. Not only in Indonesia, research related to the herbal application of *Physalis angulata L.* was also carried out by researchers in a number of tropical and subtropical countries such as Brazil, Vietnam and America. This article aims to summarize and provide a comprehensive review of the characteristics, contents, and various applications of *Physalis angulata L.* in traditional and modern medicine. This type of research is a literature review by looking for a series of similar studies related to *Physalis angulata L.* in the form of reports, original articles, and true experiments. This research is a descriptive analysis research and the sources used come from both national and international journals using published articles from Google Scholar, PubMed, and Elsevier with a publication year range from 2019-2024. It is hoped that this literature review will be able to provide a general overview and be a reference for further research, especially in the context of a deeper understanding of the characteristics, content of bioactive compounds, and benefits of *Physalis angulata L.* as one of the typical herbal plants in Indonesia.

Keywords:　　　Ciplukan plant; herbal medicine; *Physalis angulata L*; solanaceae

Latent Tuberculosis among Malaysian Healthcare Workers: Prevalence, Risk Factors and Development of a Personalized Risk Prediction Model

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ABSTRACT

Healthcare workers (HCWs) are at high risk of developing Latent Tuberculosis Infection (LTBI) worldwide. The aim was to determine the prevalence of LTBI in SASMEC, Kuantan, Pahang and the factors associated with LTBI among HCWs. The data was used to develop a LTBI risk calculator. A cross sectional study involving 186 HCWs was conducted at SASMEC. Data from October 2021 until July 2023 was obtained from the Infection Prevention and Control Unit, SASMEC. The relationship between independent variables and dependent variables was analysed using multivariate logistic regression analysis. The Malaysian LTBI risk calculator for HCWs was developed using Python Streamlit and SHAP packages. Individuals tested with TST or a blood test, IGRAs have been recruited. Prevalence of LTBI among HCWs was 13.9%. For post, only non-clinical site HCWs, had significant association with LTBI workers with prevalence (2.5%1, OR= 0.1 (0.005 - 0.6), p value = 0.034). HCWs in non-clinical sites had 6% lower risk for LTBI compared to medical officers and staff nurses based on multivariate analysis. Stratified analysis was done for the indication of testing towards LTBI cases in contact with positive HCWs,TST significantly associated with prevalence of LTBI in HCWs (OR = 3.96 (0.95 - 14.54), p value = 0.04) and for in contact with positive patients, male had significant association with LTBI (OR = 12.89 (2.02 - 101), p value = 0.008). Conclusion: These data highlighted the need for increased implementation of LTBI control measures as the prevalence was low for an intermediate burden country but still high compared to others. Future studies are recommended to incorporate the duration of exposure towards tuberculosis into the personalised risk development applied in this study.

Keywords: Healthcare; interferon-gamma release tests; latent tuberculosis; Malaysia; tuberculin skin test

Physalis angulata Leaf Extracts Improve Proteinuria and Kidney Index in Nephrotic Syndrome Rat Models

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ABSTRACT

Objectives: Nephrotic syndrome (NS) has become a challenging problem in global health due to the high recurrence rate despite adequate treatment. The variability in clinical outcomes of nephrotic syndrome is prompting the development of various types of medicines, including the utilization of herbal medicine. Physalis angulata is widely known and used in traditional medicine in Indonesia. However, there have been no studies on its effect on NS. This research aims to determine the effect of Physalis angulata leaf extract on proteinuria and kidney index in nephrotic syndrome rat models. **Methods:** Sprague-Dawley rats were injected with 7 mg/kg doxorubicin to create nephrotic syndrome models. After 4 weeks, rats were divided into 9 groups: control, model (nephrotic rats), prednisone, Physalis angulata (PA 500 mg/kgBW, 1500 mg/kgBW, 2500 mg/kgBW), and PA (500 mg/kgBW, 1500 mg/kgBW, 2500 mg/kgBW) + prednisone. Kidney index and proteinuria were measured 3 weeks post-treatment. **Results:** Physalis angulata leaf extract significantly reduces proteinuria in physalis angulata, and physalis angulata + prednisone groups (p<0.05). The kidney index increased significantly in the model group. Physalis angulata leaf extract significantly lowered the kidney index in the PA 2500 mg/KgBW + prednisone group. **Conclusion:** Physalis angulata leaf extract reduces proteinuria and improves kidney index, indicating its potential as a steroid-sparing agent to enhance steroid treatment in nephrotic syndrome.

Keywords: Kidney index; nephotic syndrome; physalis angulata; proteinuria

Potency of Omega-3 on Malondialdehyde (MDA) and Anti-Inflammatory Cytokine IL-10 to Prevent Liver Damage Progression in White Wistar Rats Induced with First-Line Antituberculosis Drugs

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ABSTRACT

Background: First-line antituberculosis drugs (ATD) can cause adverse drug reactions, such as liver injury because they have reactive metabolites that are hepatotoxic. These may trigger an inflammatory response. Omega-3 has anti-inflammatory effects, which may reduce the inflammatory response. **Objective:** To determine the potential of omega-3 on the levels of MDA, IL-10, and ballooning cells in white Wistar rats induced with first-line ATD to prevent liver damage progression. **Methods:** This study was conducted using five different groups: normal, hepatotoxic rats, hepatotoxic rats with omega-3 administration dose 1 (36 mg), dose 2 (72 mg), and dose 3 (144 mg). Hepatotoxic rats were orally administrated with omega-3 orally for 28 days. After that, rat blood will be taken to assess MDA and IL-10 levels using the ELISA. A rat liver was taken to examine histopathology. The data were statistically analyzed with one-way ANOVA ($p \leq 0.05$) and post hoc test. **Result:** The ANOVA results showed that all the doses of omega-3 significantly decreased the levels of MDA (p=0.000) and increased IL-10 (p=0.000). Omega-3 has a significant effect (p=0.000) on ballooning cells. Meanwhile, the post hoc test showed that the three doses of omega-3 gave significant results in ballooning cells. However, an Omega-3 dose of 36 mg gave substantial results in levels of MDA and IL-10. **Conclusion:** Administration of Omega-3 at a specific dose may have anti-inflammatory effects by increasing IL-10, suppressing MDA, and minimizing ballooning cells in the rat liver damage caused by first-line ATD.

Keyword: First-line antituberculosis drugs; hepatotoxic; IL-10; MDA; omega-3

Potential of Omega-3 Against Malondialdehyde and Interleukin 4 in Preventing the Progression of Liver Damage in Wistar Strain White Rats due to Induction of First Line Antituberculosis Drugs

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ABSTRACT

Background: First-line antituberculosis drugs (ATD) consist of rifampicin, isoniazid, pyrazinamide, and ethambutol (RHZE). The most common adverse drug reactions (ADRs) in first-line ATD will ultimately reduce the success of treatment. The most common ADRs of first-line ATD is Drug-Induced Liver Injury (DILI) arising from toxic metabolites of first-line ATD. Omega-3 is a preventive supplement in reducing the risk of increased liver damage through antioxidant effects and reducing inflammation. **Objective:** To determine the effect of omega-3 supplementation on malondialdehyde, interleukin 4, and ballooning cells in preventing liver damage in Wistar strain white rats due to first-line ATD. **Method:** This research uses an experimental method with division into 5 groups. Using first-line ATD to induce liver damage. First-line ATD and omega-3 will be given orally for four weeks. Omega-3 was used in graded doses in the treatment groups, namely 36 mg/bw/day, 72 mg/bw/day, and 144 mg/bw/day. Malondialdehyde and interleukin 4 levels were measured using ELISA and histological analysis of rat livers to see liver cell damage using ballooning cell markers. **Results:** The research results show that the most optimal dose of omega-3 in providing effects is a dose of 36 mg/bw/day. Using a regression test, the results showed that 1 mg omega-3 could reduce malondialdehyde levels by 0.003 nmol/mL, ballooning cells by 0.017 ng, and increase interleukin 4 levels by 0.067 ng. **Conclusion:** Omega-3 supplementation has been proven to prevent the development of liver damage in Wistar white rats by reducing malondialdehyde levels, ballooning cells, and increasing interleukin 4 levels.

Keywords: Antituberculosis drug; ballooning cells; malondialdehyde; omega-3; Interleukin 4

Potential of Omega-3 on MDA and Interleukin-6 in Preventing Progression Liver Damage in Wistar Strain White Rats Induced by First Line Anti Tuberculosis Drugs

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ABSTRACT

Indonesia is ranked second in the world with the highest incidence of tuberculosis, which is a major cause of death and morbidity in the world. Until now, Tuberculosis is treated with a combination of first-line anti-tuberculosis drugs, RHZE for 6 months. RHZE can cause Drug Induced Liver Injury (DILI) which results in reducing drug compliance and increasing drug resistance. Omega-3 is believed to have a hepatoprotective effect, therefore we conducted research using omega-3 supplementation to obtain a hepatoprotective effect which is expected to reduce the incidence of DILI due to the effects of Tuberculosis treatment using HRZE. Research purposes to determine the effect and effective dose of Omega-3 supplementation in preventing DILI due to the drug RHZE in Wistar white rats as measured by malondialdehyde levels, ballooning cells, and interleukin-6 levels. A total of 30 white Wistar rats were divided into 5 groups consisting of one negative control group, one positive control group and three other groups that were treated with omega-3 at doses of 36 mg/bw/day, 72 mg/bw/day and 144 mg/bw/day. The effect of DILI was measured with Malondialdehyde, and interleukin-6 using ELISA and histological analysis of mouse livers to see cell damage in the presence of ballooning cell markers. This study provides significant differences between groups. The 36 mg/bw/day dose is the most optimal dose among others. Omega-3 has an effect on MDA by 51.1%, ballooning cells by 69.8%, and IL-6 by 73.4%. Increasing the dose of omega-3 not statistically significantly towards decreasing concentration levels in Wistar strain white rats. Omega-3 supplementation has protective effects against liver damage. The results revealed a demonstrable positive impact of omega-3 administration on key markers of liver health, including malondialdehyde, ballooning cells, and interleukin-6 concentration.

Keywords:　Drug Induced Liver Injury (DILI); interleukin-6; malondialdehyde; omega-3; RHZE

Relationship between Level of Knowledge Regarding Early Detection of Non-communicable Diseases and the Willingness to Conduct Examinations at Puskesmas Wates, Mojokerto City in 2020

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ABSTRACT

Background: The current pattern of disease events has changed from what was originally dominated by infectious diseases to non-communicable diseases (NCD). One form of efforts to overcome NCD is to conduct a PTM booth at the Puskesmas. The purpose of holding PTM Booth is to conduct early detection of PTM in the community. Based on year 2018 data in Puskesmas Wates, the number of NCD cases is still high, one of it is hypertension that still ranked first. **Objective:** To identify characteristics and analyze the relationship between level of knowledge regarding early detection of non-communicable diseases and the willingness to conduct examinations at Puskesmas Wates. **Method:** This research was a quantitative analytic using cross sectional approach. The sample in this study was citizens residing in Wates, Mojokerto city aged 15-59 years who came to the NCD booth in one month as many as 133 people with sampling technique using consecutive sampling. Data were collected using a questionnaire to see age, sex, recent education, occupation, respondents 'willingness to conduct NCD examinations, as well as the level of respondents' knowledge about NCD. Descriptive data analysis was performed using frequency and percentage distributions, while analytically the Chi Square (X2) test was used to state the relationship. **Results:** The majority of respondents were aged 40-49 years old, female, had a high school education, were employed, were willing to conduct a NCD examination,

and had a good level of knowledge about NCD. Chi Square test results obtained p value = 0.039, with a contingency coefficient value of 0.176. **Conclusion:** There is a relationship between level of knowledge regarding early detection of non communicable diseases and the willingness to conduct examinations at Puskesmas Wates, Mojokerto City in 2020. The correlation strength between the level of knowledge regarding early detection of NCD and the willingness to conduct NCD examinations is very weak.

Keywords: Knowledge; NCD examination; non-communicable diseases

The Effect of Administering DHA (*Docosahexaenoic Acid*) Supplements to Underweight Pregnant Women on SOD (*Superoxide Dismutase*) Antioxidant Levels

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ABSTRACT

In 2021, the East Java Provincial Health Service reported that 53,455 out of 618,207 pregnancies in East Java were affected by chronic energy deficiency (CED). Underweight and CED are nutritional problems resulting from an imbalance between energy and protein intake during pregnancy, characterized by BMI <18.5 kg/m or MUAC <23.5 cm. Nutritional issues and weight loss can weaken the immune system, making pregnant women more susceptible to oxidative stress. DHA, commonly derived from marine fish, is also found in nuts, seeds, and vegetable oils, linking its benefits to traditional medicine practices emphasizing natural nutrition and holistic health. This study aims to determine the effect of DHA supplements on SOD antioxidant levels in underweight pregnant women. Using a quantitative method with an experimental one-group pre-post test, 21 underweight pregnant women at Made Community Health Center, Surabaya, received DHA supplementation for one month. Blood tests were conducted using the BioVision ELISA Kit. Data were analyzed using paired t-tests and Wilcoxon tests. The univariate analysis showed a mean SOD value of 15.57 ng/mL before DHA supplementation. The bivariate analysis using the paired t-test showed a P value of 0.013. This study concludes that there is an effect of giving DHA supplements to underweight pregnant women on SOD antioxidant levels. Apart from that, there was also an effect of DHA supplementation in underweight pregnant women on body weight (P < 0.001); height (P = 0.88); BMI (P = 0.003); MUAC (P = 0.003); systolic BP (P = 0.111); diastolic BP (P = 0.887); fundal height (P = 0.001).

Keywords: DHA; effect; SOD; underweight

The Potential Effect of Omega-3 on Levels of MDA, IL-8, and Balloon Cells Count in Preventing Liver Damage Progression in Wistar Strains White Rats Induced by First-Line Anti-Tuberculosis Drugs

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ABSTRACT

Background: Tuberculosis (TB) remains a major global cause of death and a health problem to millions of people. More than 809,000 cases of TB were reported in Indonesia in 2023. Drug-induced liver injury (DILI) is an adverse events of first-line TB medications such as rifampicin, isoniazid, ethambutol, and pyrazinamide (RHZE). Omega-3 fatty acids (OFA) have the ability to repair liver damage led by RHZE-induced free radicals. **Purpose:** To aim the effect of omega-3 on levels of MDA, IL-8, and balloon cells count in preventing liver damage progression in rats induced by first-line anti-tuberculosis drugs. **Method:** Thirty male rats were divided into five groups (n=5); negative control (NC), positive control (PC), and 3 treatment group received 36 mg/bw/day (T1), 72 mg/bw/day (T2), 144 mg/bw/day (T3) doses of OFA orally for 28 days. DILI were induced by RHZE orally in PC, T1, T2, and T3. Levels of MDA, IL-8, ballooning cells count were measured using ELISA and histology analysis. **Results:** We found that RHZE-induced DILI was progressively improved by OFA. Interestingly, after 28 days of OFA administration, levels of MDA, IL 8, and ballooning cells count showed a significant decrease ($p < 0.05$) especially in T1. OFA as an antioxidant and anti-inflammatory acts through the DNA repair pathway and inhibits the TLR4/NF-κβ signaling pathway. **Conclusion:** Our results demonstrated that the OFA significantly improved RHZE-induced DILI in rats.

Keywords: Ballooning cell; IL-8; MDA; omega-3 fatty acids; RHZE

The Potential of Omega-3 Preventing the Progression of Liver Damage in Wistar Strain White Rats due to Induction of First-line Drugs Antituberculosis

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ABSTRACT

Background: The low TB cure rate is caused by the high rate of dropping out of treatment because drug side effects or what are commonly called ADRs (Adverse Drug Reactions). Drugs and their metabolites can cause liver toxicity through the accumulation of ROS, causing Drug Induced Liver Injury (DILI). Omega-3 has a protective effect against TB drug toxicity, improves the antioxidant system, and reduces inflammation and damage. **Goals:** The aim of this research is to prove the effect of omega-3 can preventing liver damage in Wistar strain white rats caused by first-line anti-tuberculosis drugs. **Method:** Experimental research using the post test control group design method using male white rats (*Rattus norvegicus*) Wistar strain divided into five treatment groups. Negative control group, group exposed to TB drugs, group exposed to TB drugs with omega-3 level doses, namely 36 mg, 72 mg, 144 mg. The research was carried out for four weeks. MDA, TNF-α, ballooning cells levels were measured using an ELISA and histology analysis. **Results:** Research results show that omega-3 doses of 36 mg provide the most optimal effect, with the regression test the results were obtained that 1 mg of omega 3 can reduce MDA levels by 0.003 nmol/mL, TNF-α levels by 0.064 ng/mL, and ballooning cells by 0.017 cell per 100 visual fields. **Conclusion:** The omega-3 has an effect to prevent liver damage in Wistar strain white mice due to first-line anti-tuberculosis drugs by reducing level of MDA, TNF-α, and ballooning cells.

Keywords: Antituberculosis drug; ballooning cells; MDA; ROS; TNF-α

The Role of Pomegranate (*Punica granatum sp.*) Extract in Insulin Resistance and Polycystic Ovarian Syndrome (PCOS): A Literature Review

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ABSTRACT

Polycystic Ovarian Syndrome (PCOS) is a syndrome that affects the endocrine and metabolic systems, causing irregular periods, lack of ovulation, increased hair loss, acne, and ovarian cysts. PCOS is a major cause of infertility and affects 7 to 15% of women of reproductive age. Women with PCOS often have elevated androgen levels and insulin resistance, leading to infertility. Pomegranate, known for its benefits in managing various diseases such as heart disease, cancer, and diabetes, is considered a beneficial dietary and medical plant. The pomegranate seeds contain high of polyphenols that considered as anti inflammatory, anti-hyperglycemic and anti-atherogenic which is primarily attributed to their antioxidant activity. Pomegranate can be used in various forms such as juice, peel, leaf, flower, and seed. Pomegranate juice contains several bioactive compounds, including polyphenols and non-phenolic acids, which act as antioxidants, anti-inflammatories, antimicrobials, and anticancer agents. However, the specific effects of pomegranate on insulin and glucose regulation in humans are still inconclusive. This review aims to examine the evidence regarding the role of pomegranate extract in insulin resistance and PCOS.

Keywords: Insulin resistance; PCOS; polyphenol; pomegranate

DIGITAL POSTER PRESENTATION

Assessment of Menstrual Hygiene Management Practices and Its Associated Factors

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ABSTRACT

Background: Inappropriate practice of menstrual hygiene management (MHM) among female students is a global issue that leads to many consequences in the medical and education sectors. This study aims to assess the level of MHM practices and associated factors among secondary school girls in Kuantan, Pahang. Methods: A cross-sectional study was conducted in seven selected secondary schools in Kuantan, by using multi-stage stratified sampling. A validated questionnaire was utilised to assess socio-demographic factors, menstrual history, and the level of menstrual hygiene management practices. Chi-square test, Fisher's exact tests, and multivariate logistic regression analyses were employed to examine the variables associations. **Results:** From total of 754 secondary schoolgirls, 74.9% and 78.6% from urban and rural areas exhibited poor MHM. Several parameters indicated significant differences (p<.05) between the MHM practices among students in both areas, including changing panties frequently during menstruation, disposing sanitary pads in the toilet bowl, availability of sanitary bins prepared by the school for disposal, and refraining from visiting religious places during menstruation. Being a Form 3 student [OR=2.63: 95% CI (1.23-5.65)] had a significant association with poor MHM practice among urban schoolgirls, while having older siblings was associated with lower risk of poor MHM practices in rural schoolgirls [OR=0.57: 95% CI (0.37-0.88)]. **Conclusion:** Secondary school students from urban and rural areas in Kuantan have an overall poor level of MHM practices. Education on menstrual hygiene is needed especially to promote better menstrual hygiene practices among secondary school students.

Keywords:　　Factors; menstrual hygiene; Pahang; practice

Effectivity of Chinese Medicine Lianhua Qingwen for Treating COVID-19

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ABSTRACT

Lianhua Qingwen Capsule is a traditional Chinese medicine well-known in China and Indonesia for relieving COVID-19 symptoms, such as respiratory issues, fever, and boosting immunity. This remedy is based on the ancient Yin Qiao San and Ma Xing Shi Gan recipes. Its main components include Forsythia, Honeysuckle, Ephedra, Banlangen, and Mianma. A literature review was conducted using databases like NCBI, Elsevier, and Springer with keywords COVID-19, Lianhua Qingwen, traditional Chinese medicine, and meta-analysis. Inclusion criteria were studies published from 2019 onwards. Nine studies with 1,152 COVID-19 participants met the criteria and were analyzed using Oxford's CE-EBM criteria. The results indicated that Lianhua Qingwen (LHQW) increased recovery rates and alleviated primary symptoms like fever, cough, and fatigue, reducing exacerbation rates. The observation group had a total effective rate of 81.8% compared to 54.5% in the control group. The treatment group showed significant improvements in fever (OR = 3.43, 95% CI 1.78, 6.59), cough (OR = 3.39, 95% CI 1.85, 6.23), and fatigue (OR = 2.82, 95% CI 1.44, 5.53) with no heterogeneity in results (I = 0%). Furthermore, the treatment group outperformed the control group in relieving chest tightness (OR = 3.02, 95% CI 1.23, 7.42) and shortness of breath (OR = 10.13, 95% CI 3.69, 27.79). Overall, Lianhua Qingwen significantly reduced COVID-19 symptoms, although further research is needed to confirm its efficacy in COVID-19 therapy.

Keywords: COVID-19; Lianhua Qingwen; traditional chinese medicine

Effect of Gel and Peel Extract of *Aloe vera* on *Staphylococcus aureus* Colonies

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ABSTRACT

Aloe vera is believed to have antibacterial agent in it. Therefore, this study discusses about the antibacterial effects of *Aloe vera* extract on *Staphylococcus aureus* bacteria. This study tested the Minimum Inhibitory Concentration (MIC) in vitro using gel and peel from *Aloe vera* that has been extracted to determine the antibacterial effects of *Aloe vera*. The results showed that there were inhibition zone on ethyl acetate extract of *Aloe vera* gel and on ethyl acetate extract of *Aloe vera* peel, but there were bigger inhibition zone in ethyl acetate extract of *Aloe vera* gel than in ethyl acetate extract of *Aloe vera* peel.

Keywords: *Aloe vera* gel extract; *aloe vera* peel extract; antibacterial; *Staphylococcus aureus*

Glycemic Control and Its Associated Factors in Type 2 Diabetes Mellitus Patients in a University Hospital at Pahang, Malaysia

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ABSTRACT

Poor glycemic control is a main public health problem among type 2 diabetes mellitus (T2DM) patients and a significant cause of the development of diabetic complications. This study aims to determine the prevalence and factors associated with glycemic control in T2DM patients in a selected hospital university in Kuantan. This cross-sectional study was conducted among 205 adults attending a medical clinic at Sultan Ahmad Shah Medical Center (SASMEC), Kuantan, Pahang from August to September 2023. A self-administered questionnaire was used for socio-demographic data and clinical data were retrieved from the patient's medical record. The HbA1C >7.0% is defined as poor glycemic control. Descriptive statistics and regression tests were performed for data analyses. The mean age of respondents was 60.7. Most of the respondents were male (51.7%), Malay (93.7%), married (91.7%), and had T2DM for more than 10 years (51.7%). The prevalence of poor glycemic control of DM was 64.9%. The risk factors that were significantly associated with poor glycemic control include duration of DM for more than 10 years (AOR=2.316, CI=0.157 – 0.620), insulin users only (AOR=5.468, CI=1.460-20.482), and both oral diabetic agents and insulin users (AOR=3.320, CI=1.539-7.161). The probability of having poor glycemic control was 0.7 times less likely among those aged 65 and above (AOR=0.312, CI=0.157- 0.620). The prevalence of poor glycemic control of T2DM was high and significantly associated with younger age, longer duration of DM, and the medications used. Therefore, DM with these factors needs to be targeted for early intervention to prevent life-long complications of diabetes.

Keywords: Glycemic control; hospital university; risk factors; type 2 diabetes mellitus (T2DM)

Influence of Patient Satisfaction on Patient Loyalty with Organizational Citizen Citizenship Behavior (OCB) and Healthscape in Outpatient Clinics at Pratama Clinic POLKES 05.09.28 for Reducing Patient Complaints

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ABSTRACT

Patient satisfaction is defined as "an individual's personal evaluation of health services and providers." Individual satisfaction influences patient retention and doctor claims. It impacts the provision of timely, efficient, and patient-centered quality healthcare services. The purpose of this study is to determine the impact of patient satisfaction on OCB and Healthscape in fulfilling understanding and loyalty at the Clinic Facility. The participants of this study are outpatients at Pratama Clinic Polkes 05.09.28 Bangkalan. For quantitative and statistical analysis purposes, data collection was done using a population survey method. The factual testing of each suspected relationship using PLS was conducted with bootstrapping techniques on patient satisfaction towards OCB and Healthscape. From the t-test table, the effect of the patient satisfaction variable on persistent fulfillment ranges from 0.000 to 0.050, while the determined t-value is 3.550, meaning the hypothesis is accepted, and patient satisfaction significantly influences customer fulfillment and patient loyalty. The findings result in increased satisfaction and retention of clinic customers for reducing patient complaints.

Keywords: Healthscape; organizational citizenship behavior; patient satisfaction

Mechanism of *Mitragyna speciosa* in Inhibiting IL-6 Expression in a Model of Acute Systemic Inflammation

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ABSTRACT

Background: Inflammation is the immune system's response to noxious stimuli from infectious or non-infectious pathogens. This systemic inflammation will trigger the activity of inflammatory mediators of cytokines and chemokines as an effort to defend the body, such as TNF-α, IL-6, MCP-1 and other inflammatory mediators. Indonesia is a tropical country that has biodiversity which is used as an adjunct in the treatment of a disease in the community. One of them is *Mitragyna speciosa* which is a family of Rubiaceae which grows a lot in Kalimantan, especially West Kalimantan and is known as Kratom or Purik. *Mitragyna speciosa* has been widely used as in minor ailments such as fever, diarrhea, diabetes, pain, as a wound dressing, as well as to reduce tension and fatigue of physical work. Although it has been used in certain groups of people, the effectiveness of using *Mytragina speciosa* has not been scientifically proven yet. **Objective:** Therefore, the aim of this study was to determine the phytochemistry and mechanism of *Mitragyna speciosa* in inhibiting the expression of IL-6 in a model of acute systemic inflammation. **Methods:** The stages of this research are using several study approaches, namely: (i) in vitro studies, namely knowing the phytochemicals of *Mitragyna speciosa* to determine the specific content that has the potential as anti-inflammatory. (ii) In vivo studies using experimental animals musmusculus mice were given LPS 10 mg/KgBW to get an acute inflammatory process. Then given therapy with methanol extract of *Mytragyana speciosa* as much as 75 mg, 150 mg and 200 mg/kg BW. Then evaluated for complete blood count, liver histology, and inflammatory mediators IL-6 by ELISA. **Results:** The results of this study showed that the extract of kratom (mytragina speciosa) had an effect in reducing liver hepatocytes in mice induced by lipopolysaccharide (LPS) significantly (P<0.05), and decreased the proinflammatory cytokine IL-6 in the blood (P<0.05).

Keywords: IL-6; inflammation; *Mitragyna speciosa*

Optical Coherence Tomography Characteristics of Diabetic Macular Oedema and Its Association with Near Vision among Patients Presented at an East Coast Malaysia Hospital

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ABSTRACT

This study aimed to identify characteristics of diabetic macular oedema (DMO), describe its staging using SD-OCT and determine the correlation between DMO staging and near vision acuity. A cross-sectional study was conducted among DMO patients at Ophthalmology Clinic, SASMEC@IIUM from January 2021 to January 2023. OCT images were analysed and staged according to the European School for Advanced Studies in Ophthalmology (ESASO) classification termed as "TCED-HFV". One-way ANOVA was used with p-value <0.05 considered statistically significant through IBM SPSS®. Total of 89 eyes of 89 patients were included with mean age 60 years old. Majority of patients were Malay (94.4%), had Type 2 DM (97.8%) with duration of DM less than 10 years (58.4%). Through OCT examination, only 3.4% patients have thickness (T) of less than 10% increase above upper normal values. 64% have mild cysts (C) and 67.4% have disrupted ellipsoid zone and/or external limiting membrane (EZ/ELM). Disorganisation of retinal layer (DRIL) was present in 71.9% of patients whereas 53.9% patients had hyperreflective foci (H) of more than 30. Subretinal fluid was absent in 74.2% patients. 56.2% patients do not have visible adhesion or traction between vitreous cortex and retina. For staging, 67.4% of patients were considered advanced DMO, followed by early DMO (21.3%), severe DMO (7.9%) and atrophic DMO (3.4%). In addition, there was no correlation found between DMO staging and near vision acuity (p = 0.133). The ESASO OCT-Based Classification gives standard images for easy daily use and provides comprehensive description of OCT images and biomarkers.

Phytopharmaceutical and Impacts of Utilising Sirih (*Piper betle*) in Treating Leucorrhoea: Literature Review

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ABSTRACT

The sirih (*Piper betle*) culture in Indonesia is multifaceted and encompasses various aspects such as social interaction, religious beliefs, cultural symbols, and health implications. *P. betle* has demonstrated antibacterial and antifungal activities against human pathogens. According to various studies, sirih pinang has a beneficial impact on a woman's reproductive system. This study aims to analyze whether preserving the practice of consuming sirih is effective in treating leucorrhoea. Leucorrhea is a common complaint among women of reproductive age. It may be a physiological or pathological occurrence in women's bodies. Various scientific databases were searched for articles related to the medicinal antimicrobial properties of *P. betle*. The search engines used in this review were PubMed, Google Scholar, ScienceDirect, and Scopus, published in the year 2014-2024. Phytochemicals that work as antimicrobial properties found in *P. betle* are piperazine, flavonoids, and phenolic compounds by damaging the cell wall and cell membranes of bacteria restricting their growth, further leading to cell death and lysis. In conclusion, the practice of utilising sirih is beneficial in treating leucorrhoea due to its phytochemicals as antimicrobial properties. In the Community view, sirih is a complete treatment for women's health. It is expected that there will be more research related to the dose of sirih herb used so that it could be developed by the local culture-based herbal medicine to support services in health facilities. This literature review suggests a strong basis for implementing the use of sirih as an alternative medicine.

Keywords: Antimicrobial; leucorrhea; phytopharmaceutical; *Piper betle*

Prevalence and Associated Factors of Depression and Anxiety among Elderly in FELDA Bukit Sagu 1

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ABSTRACT

Background: Mental health issues like depression and anxiety significantly affect the aging population globally, including Malaysia. Awareness of these conditions is particularly low among the elderly in rural communities. This study aimed to determine the prevalence and associated factors of depression and anxiety among the elderly in FELDA Bukit Sagu 1. **Methods:** A cross-sectional study was conducted involving 300 randomly selected elderly households in FELDA Bukit Sagu 1. Participants were aged 60 and above. The study utilized questionnaires divided into five sections: sociodemographic data, Geriatric Depression-15 (GDS-15), Generalized Anxiety Disorder-7 (GAD-7), International Physical Activity Questionnaire (IPAQ), and Modified Barthel Index (MBI). All questionnaires were validated Malay versions. The chi-square test was used for bivariate associations, and multiple logistic regression determined the associations between various factors and depression or anxiety. **Results:** The prevalence of depression and anxiety among the elderly in FELDA Bukit Sagu 1 were 21.6% and 8.2%, respectively. Chronic diseases were significantly associated with depression (AOR = 2.470, 95% CI: [1.076, 5.667], p = .033). Elderly individuals living alone were more likely to suffer from anxiety (AOR = 6.117, 95% CI: [1.191, 31.430], p =.030). **Conclusion:** The study revealed a high prevalence of depression and a lower prevalence of anxiety among the elderly in FELDA Bukit Sagu 1. Chronic diseases were notably associated with depression, while living alone was strongly linked with anxiety. To preserve mental well-being and prevent deterioration in the elderly, appropriate measures must be implemented.

Retrospective Cohort study Surgical Site Infection Rates in Paediatric Orthopaedic Surgery at a Tertiary Medical Centre from 2017-2022

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ABSTRACT

Introduction: Surgical Site Infections (SSIs) pose significant challenges in pediatric orthopedic surgery, leading to extended hospitalization, increased healthcare costs, and potential complications. This study aims to investigate the incidence, risk factors, and outcomes of SSIs in pediatric orthopedic surgery patients at a tertiary medical center over a five-year period. **Method:** A comprehensive retrospective analysis of medical records from a tertiary medical center was conducted. The study included pediatric patients who underwent orthopedic surgical procedures between 2017 and 2022. Data collected encompassed patient demographics, surgical procedures, preoperative wound classifications, and SSIs graded according to the Southampton Classification system. **Result:** A study of 304 pediatric orthopedic surgery patients found that 29 (9.45%) developed SSIs, with a gender distribution of 196 males and 108 females. Preoperative wound classification revealed 51.45% of patients were Class-I, with most in Grade 0. Comorbidities and hospital stay were identified as significant risk factors for SSIs. **Conclusion:** This study found a 9.45% incidence of SSIs in pediatric orthopedic surgery patients. Gender disparities in SSI rates were not significant. Most cases had a Class-I wound classification. Comorbidities and hospital stays over 7 days were identified as risk factors. The impact of COVID-19 on reduced admissions was acknowledged. This research highlights the importance of managing comorbidities and monitoring hospitalization duration for better outcomes in pediatric orthopedic surgery. Larger studies are needed to validate these findings and inform preventive strategies.

Keywords: Complication rates; paediatric orthopaedics; retrospective study; risk factors: surgical outcomes

The Cytotoxic Effect of *Cananga odorata* (CO) Essential Oil on Skin Cancer

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ABSTRACT

Cananga odorata (CO) is a flowering plant native to tropical Asia in which its essential oil has the potential to be used in the medical field as it is proven to have antibacterial properties, and some reported it to have anticancer and antioxidant properties. The aim of our study is to assess the effect of CO EO on human skin cancer namely A431 cancer cell on its viability and on Tp53 gene and p53 protein expression on cancer cells. Method: Commercially available HFF1 and A431 cell lines were used in this study and were treated with cisplatin and CO EO. ELISA microplate reader was used in order to calculate the percentage of cell viability. The morphology of the treated and untreated cells was studied at 10-20x magnification using an inverted light microscope. Protein secretion and expression study was done using RIPA extraction and lysis buffer. Gene expression levels of the Tp53 were determined by western blot and real-time PCR. Cell morphology study of the A431 cell lines showed the treated cell lines lost its margin and there increase of non-viable cells in the treated group. Study of p53 protein secretion showed significant upregulation of p53 protein secretion on treated A431 cell lines. However, gene expression study of Tp53 gene of the A431 cell showed significant downregulation at lower CO EO concentrations level. Our findings suggest that CO EO exhibits antiproliferative effects on the human skin cancer cells line. However, further study needs to be done to explore more on the mechanism and other proteins and genes that contribute to apoptosis of the cancer cells.

Keywords:　　A431; *Cananga odorata* (CO); p53; skin cancer; ylang-ylang

The Knowledge, Attitude and Perception of IIUM Pharmacy Students Towards Doping in Sports

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ABSTRACT

Intoduction: This study aims to assess the knowledge, attitude and perception of IIUM pharmacy students towards doping in sports. **Materials and methods:** This is a cross-sectional study involving 206 pharmacy students of IIUM from Year 1 to Year 4. A universal sampling method was used, and data were collected using an online validated questionnaire. The data were analysed using SPSS version 23 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to analyse sociodemographic data and Chi-square test was used to determine the association between sociodemographic factors and the knowledge, attitude and perception of the respondents. **Results:** The total median score for knowledge of the respondents in this study is 4.0 (IQR = 3.0) which indicates poor knowledge (50.0%) while the median score for attitude is 12.0 (IQR = 6.0), thus classified as a negative attitude. As for the perception, the total median score is 18.0 (IQR=3.0), indicating a good perception towards anti-doping prevention strategies. This study revealed a significant association between students' attendance in courses related to drugs in sports and their level of knowledge on doping. Additionally, it demonstrated a correlation between students' attitudes towards doping offenses and their gender. However, this study found that factors such as sex, CGPA, and attendance in courses related to drugs in sports did not significantly impact student. **Conclusion:** IIUM pharmacy students have a positive perception of anti-doping prevention strategies but lack knowledge and hold negative attitudes towards sports doping.

Keywords: Attitude; doping; knowledge; perception; pharmacy students

The Relationship between the Duration of Hypertension and the Level of Depression in Hypertension Patients at Poli the Heart and Blood Vessel Disease RSI Surabaya Jemursari

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ABSTRACT

Hypertension is one of the risk factors that can increase the occurrence of depression. Generally, people diagnosed with hypertension have a difficult experience and also often experience somatic symptoms that cause a low quality of life for patients. All of these factors can cause people diagnosed with hypertension to tend to be easier to get psychological pressure, especially depression. The objective in in this research is to determine the relationship between the duration of hypertension with the rate depression in hypertension patients at the heart and vascular polyclinic of the Surabaya Jemursari Islamic Hospital. This type of research is analytic observational with purposive sampling. Respondents in this study were hypertension patients who were treated at the cardiovascular and vascular disease polyclinic at the Surabaya Jemursari Islamic Hospital, amounting to 67 people. Collecting data using a depression rate questionnaire Patient Health Questionnaire (PHQ-9). The result is known that from 67 respondents it was found that the majority had hypertension for 1-5 years, namely 37 respondents (55.2%), 6-10 years as many as 12 respondents (17.9%) and more than 10 years as many as 18 respondents (26.9%). And as many as 13 respondents (19.4%) had no symptoms of depression, 50 respondents (74.6%) had mild depressive symptoms, 4 respondents (6%) had mild depression and there were no respondents with moderate or severe depression. After the data was processed using the chi square test with a confidence probability of p value=0.05 to determine the relationship between the two, the p-value was 0.106, because the p-value>0.05. Then the research hypothesis is rejected. The conclusion is there is no relationship between the duration of hypertension with the rate of depression in patients with hypertension at the heart and vascular polyclinic of the Surabaya Jemursari Islamic Hospital.

Keywords: Duration of hypertension; hypertension patient; rate of depression

The Role of Docosahexaenoic Acid (DHA) from Algae in Underweight Pregnant Women: Insights into the Insulin Resistance Pathway (Glucose, Insulin, HOMA-IR)

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ABSTRACT

Background: Underweight pregnant women are at risk for metabolic issues that can endanger both maternal and fetal health. Docosahexaenoic acid (DHA), a type of omega-3 fatty acid found in algae, has demonstrated potential benefits for insulin resistance. Therefore, more research is needed to understand its precise effects on glucose levels, insulin, and the Homeostatic Model Assessment of Insulin Resistance (HOMA-IR) in underweight pregnancies. **Methods:** In this study, a cohort-experimental design was used to examine the impact of algae-derived DHA supplementation on glucose metabolism and insulin resistance in underweight pregnant women. Utilizing a one-group pretest-posttest method, the randomized controlled trial included pregnant women with a BMI below 18.5 kg/m and UAC under 23.5 cm. Non-probability sampling techniques, including quota and purposive sampling, were used to select participants. A total of 21 underweight pregnant women were given 100 mg of DHA daily and had their insulin levels assessed before and after the two-month intervention. **Results:** The DHA supplementation group showed significant improvements after two months. Analysis of glucose levels before and after DHA supplementation revealed a notable decrease ($p = 0.002$, <0.05). Similarly, the HOMA-IR values also significantly decreased pre- and post-supplementation ($p = 0.001$, <0.05). The analysis of the relationship between insulin and glucose indicated a significant p-value of 0.001 (< 0.05) with a strong positive correlation ($r = 0.650$). Additionally, the relationship between insulin and HOMA-IR was significant ($p = 0.000$, <0.05), showing a very strong positive correlation ($r = 0.924$). The relationship between glucose and HOMA-IR was also significant ($p = 0.000$, <0.05), with a strong positive correlation ($r = 0.808$). **Conclusion:** Algae-derived DHA supplementation shows potential in improving glucose metabolism and reducing insulin resistance in underweight pregnant women. This supplementation could be a viable treatment to enhance health outcomes for both mothers and their babies.

Keywords: Algae DHA; underweight pregnancy; insulin resistance; glucose metabolism; HOMA-IR