LUSTRUM XII UNIVERSITAS BRAWIJAYA
"GREEN PARADIGM AND INNOVATIVE ACTIONS FOR SUSTAINABLE PROSPERITY"

PROGRAM BOOK

Brawijaya International Conference

on Medical, Health & Life Sciences

24 November 2022
Auditorium, 6th floor, Education Center Building, Faculty of Medicine,
Universitas Brawijaya, Malang, Indonesia

Hosted by:

BRAWIJAYA INTERNATIONAL CONFERENCE

Opening Remarks

Rector of Universitas Brawijaya

I would like to extend our warmest welcome to all keynote speakers and participants of the Brawijaya International Conference (BIC) entitled "Brawijaya International Conference on Medical, Health & Life Sciences". This conference is part of the Brawijaya International Conference series in 2022.

We are pleased to have outstanding scholars and practitioners as conference speakers to share their insights on Medical, Health & Life Sciences for improving the quality of life.

I believe that this conference will foster vibrant exchanges and dynamic collaborations among researchers and practitioners. We are delighted to have speeches from respectable keynote speakers. Talks will be presented by:

- Prof. Dr. Antje J Baeumner, from University of Regensburg, Germany
- Prof. Drs. Sutiman B Sumitro, SU., DSc from Universitas Brawijaya, Indonesia.
- Assoc. Prof. Dr. Mariena Ketudat-Cairns Ph.D from University of Technology, Thailand
- Assoc. Prof. Dr. Ahmad Faizal Abdull Raziz, MSc, Ph.D, from Institute of Bioscience Universiti Putra Malaysia

These enlightening speeches could inspire our scholarly endeavors to advance the synergy among science and technology for managing global health crisis and improving the quality of life.

The organization of the Brawijaya International Conference requires great support. I would like to sincerely thank all individuals who have given support in every possible way to make this conference a reality. I would also like to thank all authors and registered participants especially our guest participant from aboard:

- Assoc. Prof. Werasak Surareungchai from King Mongkut's University of Technology Thonburi, Thailand and team
- Dr. Patsamon Rijiravanich from BIOTECH, Thailand and team

- Angelo dela Tonga M.Sc from University of Philippines and team for their stimulating academic contributions at this conference.

With the hybrid setting in the conference program, I hope every participant has a unique Brawijaya International Conference experience and creates long-lasting friendships, professional collaborations, and beautiful memories. Thank you, and have a great conference!

Sincerely,

Prof. Widodo, S.Si., M.Si., PhD
Rector of Universitas Brawijaya

Opening Remarks

Chair of the Professor Council Universitas Brawijaya

Assalamualaikum Wr. Wb.

Good morning ladies and gentlemen, fellow speakers, and our audience joining us online, from around the world.

Ladies and gentlemen, on behalf of the organising committee, I am proud to physically and virtually welcome everyone to Malang, Indonesia in the Brawijaya International Conference (BIC) Series Faculty of Medicine Universitas Brawijaya on Medical, Health, and Life Sciences 2022. This year, the joint conference is hosted by three Faculties including Faculty of Medicine Universitas Brawijaya in conjunction with the Academic Senate and Professor Council of Universitas Brawijaya. It is such an honour for us all to be able to welcome all invited speakers, presenters, and participants in Asia and beyond to join this year's event.

The conference attempts to create a space where researchers and practitioners can exchange academic knowledge and create networks among scholars with similar interests. This year's theme "Medical, Health, and Life Sciences" and its 10 sub themes have attracted 28 presenters and more than 100 participants. Our keynote, plenary, and featured speakers have considered these topics and we look forward to hearing a variety of perspectives in science, technology, and beyond. The keynote speakers are from Indonesia (Prof. Drs. Sutiman B Sumitro, SU., DSc), Germany (Prof. Dr. Antje J Baeumner), Thailand (Assoc. Prof. Dr. Mariena Ketudat-Cairns Ph.D), and Malaysia (Assoc. Prof. Dr. Ahmad Faizal Abdull Raziz, MSc, Ph.D.). In total, we proudly welcome speakers and participants from 6 countries, including Germany, Thailand, Philippines, Malaysia, Libya, and Indonesia.

This year's joint conference is made possible by the dedication and hard work of our committee members and the support from the Rector of Universitas Brawijaya, Dean of Faculty of Medicine, The Committee Chief of the 60th Dies Natalis Universitas Brawijaya, Doctoral Program in Medical Science, Magister Program in Biomedical Science, and ATOM Research Group. We also want to extend our gratitude to Prof. Widodo, M.Sc., Ph.D., for supporting our collaboration with the Journal of Tropical Life Science, as well as to the Chief

of Indonesian Consortium of Biomedical Science for arranging our publication in Indonesian Archives of Biomedical Research (InABR).

The hard work of everyone involved in this conference is one of the core strengths that adds tremendous value to the conference organisation. We thank all of them for volunteering their time and energy in service to our community.

Finally, we would like to thank all presenters for their willingness to share their research and ideas and all participants for their keen and active participation. Without your efforts, this conference would not be possible. We hope that you will have an enjoyable conference and productive time in Malang and virtually from all over the world, and leave with fond memories of the conference.

Thank you.

Prof.Dr. H. Armanu , SE., M.Sc.

Chair of the Professor Council Universitas Brawijaya

Opening Remarks

Chair of the Brawijaya International Conference (BIC)

As part of the efforts to achieve international recognition, participate in the global competition, and support the vision of becoming a World Class University, the Faculty of Medicine Universitas Brawijaya is organizing international seminars. One of these seminars is Brawijaya International Conference Series (BICs) on Medical, Health and Life Science. With this year's theme of "Green Paradigm and Innovative Action for Sustainable Prosperty".

This event is held to bring together leading academicians, researchers, scientists, students, and residents in related fields to exchange and share their experiences and research results. This activity also provides a key interdisciplinary platform for researchers, practitioners, and educators to present and discuss the latest innovations, trends, concerns, practical challenges faced, and solutions adopted in the fields of medicine, health and life science.

In this opportunity, I would like to extend my gratitude to the Rector of Universitas Brawijaya, Professor Council, University Academic Senate and Faculty of Medicine for supporting this conference. The success of this event is also brought by the hard work of our organizing committee, scientific and reviewer team, and students of Master Program in Biomedical Science and Students of Doctoral Program in Medical Science, to whom I am greatly thankful for. Finally, I wish for a fruitful and enjoyable time for all our guests and participants. It is of our utmost hopes that you gain the most during this event.

Sincerely,

Dr. Husnul Khotimah, S.Si., M.Kes.
Chair of Brawijaya International Conference

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Reviewer Team

- Prof. Sukir Maryanto, S.Si., M.Si., Ph.D.
- Prof. Dr. dr. Loeki Enggar Fitri, M.Kes.,Sp.Park.
- Prof. Agustina Tri Endharti, S.Si., Ph.D.
- Prof. Dra. Fatchiyah, M.Kes.,Ph.D.
- Prof. Ir. Sukoso, M.Sc., Ph.D.
- Prof. Dr. Rachmad Safa`at, SH., M.Si.
- Prof Dr. Moh. Fadli, S.H., M.Hum.
- Prof. Dr. Qomariyatus Sholihah, ST., M.Kes. IPU., ASEAN.E.

Editorial Team

- dr. Aulia Rahmi Pawestri, Ph.D. (Trop.Med.)
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- Oktavia Rahayu Adianingsih S.Farm., M.Biomed., Apt
- Tarina Widaningrum S.Si., M.P.
- Laely Hidayati, S.Pd., M.Pd.
- Freygieon Ogiek Rizal Sukma, S.Si.
- Mokhammad Luqman Hakim Haigal, S.Si.

RUNDOWN EVENT
BIC on Medical, Health and Medical Science Series Faculty of Medicine Universitas Brawijaya 2022

Thursday, November 24th, 2022

Time	Agenda	PIC
8.00-08.10	Opening UB International Webinar Series	MC: Laely Hidayati, S.Pd., M.Pd
08.11–08.15	Speech from Professor council	Prof. Dr. H. Armanu, SE., M.Sc
08.16-08.25	Opening speech	Rektor UB: Prof. Widodo, S.Si., M.Si., Ph.D. Med.Sc
1st session		
08.26-08.30	Moderator	dr. Aulia Rahmi Pawestri, Ph.D.
08.31-09.00	**1st invited speaker:** Designing multifunctional nano materials for the POCT and on-site detection	Prof. Dr. Antje J Baeumner
09.01-09.30	**2nd invited speaker:** The Use of Mist Physiological level Hydrogen Peroxide for Room Disinfection.	Prof. Drs. Sutiman B Sumitro, SU., DSc,
09.31-09.50	Discussion	Moderator
09.51-10.00	Souvenirs for invited speakers & moderator	MC: Laely Hidayati, S.Pd., M.Pd
10.01-10.15	Coffee break	Organizing Committee
2nd session		
10.16-10.20	Moderator	Prof. Dra. Fatchiyah, M.Kes., Ph.D
10.21-10.50	**3rd invited speaker:** Molecular Biology (ARMs-PCR to detect SNPs) to Improve Crossbreed Cattle and 2XPLUS for Sex Selection	Assoc. Prof. Mariena Ketudat-Cairns Ph.D
10.51-11.20	**4th invited speaker:** Natural remedies from plant resources for sustainable medicine security	Assoc. Prof. Dr. Ahmad Faizal Abdull Raziz, MSc. Pd.D
11.21-11.40	Discussion	Moderator
11.41-11.50	Souvenirs for invited speakers and moderator	MC: Laely Hidayati, S.Pd., M.Pd

11.51-12.50	Lunch Break	Organizing Committee
12.51-15.30	**Parallel session for oral presentation***	Organizing Committee
15.30-15.50	Announcement of best presenters	MC: Laely Hidayati, S.Pd., M.Pd
15.50-16.00	Closing	MC: Laely Hidayati, S.Pd., M.Pd

*Parallel Session: Oral Presentation of Selected Papers
Room 1: Biology and Biomedical Sciences 1

Judges : Prof. Dr. dr. Respati S. Dradjat, Sp.OT(K)
Prof. Dr. Teti Estiasih, STP, MP
Facilitator : dr. Happy Kurnia Permatasari, Ph.D.
Committee : Dita Nur Azizah

Abstract number	Title	Presenter
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5457	Characterization of Morphology and Elements Composition Alginate Impression Materials using Scanning Electron Microscope	Taat Guswantoro, Rachmat Hidayat, Freddy Haryanto, Heri Sutanto, Tri Miswantari
5926	Development of ANA and ANTI-DFS70 Rapid Test for The Diagnosis of Systemic Lupus Erythematosus	Kusworini Handono, Hani Susianti, Syahrul Chilmi, Rahmatul Yasiro Andrea Aprilia, Natalia Sukarta
5954	Role of ACTH 4-7 Pro8-Gly9-Pro10 (ACTH-PGP) to Improve Level of Consciousness in Patients with Traumatic Brain Injury	Dwiwardoyo Triyuliarto, Aurick Yudha Nagara, Antonius Freddy, Moch.Istiadjid, Eddy Santoso
9610	Increase of Cytokines and Malondialdehyde Levels in Murine Lacrimal Gland Tissue After Cigarette Smoke Exposure: A Post-Test Experimental Study	Hendriati Hendriati, Muhammad Syauqie
5406	Avian Cellular Immune response: A critical Mechanism in Developing Resistance against Toxoplasma gondii	Hana. A. Ali, Teguh Wahju Sardjono, Loeki Enggar Fitri, Aulanni'am, Monier A. Mohamed Sharif
9511	The Effect of Obesity on Interleukin-6 Levels, Leptin Levels, Lung Function, and Risk of Obstructive Sleep Apnea	Susanthy Djajalaksana, Christian S.E. Putra, Abdul Haris, Yani J Sugiri, Seskoati Prayitnaningsih

*Parallel Session: Oral Presentation of Selected Papers
Room 2: Biology and Biomedical Sciences 2

Judges : Prof. Dr. Dra. Sri Winarsih, Apt., M.Si.
Prof. Yusuf Hendrawan, STP, M.App.Life Sc., Ph.D.
Facilitator : Dr. dr. Dian Nugraheni, M.Biomed
Committee : Savira Oktavia Ainiyati

Abstract number	Title	Presenter
4669	Effect of *Centella asiatica* Ethanol Extract in Improving Sleep Latency Through Regulation of BDNF and Caspase 3 Expression in Zebrafish Larval Insomnia Model (*Danio rerio*)	Annisatul Hakimah, Zamroni Afif, Shahdevi Nandar Kurniawan, Hikmawan Sulistomo, Husnul Khotimah
8648	In Vivo Antimicrobial Activity of *Thymus vulgaris* Against *Salmonella Typhimurium*	Emad Khaleefah Abousouh, Agustina Tri Endharti, Sanarto Santoso, Dewi Santosaningsih
2188	Metabolite Profiling of Antiviral Activity in 96% Ethanol Extract Saussurea lappa	Avin Ainur Fitrianingsih, Sumarno Reto Prawiro, Setyawati Soeharto, Maria Inge Lusida, Roihatul Muti'Ah
NA	Acute and Subchronic Toxicity Test of the Ethanolic Stem Bark Extract of Pakoba (*Tricalysia minahassae*)	Juliet Tangka, Elisabeth N. Barung, Yos Banne, Jovie M. Dumanauw, Michael V.L Tumbo
5113	Cisplatin's effect on oestrous cycle of rat model for premature ovarian insufficiency	Roza Silvia
6850	Effect of Multiple Types of High-fat diet Induction on Gut Microbiota Profile and Butyrate Levels: A Randomized Controlled Trial on NAFLD Rat Model	Syifa Mustika, Nabila Ramadhani, Novita Apramadha Kartika Sari, Dewi Santosaningsih
NA	The Development of Periodontitis Vaccine through IgY Induction from Hen's Egg Yolk Against *Porphyromonas gingivalis*	Ranny Rachmawati, Angela Putri Bunga, Naora Dewi, Regina Putri Gita, Yosua Halim, Fahmi Tsani
NA	The Role of Estrogen in Residual Ridge Remodeling Post Tooth Extraction	*Ester Handayani Lodra*

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*Parallel Session: Oral Presentation of Selected Papers
Room 3: Medical Technology

Judges : D.Eng. Novanto Yudistira, S.Kom., M.Sc.
Prof. Dr.Eng. Agus Naba, S.Si., M.T
Facilitator : dr. Aulia Rahmi Pawestri, Ph.D.
Committee : Hanifa Rizky Rahmawati

Abstract number	Title	Presenter
672	Analysis of Histogram and Grayscale on Chest X-Ray Computed Radiography Image in Covid-19 Disease vs Normal	Hernastiti Sedya Utami, Ika Mentari Putri Rahmawati, Rifdatul Reski
7772	Analysis The Examination Procedure of MR Imaging Lumbal in Pleural Effusion Suspected of Tuberculosis	Fani Susanto, Arga Pratama Rahardian, Lutfiana Desy Saputri, Widya Mufida
8586	Multi-Layer Variations on Generative Adversarial Networks (GANs) for Generate Syntetic X-ray Image	Muhammad Masdar Mahasin, Yuyun Yueniwati P. W., Agus Naba, Chomsin Sulistya Widodo
8707	Regression Model for Measurement Scale on Wound Dimensions using Webcam and Lidar Sensor	Setyawan Wibowo, Anthonius Adi Nugroho, Lukman Awaludin, Luthfi Hidayat
4466	Learning Walking Stimulator Design for Babies Aged 9 – 12 Months with The System Electronic Safety	Islamiyati Islamiyati, Sadiman Sadiman, Yoga Triwijayanti, Riza Muhida
6410	Creating a Modified Toothbrush Handle with a 3D Printer	Yunita Widiastuti, Sri Widiati, Indah Titien Soeprihati, Guritno Adistyawan

*Parallel Session: Oral Presentation of Selected Papers
Room 3: Clinical and Social Medicine

Judges : Prof. Dr. Qomariyatus Sholihah, Amd.hyp., S.T., M.Kes.
Dr. Lilik Zuhriyah, SKM, M.Kes.
Facilitator : dr. Holipah, Ph.D.
Committee : Ayu Mei Wulandari

Abstract number	Title	Presenter
776	Diabetes Mellitus Profile in Indonesia: An Analysis from the GBD Study 2019	Muhammad Agus Mikrajab, Suparmi, Sinta Dewi Lestyoningrum
7236	Tetanus in Elderly	Annisa Nurul Arofah, Badrul Munir
7714	Perception of Distance Learning among Undergraduate Medical Students during Covid-19 Pandemic	Desy Nofita Sari, Rizkia Chairani Asri, Zurayya Fadila
8741	Blood Pressure, BMI, and The Castelli Risk Index Among Young Female Adult and The Association with The Physical Fitness Index.	Desy Nofita Sari, Welan Rahmani, Fathiyyatul Khaira, Atika Indah Sari
9019	The Castelli Risk Index- 1 and Castelli Risk Index-2 are higher in young female adults with more cardiovascular disease risk factors	Fathiyyatul Khaira, Rahmani Welan, Atika Indah Sari, Desy Nofita Sari
4974	The effectiveness of the Marmet technique breast massage is comparable to standard breast massage	Ika Oktaviani, Warjidin Aliyanto

Part 1

Biology and Biomedical Sciences

Abstract ID: 2188

Metabolite Profiling of Antiviral Activity in 96% Ethanol Extract *Saussurea lappa*

Avin Ainur Fitrianingsih, Sumarno Reto Prawiro, Setyawati Soeharto, Maria Inge Lusida, Roihatul Muti'Ah

Background: Saussurea lappa is a plant of the Asteraceae family, known as a medicinal plant with the potential as an antiviral. Compounds of the sesquiterpenes lactone group have been reported as the compounds with the highest concentrations in this plant.
Purpose: This study aims to identify metabolites and evaluate the antiviral activity of the ethanol extract of *S. lappa.*
Methods: *Saussurea lappa simplicia* was extracted using Ultrasound-Assisted Extraction with 96% ethanol solvent. Identification of active metabolites was carried out using the UPLC-MS/MS method. The mobile phase was a mixture of water/formic acid 99.9/0.1 [v/v] and acetonitrile/formic acid 99.9/0.1 [v/v] with a gradient elution system and C18 stationary phase. Evaluation of the antiviral activity of the compounds was carried out using the PASS SERVER method.
Results: Twelve metabolites have been obtained, namely (1) Myristicin, (2) Saussuramine D, (3) Saussuramine C, (4) Saussuramine B, (5) Saussuramine A, (6) Costunolide, (7) Linsidomine, (8) Spermine hydrochloride, (9) Dehydrocostus lactone, (10) Syrigaresinol, (11) Pristimerin, (12) Curcumene. The activity evaluation results showed that the compounds syrigaresinol, dehydrocostus lactone, and linsidomine have powerful antiviral potential.
Conclusion: *Saussurea lappa* root extract has a high potential to be developed as an antiviral drug candidate.

Keywords: *Saussurea lappa*; Metabolite Profiling; Antiviral; UPLC-MS/MS

Abstract ID: 4669

Effect of *Centella asiatica* Ethanol Extract in Improving Sleep Latency Through Regulation of BDNF and Caspase 3 Expression in Zebrafish Larval Insomnia Model (*Danio rerio*)

Annisatul Hakimah[1], Zamroni Afif[2,3], Shahdevi Nandar Kurniawan[3], Hikmawan Sulistomo[4], Husnul Khotimah[4*]

[1]Master Program in Biomedical Science, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia.
[2]Doctoral Program, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia.
[3]Department of Neurology, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia.
[4]Departement of Pharmacology, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia.

Background: Insomnia is a sleep disorder that can cause difficulties to fall asleep, maintain sleep and wake up early.
Purpose: The purpose of this study is to evaluate the expression of neurotrophic factor (BDNF) and caspase-3 on insomnia zebrafish larvae model exposed to *Centella asiatica* extract.
Method: This experiment used zebrafish larvae 3-day post fertilization (dpf) that had been induced insomnia since 0 dpf, then exposed to *Centella asiatica* extract 2.5, 5, and 10 µg / ml until 7 dpf. The zebrafish larvae then prepare for Real Time Quantitative Polymerase Chain Reaction (RT-qPCR) to evaluate the Brain-derived neurotrophic factor (BDNF) and Caspase 3 level. Beside, the sleep latency also measured by Ethovision tracking.
Results: The results showed that *Centella asiatica* ethanolic extract was able to increase the expression of the BDNF gene as a neuroprotector in stress conditions caused by insomnia in all concentration. In addition, exposure to *Centella asiatica* ethanol extract can also reduce the expression of the caspase 3 gene. And the sleep latency showed that *Centella asiatica* decrease the time of sleep latency gradually by increasing the concentration of *Centella asiatica*.
Conclusion: In conculsion, *Centella asiatica* could increase BDNF and decrease caspase-3 and impaired sleep latency in zebrafish insomnia model.

Keywords: Insomnia, Zebrafish, *Centella asiatica*, BDNF, Caspase 3

Abstract ID: 5113

Cisplatin's effect on oestrous cycle of rat model for premature ovarian insufficiency

Roza Silvia[1,2]

[1]*Doctoral Program in Biomedical Science, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia*
[2]*Department of Histology, Faculty of Medicine, Universitas Andalas, Padang, Indonesia*

Background: Cisplatin has been applied to induce premature ovarian insufficiency (POI) in rat model. Yet, lack data regarding its effect on oestrous cycle was found in publication.
Purpose: This study aimed to observe the cisplatin's effect on oestrous cycle as a sign of interference on fertility status of rat model for POI.
Methods: Twenty-four female Sprague Dawley rats, aged 10-12 weeks (group A, n=12) and 26-28 weeks (group B, n=12) were included in this study. Each group had two sub-groups, named as A1, A2, B1 and B2 (n=6 per sub-group). Cisplatin 3 mg/kg was injected intraperitoneally, three times (day 1, 8 and 22) to all treated sub-groups. Sub-group A2 and B2 were the control. Oestrous cycle was checked daily (around 09.00 to 10.00 am) by vaginal smear from two weeks before the first injection until two weeks post-last injection. Smears were transferred onto glass slides and then analyzed using microscope to determine the phase of oestrous cycle (proestrus, estrus, metestrus, and diestrus). Only rats with normal oestrous cycle (4-5 days/cycle) prior the injection and those which survived until the end were included in this study.
Results: Prolongation of oestrous cycle (7-8 days) was observed in all treated sub-groups, with persistent diestrus, but without proestrus and estrus-phase. Both young and older rats presented almost the same appearance.
Conclusion: Cisplatin interfered the estrous cycle of both young and older rats.

Keywords: cisplatin; oestrous cycle; vaginal smear; fertility status; premature ovarian insufficiency

Abstract ID: 5333

Characteristics and Antioxidant Activity of Solid Soap Enriched with Secang Wood (*Caesalpinia sappan* L.) Extract

Fenty Amilia[1], Romadhiyana Kisno Saputri[1*], Ainu Zuhriyah[1]

[1]Program Studi Farmasi Fakultas Ilmu Kesehatan UNUGIRI Bojonegoro, Jl. A.Yani No.10 Bojonegoro Jawa Timur

Background: Secang wood (*Caesalpinia sappan* L.) have an antioxidant activity and potential to be developed into soap. Soap is a topical preparation in solid or liquid form that used to clean the skin. The addition of secang wood extract to soap preparation can increase the antioxidant activity of the soap so can prevent damage caused by free radicals to the skin such as acne, dull skin, eczema and melasma.
Purpose: This study aims to determine the characteristics and antioxidant activity of soap enriched with secang wood (*Caesalpinia sappan* L.) extract.
Methods: Secang wood extract was prepared by maceration method using 96% ethanol solvent. Soap making by saponification method with 4 formulations, with different percentages of extracts, F0 0%; F1 1.5%; F2 3% and F3 6%. The characteristics of the soap were assessed by the organoleptic test, homogeneity test, pH test using universal indicator paper, water content test and foam height. Testing of antioxidant activity using the DPPH (1,1-diphenyl-2-picrylhydrazyl) method.
Results: The results showed that soap enriched with secang wood (*Caesalpinia sappan* L.) extract was solid, white to blackish brown in color, had a distinctive smell, homogeneous, pH ranged from 9-10, water content ranged from 0.20% - 0.22% and foam height with a value of 9.83cm - 10. 16cm. The IC50 values for all formulations were 193.08 ppm; 144.9 ppm; 120.02 ppm and 119.75 ppm.
Conclusion: Soap enriched with secang wood (*Caesalpinia sappan* L.) is in accordance with SNI and have an antioxidant activity in moderate category.

Keywords: Soap Characteristics, Antioxidant, Secang Wood (*Caesalpinia sappan* L.)

Abstract ID: 5406

Avian Cellular Immune response: A critical Mechanism in Developing Resistance against *Toxoplasma gondii*

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Immune response in human and other non-cat vertebrate animals which infected by *Toxoplasma gondii* have similar frame works, but previous studies showed that there were differences of immune response in avian compared to the other vertebrates. The avian immune system is genetically simpler than that of the mammalian immune system, however the avian cellular immune response including the production capacity of pro-inflammatory and anti-inflammatory cytokines can be generated in abundant. The outcome of *Toxoplasma* infection is largely dependent on the host immune defense and is highly variable between different host species. Innate and adaptive immune cells such as the dendritic cells (DC) and lymphocytes have crucial role to induce immunity although parasites have the ability to alter DC function allowing them to evade from lethal immune responses. In chicken, T-cells and their cytokine production might be critical in the process of developing resistance against *Toxoplasma gondii* infection by controlling acute dissemination and keeping the chronic infection under control. High levels of IL- 12 and IFN-γ were essential to the strong CD4+ and CD8+ T cell response. IL-17 was involved in the development and early recruitment of neutrophils, which are essential to clear the parasites during initial stages of infection. Higher levels of IL-10 were detected in infected chicken, and the production was prominent during the early stage of infection. This indicated that IL-10 might play an important role in the resistance of chicken to the early infection of Toxoplasma gondii. With regard to the hens' immunity, the crucial function of cytokines has been demonstrated so that the chicken may becoming more resistant and more potential as transmitter of disease.

Keywords: *Toxoplasma*; dendritic cells; IL12 IFNgamma; IL17; IL10; resistance

Abstract ID: 5457

Characterization of Morphology and Elements Composition Alginate Impression Materials using Scanning Electron Microscope

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Background: Making dental prostheses is very necessary for orthodontic treatment. Alginate impression material is an irreversible impression material that is widely used for dental modeling. The main content in the alginate impression material is sodium alginate which is obtained from brown algae, other ingredients are added so that the physical properties and the setting time of the impression material are to the needs of clinical action.
Purpose: The study aimed to determine the microscopic morphology and the percentage of elements contained in each granule of alginate impression material.
Methods: Alginate impression material powder is scanned using SEM and the EDX feature to obtain information on the elements contained in it.
Results: Based on the results of SEM, it was obtained that the granules of the alginate impression material contained many small pores, based on the EDX analysis, the information of elements contained was C, O, Na, Mg, Al, Si and Ca. SiO2 molecules are the largest content, amounting to 58.45% because most of the alginate impression material is diatomaceous earth which is used as filler particles.

Keywords: Alginate Impression Material, Dental Modeling, SEM, elements composition

Abstract ID: 5926

Development of ANA and ANTI-DFS70 Rapid Test for the Diagnosis of Systemic Lupus Erythematosus

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Background: Establishing or ruling out a Systemic Lupus Erythematosus (SLE) diagnosis requires a rapid and reliable test. ANA and anti-DFS70 tests have been used widely, but the examination techniques are difficult and expensive. It is necessary to develop an ANA rapid test and an easy and also inexpensive anti-DFS70.
Purpose: This preliminary study aims to establish the sensitivity and specificity of nuclear antigens and DFS70 antigens for the detection of ANA and anti-DFS70 with the dot blot method.
Methods: Nuclear antigens were isolated from the fresh blood of 2 healthy subjects using centrifugation methods. DSF70 antigen obtained from R&D Systems (RH-LEDGF cat.no 3468-LE, Lot: ODX0819071). Nuclear antigens and DFS70 were attached to the nitrocellulose membrane dot blot with a dilution of 0.1 mcg/mL. Furthermore, it was tested for sensitivity and specificity in 56 SLE patients and 34 healthy controls using the Mc Nemar test and ROC trials.
Results: The dot blot test's sensitivity and specificity for nuclear antigens are 59.4% and 67.4%. The sensitivity and specificity of the DSF70 antigen are 45.5% and 82.3%.
Conclusion: The sensitivity and specificity of Ag nuclear and Ag DFS-70 are medium, so they need to be corrected in the methods to elevate the sensitivity and specificity values.

Keywords: SLE, ANA, anti-DFS70

Abstract ID: 5954

Role of ACTH 4-7 Pro8-Gly9-Pro10 (ACTH-PGP) to Improve Level of Consciousness in Patients with Traumatic Brain Injury

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Background: Head injury constitutes 70% of mortality due to trauma, Wich 50% happened in the prehospital phase. Head injury management aimed to overcome the synthesis of thromboxane A2, prevent free radical formation, blocked the excessive effect of calcium and reduce glutamic aspartate, brain alkalization's effects and also block the cholinergic receptor. ACTH-PGP is a substance with proven ability of brain IEuron in stroke patients by suppressing brain cells apoptosis through blockade of excessive NO production and increased SOD synthesis to prevent excessive ROS production that will caspase reaction.
Purpose: This study's objective is to define the role of ACTH-PGP in increasing GCS in patients with moderate brain injury.
Methods: This study uses a simple experimental clinical study. The measured variable is the level of consciousness of moderate brain injury.
Results: The total sample is 18 Wich evenly distributed among the treatment group with ACTH-PGP and the control group. GCS evaluations were performed every 8 hours during therapy (day 1 until day 3) then followed by evaluations with 24 hours intervals until day 7. Data analysis with a t-test (independent sample test) revealed significant improvement ($p < 0,05$) of GCS level in the treatment group, compared to control on the 4th — 7th day and also on the 1st — 7th day.
Conclusion: We concluded that ACTH-PGP showed a significant role in improving the level of consciousness in moderate brain injury patients

Keywords: moderate brain injury; ACTH-PGP; GCS

Abstract ID: 6850

Effect of Multiple Types of High-fat diet Induction on Gut Microbiota Profile and Butyrate Levels: A Randomized Controlled Trial on NAFLD Rat Model

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Background: Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver disease in the world. Excessive intake of high-fat is one of the risk factors that may induce NAFLD. Dysbiosis is characterized by a decrease in Firmicutes (one of which is Clostridium spp.) and an increase in Proteobacteria (one of which is Escherichia coli) also acts as one of the pathways that leads to NAFLD.
Purpose: This study aims to explore the effect of multiple types of high-fat diet induction on gut microbiota profile and butyrate levels in rat models.
Methods This research is a randomized post control group only design using *Rattus norvegicus* strain Wistar (n = 28). Subjects were divided into four groups and given each diet for 12 weeks: normal diet (ND, n=7), high-fat diet (HFD, n=7), western diet (WD, n=7), high-fat-high-fructose diet (HFHFD, n=7). Stool samples were cultured on Eosin Methylene Blue media for *Escherichia coli* and Forget Fredette Agar for *Clostridium* spp. Colony counts (CFU/gram) and butyrate levels were measured using gas chromatography. Crosstab and Chi Square analyzes were performed for gut microbiota and Independent T-test and Mann Whitney for butyrate levels.
Results: There was a significant difference in butyrate levels between ND and HF, WD, and HFHFD (p=0.001). The mean colony of *Escherichia coli* was higher in the NAFLD-inducing diet group (HF, WD, HFHFD) rather than ND, while the mean number of colonies of *Clostridium* spp. in the control group was higher than in the NAFLD-inducing diet group (p=0.001).

Conclusion: So, there's evidence that multiple types of high-fat diets might alter gut microbiome which may lead to the development of NAFLD.

Keywords: Diet, NAFLD, butyrate, *Escherichia coli*, *Clostridium* spp.

Abstract ID: 8648

In Vivo Antimicrobial Activity of *Thymus vulgaris* Against *Salmonella typhimurium*

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Background: Infectious diseases is still stand as a major cause of morbidity and mortality complicated with the antimicrobial resistant crisis. *Thymus vulgaris* is a well-known North African traditional plant used as a medicine to treat gastrointestinal diseases such as *Salmonella* spp infections, however the mechanism of action in-vivo remains unclear.
Purpose: This study aimed to investigate the antimicrobial and anti-inflammatory effect of *Thymus vulgaris* ethanolic leave extract against *Salmonella typhimurium*.
Methods: The in-vivo antimicrobial activity was examined by the administration of 6.25 mg of the extract compared to Ciprofloxacin 2.5 mg daily for five consecutive days in BALB/c mice infected with *Salmonella typhimurium*. Data was analysed by simple linier regression.
Results: The results showed that the *Thymus vulgaris* ethanolic leave extract had a greater antibacterial effect than Ciprofloxacin. The bacterial loads of *Salmonella typhimurium* in the ileum/liver diminished 94.6% ($p<0.001$)/91.5% ($p<0.001$) and 71.0% ($p=0.021$)/64.2% ($p=0.045$) after administration of the extract and Ciprofloxacin, respectively. The TNF-alpha/IL-6 level decreased 81% ($p=0.001$)/95.4% ($p<0.001$) and 90.7% ($p<0.001$)/99.3% ($p<0.001$) after administration of the extract and Ciprofloxacin, respectively.
Conclusion: It is concluded that the ethanolic extract of Thymus vulgaris may be potential as an effective treatment for *Salmonella typhimurium* infections.

Keywords: antimicrobial, *Salmonella typhimurium*, *Thymus vulgaris*

Abstract ID: 9511

The Effect of Obesity on Interleukin-6 Levels, Leptin Levels, Lung Function, and Risk of Obstructive Sleep Apnea

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Background: Obesity is a chronic low-grade inflammatory condition associated with various medical conditions, such as increase in inflammatory cytokines. Interleukin-6 (IL-6) plays a central role in the regulation of inflammation, hematopoiesis, and immune response. Obesity affects the secretion of leptin which is adipocytokine that are secreted by adipose tissue. IL-6 is also associated with lower levels of pulmonary function.
Purpose: The study aims to analyze the effect of obesity on IL-6 levels, leptin levels, lung function, and the risk of OSA.
Methods: Cross-sectional analytic. There were 127 participants with 103 obese and 24 non obese participants. Participants were interviewed with the Epworth and STOP BANG questionnaire, Epworth score > 10 and STOP BANG score ≥ 5 indicated high risk OSA. Pulmonary function assessment using spirometry, FVC <80% shows restriction abnormalities and FEV1/FVC < 70% indicated obstruction disorders. IL-6 and Leptin serum levels were measured using the ELISA kit.
Results: Total of 59 obese participants (46.5%) had restriction disorders. There was an increase in IL-6 levels in the obese group 221.30 (1.61 – 562.48) pg/dl (p=0.359) and leptin levels 1365 (478.24 – 1607.47) pg/dl (p=0.015) compared to non obese group. Those with type 3 obesity (5%) had a higher risk of OSA with STOP BANG score ≥ 5 (p=0.003), but BMI had no effect on the Epworth score (p=0.429). There were significant difference in IL-6 levels 450 (3.62 – 542.38) pg/dl in participants with STOP BANG score ≥ 5 (p=0.028). Highest IL-6 levels was in the group of participants with obstructive pulmonary disorder of 540.65 (538.94 – 542.38) pg/dl. Leptin levels has no significant differences in both of risk of OSA (p=0.183) and lung function (p=0.266).
Conclusion: Obesity causes a significant increase in IL-6 and leptin levels. The Epworth score was not affected by BMI, but there was a significant difference in the STOP BANG score. There is a significant increase in IL-6 levels at high risk of OSA, but not so with Leptin levels. Both IL-6 and Leptin levels were not affected by lung function.

Keywords: Interleukin-6, Leptin, Lung Function, Obesity, OSA

Abstract ID: 9610

Increase of Cytokines and Malondialdehyde Levels in Murine Lacrimal Gland Tissue after Cigarette Smoke Exposure: A Post-Test Experimental Study

Hendriati Hendriati, Muhammad Syauqie

Background: Cigarette smoking has been associated with increases in inflammatory and oxidative stress markers in tear films and causes decreasing in tear film parameters value and goblet cell density.
Purpose: This study purposed to investigate the effect of acute cigarette smoke exposure on cytokine levels (IL-1, IL-6, and IL-8) and malondialdehyde levels in murine lacrimal gland tissue.
Methods: This experimental study design was posttest-only with a control group study. Thirty-six male Wistar rats, aged three months old with weighing 250 to 300 grams, were included and divided into two groups, cigarette smoke exposure and the control group. The exposure to cigarette smoke was carried out thrice a day, 30 minutes each, for 21 days. On the 22nd day, the exoorbital lacrimal gland tissues were obtained to examine the concentrations of IL-1, IL-6, and IL-8 with the ELISA test and malondialdehyde levels with the TBARS assay method.
Results: The results show that cytokines level was elevated in the cigarette smoke group with IL-1 (49.99 + 7.30 vs 43.63 + 9.59, P: 0.032) and IL-8 concentration (336.68 + 57.81 vs 258.42 + 44.36, P: <0.001) had increased significant statistically than the control group. The malondialdehyde levels also increased significant statistically in the cigarette smoke group (5,37 + 1,01 vs 3,49 + 0.57).
Conclusion: Increasing levels of cytokines and malondialdehyde indicate that cigarette smoke exposure promotes the inflammation process, which is attributed to oxidative stress in lacrimal gland tissue. The oxidative stress-induced inflammation process will damage the lacrimal gland, which causes aqueous production disturbance, and eventually causes dry eye disease.

Keywords: cigarette smoke exposure, murine lacrimal gland tissue, interleukin, malondialdehyde, inflammation, oxidative stress.

Abstract ID: NA

Acute and Subchronic Toxicity Test of the Ethanolic Stem Bark Extract of Pakoba (*Tricalysia minahassae*)

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Background: Pakoba (*Tricalysia minahassae*) is a plant endemic to North Sulawesi, contains flavonoids, saponins, tannins and has been used traditionally to treat diabetes. To ensure the level of safety for oral use, it is necessary to do a toxicity test.
Purpose: This study aimed to determine the level of acute toxicity and subchronic toxicity of the ethanol extract of Pakoba stem bark (EEKBP) in test animals.
Methods: Acute toxicity test using male and female mice and EEKBP treatment with doses of 5, 50, 500 and 5000 mg/kg BW each group was given orally every day for 14 days. Subchronic toxicity test using male and female white rats and EEKBP treatment with doses of 300, 600 and 1200 mg/kg BW each group was administered orally every day for 30 days.
Results: The results of the EEKBP acute toxicity test in mice compared to the control group did not show a significant effect on symptoms, changes in motor activity and death of the test animals, liver weight and differences in the average score of mice liver microscopic appearance. The results of the EEKBP subchronic toxicity test with treatment doses of 300, 600 and 1200 mg/kg BW in white rats compared to the control group did not show a significant effect on body weight, volume and weight of vital organs of the heart, lungs, liver and kidneys and clinical biochemistry of blood levels of creatinine, SGPT, SGOT, cholesterol and hematological profiles of leukocytes and erythrocytes with a p-value> 0.05.

Keywords: Pakoba, Acute, Subchronic, Toxicity

Abstract ID: NA

The Development of Periodontitis Vaccine through IgY Induction from Hen's Egg Yolk Against Porphyromonas gingivalis

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Background: Periodontitis is an infectious disease that damages periodontal tissues which can be prevented by using vaccines. Vaccines can be made by utilizing egg yolk's antibody Immunoglobulin Y (IgY) obtained through passive immunity concept on hen.
Purpose: The aim of this study was to know the effectivity and the exact dose of vaccine by IgY induction from hen's egg yolk which spesific to *P. gingivalis* as prevention of periodontitis.
Methods: This research used true experimental with randomized post test only controlled group design. The eggs was collected from single comb brown leghorn which have been immunized by *P.gingivalis'*s outer membrane protein (OMP) for four weeks in a row. IgY from eggs that released in fourth weeks after the first immmunization was extracted. SDS-PAGE test have used to see the existence of specific IgY and to measure the concentration of antibody IgY that resulted. Dot Blot test also used to see the effectivity of the antibody IgY against *P.gingivalis*'s antigen and their effective dose and analyzed by using Corel application.
Results: The result showed that antibody IgY had effective bonding with *P.gingivalis*'s antigen and the effective dose was on concentration 10,44 mg/ml, which on the group that had 1:1 antibody dilution and 1:125 antigen dilution.
Conclusion: Antibody IgY has high effectivity and spesificity against the antigen of *P. gingivalis*.

Keywords: Egg yolk, IgY, Periodontitis, *Porphyromonas gingivalis*, Vaccine

Abstract ID: NA

The Role of Estrogen in Residual Ridge Remodeling Post Tooth Extraction

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Background: Following tooth extraction, the alveolar ridge undergoes an inevitable remodeling process called residual ridge remodeling (RRR). The alveolar ridge shows an extensive loss of dimension in some individuals. This may pose a significant problem in the prosthodontic restoration of function and esthetics. Estrogen was the one of many factors which have been proposed as being responsible for the inter-individual variation in post-extraction remodeling. Many molecular and clinical data support the effect of estrogen on normal homeostasis and wound healing. Estrogen deficiency in postmenopausal women has detrimental to wound healing processes, notably inflammation and re-granulation. Understanding the role of estrogen on soft tissue and alveolar bone healing after tooth extraction might provide further opportunities to develop estrogen-related therapy for assistance in wound healing after tooth extraction.

Keywords: estrogen; estrogen receptor; wound healing post tooth extraction; residual ridge remodeling (RRR)

Part 2
Medical Technology

Abstract ID: 0672

Analysis of Histogram and Grayscale on Chest X-Ray Computed Radiography Image in Covid-19 Disease vs Normal

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Background: Chest X-ray is the main imaging modality for diagnosing COVID-19. An optimal radiograph is needed so that it can be used as support for the diagnosis of the disease. The use of digital CR can produce images easily, quickly, and optimally, and can be processed as needed. However, clinical acquisitions can result in low-quality digital images. CR digital images can calculate grayscale and histogram values and can provide clues in diagnosing patients in Covid-19 cases by analyzing those values.
Methods: For each Covid-19 and the normal group as many as 18 CXR posteroanterior projection images analyzed by the quantitative analysis were conducted by measuring the mean of grayscale values and displayed histogram using ImageJ software.
Results: There is a significant difference in the mean grayscale value between normal and Covid-19 chest images ($p < 0.001$). The grayscale value in the Covid-19 chest image (117.433 ± 4.314) has a higher grayscale value and a histogram range that is more inclined to the right than the normal chest image (65.231 ± 3.304).

Keywords: Chest X-Ray, Grayscale, Histogram, Covid-19

Abstract ID: 4466

Learning Walking Stimulator Design for Babies Aged 9 – 12 Months with The System Electronic Safety

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Background: Motor development, especially the ability to walk in Indonesian children is low. In developed countries such as America, children start walking on average at the age of 11-12 months, and children in Europe between 12-13 months, while in Indonesia the average is 14 months.
Purpose: To design a stimulator product for learning to walk in children aged 9-12 months.
Methods: The learning walking stimulator was intended for babies learning to walk (ages 9-12 months with a tolerance of up to 15 months), designed using safety sensors, equipped with age-appropriate children's toys, had a system intelligent automation safety, had automatic braking if the wheels rotate quickly, were equipped with a controller system, and were designed to optimize the hip, thigh and calf muscles as well as hand muscles. The product was expected to be made by the user community. We collected data from various sources to complete data on the use of learning stimulator tools that work well from the library (sourcebooks and related research articles). We also collected information related to the benefits and uses of learning walking stimulator tools that have been used in the community as a comparison and basis for developing tools. We planned the design of the learning-walking stimulator by performing a computer simulation of the AutoCAD software (designing images in computer programs) followed by fabrication (tool assembly process) and installation of sensors and electronic components on the learning-walking simulator product. The tool was then reviewed by a team of experts (pediatricians and medical rehabilitation specialists).
Results: The availability of a walking learning tool prototype that has been reviewed and redesigned in such a way that it is ready to be tested on healthy children with a larger age in future studies.

Keywords: Design, Stimulator, Walking, Toddler

Abstract ID: 6410

Creating a Modified Toothbrush Handle with a 3D Printer

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Background: The need for special treatment for people with special needs, especially children with disabilities, where limited limbs, especially the upper limbs become a problem in carrying out daily activities, one of which is maintaining oral hygiene by brushing teeth. Brushing your teeth is a complex activity that involves movements of your hands, arms, and fingers, so you need help to brush your teeth properly and independently.
Purpose: Digital fabrication technology makes it possible to make tools or prototypes according to individual needs, especially for holding toothbrushes.
Methods: There are several techniques for using machines to make tools (handle modifications), namely using a 3D printer FDM (fused deposition modeling) and SLA (stereolithography) machines, each of which has advantages and disadvantages.
Results: By using SLA, the resolution is 2 times greater than FDM, is more detailed and is more flexible so that it is comfortable to use and meets the needs of people with physical impairments. Even so, manufacturing with SLA takes longer than FDM because of the quite complicated manipulation of SLA materials.

Keywords: Special Needs, Toothbrush, Handle Modification, 3D printer, SLA

Abstract ID: 7772

Analysis the Examination Procedure of MR Imaging Lumbal in Pleural Effusion Suspected of Tuberculosis

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Background: Clinical vertebral tuberculosis (TB) occurs outside the lungs affecting the spine. It generally infects the spine in the lower thoracic and upper lumbar spine. MRI examination was performed on clinical vertebral TB patients to determine the degree of stress and changes in bone elements in the early stages of the disease.
Purpose: This study aims to analyze the lumbar MRI examination procedure in cases of suspected TB pleural effusion.
Methods: This research was qualitative with a case study approach. Data collection was carried out at the Radiology Unit of Premier Bintaro Hospital with the methods of observation, interviews, and documentation. Data processing and analysis were carried out descriptively. Lumbar MRI examination with suspected TB pleural effusion at the Radiology Unit of Premier Bintaro Hospital was not specially prepared, the patient was examined first through the patient checklist to avoid metal materials entering the examination room. Examination using the Non-Contrast Lumbar MRI protocol included sagittal and coronal T2, sagittal T1, sagittal Short Tau Inverse Recovery (STIR), Myelography, Axial T2, and Axial T1.
Results: The results of the examination provide sufficient diagnostic information to indicate a vertebral TB lesion. The procedure for examining lumbar MRI in TB cases with suspected pleural effusion at the Radiology Unit of Premier Bintaro Hospital does not require special preparation, the examination protocol used is to provide TB clinical diagnostic information, the addition of Gadolinium contrast media can be a choice.

Keywords: MRI, Lumbal, Tuberculosis Spine

Abstract ID: 8586

Multi-Layer Variations on Generative Adversarial Networks (GANs) for Generate Syntetic X-ray Image

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Background: In recent years, Generative Adversarial Networks (GANs) have been developed for applications in the medical imaging field, such as reducing image noise, providing higher spatial resolution, and generating synthetic images. In the case of synthetic image generation, GANs have been developed and modified to give a better synthetic image. In GANs architecture, it is necessary to conduct an in-depth study related to changes in the Generator and Discriminator layers in the GANs architecture. The difference in the layer arrangement on the Generator and Discriminator of a GANs architecture certainly impacts the generated synthetic image differently.
Purpose: In this paper, a study is carried out regarding the impact of changing the Generator and Discriminator layers on a GANs architecture on the resulting synthetic X-ray image. A quantitative comparison of synthetic images against original X-ray images was also carried out to objectively determine the performance of GANs.

Keywords: X-ray image, GANs, Synthetic Image, Generator, Discriminator

Abstract ID: 8707

Regression Model for Measurement Scale on Wound Dimensions using Webcam and Lidar Sensor

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Background: There are many uses of image processing technology in various fields, one of which is medical equipment. In cases of open wounds such as chronic wounds, the handling is currently done manually using a ruler. Calculating the wound size is still based on manual estimates, so the accuracy is low. The utilization of image processing technology will improve its accuracy. In addition, this technology is carried out invasively in the form of taking pictures to avoid direct touch with the wound thereby reducing the possibility of infection. The images obtained using the RGB camera will be used for color segmentation which will measure the dimensions and area of the wound. However, because the image data is in the form of a raster, the distance will affect the pixel size. Therefore, it is necessary to consider the distance of the camera measurement to the object. The time-of-flight (ToF) method with a lidar sensor is used to calculate the distance of the camera to the object. It is necessary to calculate the ratio of the distance to the number of pixels obtained. So that the pixel value is always consistent in representing the dimensions when capturing images.
Methods: This study analyzed the use of appropriate ratios and regression systems on webcam use as an RGB sensor and a lidar sensor for measuring wound dimensions.
Results: The results indicated that there was a regression model with a second-order polynomial relationship for the distance and number of pixels obtained to be consistent with the accuracy value reaching 0.98879 which indicated very good results.

Keywords: Image Processing, Wound, Lidar Sensor, Time-Of-Flight, Regression

Part 3
Clinical and Social Medicine

Abstract ID: 0776

Diabetes Mellitus Profile in Indonesia: An Analysis from the GBD Study 2019

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Background: Diabetes Mellitus (DM) is one of Indonesia's top ten causes of death and disability. The Basic Health Survey showed that the prevalence of DM increased from 1.5 in 2013 to 2 in 2018
Purpose: To directly analyze disability-adjusted life years (DALYs) lost due to DM in 34 Provinces (subnational data) in Indonesia.
Methods: The data of the Global Burden of Disease Study (GBD) 2019 on DM, cause, risk, death, Years of healthy life lost due to disability (YLDs), and disability-adjusted life years (DALYs).
Results: It was founded that DALYs by cause, both sexes, and all ages were 6.23% of total death (5.91%-6.63%), and Annual % change was 2.85%. DALYs by cause, sexes, and all ages were 4.98% of total DALYs (4.6%-5.37%), and Annual % change was 2.68%. YLDs by cause, sexes, and all ages were 3.47% of total YLDs (2.95%-4.05%), and Annual % change was 3.16%.
Conclusion: There has been a significantly increased contribution of death and DALYs in DM in the last ten years in Indonesia

Keywords: diabetes mellitus, burden of disease, DALYs, YLDs, death, risk factors

Abstract ID: 4974

The Effectiveness of The Marmet Technique Breast Massage is Comparable to Standard Breast Massage

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Background: Exclusive breastfeeding is important for the physic and mental development of human infant. However, breastfeeding problems can hamper this, especially low quantities of breast milk.
Purpose: This study aimed to evaluate the benefits of Marmet breast massage for increasing the amount of breast milk in post-partum mothers.
Methods: A total of 100 breastfeeding mothers were randomly assigned to two groups: the control group and the treatment group.
Results: Although there were no significant differences in the rate of change over time between the Marmet technique group and the control group ($p > 0.05$), there was an increase in breastfeeding fluency scores in the Marmet technique group.
Conclusion: The Marmet breast massage technique increased milk production in term infants at a rate comparable to normal breast massage. Therefore, this technique could be used to increase the rates of exclusive breastfeeding.

Keywords: marmet technique, breast milk, breastfeeding

Abstract ID: 7714

Perception of Distance Learning among Undergraduate Medical Students during Covid-19 Pandemic

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Background: Any adaptations to medical education have been made in response to the new emergent COVID-19 pandemic and its enormous global effects, including the teaching and learning strategies to assure the educational process's safety and advancement. Accordingly, it was necessary to implement new online instructional approaches at the Faculty of Medicine Andalas University
Purpose: To overview medical students' Perceptions of distance learning during the covid-19 pandemic.
Methods: This study was cross-sectional and included 333 students who filled out an online survey of 20 questions on the Google Forms platform. Target population: years 2, 3, and 4 undergraduate medical students at the Faculty of Medicine, Andalas University, who experienced online learning during the COVID-19 pandemic.
Results: The students were >18 years old (59.9%), and 75.7% were females. The online learning benefits were time-saving (66.37%), improved learning (75.68%), and good support from faculty (74.17%). In comparison, the challenges were home chores (54.05%), conducive space limitation (30.63%), and poor internet access (19.52%). Most students prefer face-to-face learning in practicum (77%) and clinical skills (63%), which require hands-on methods to improve student skills. 57% of students were satisfied, and 28% were neutral about distance learning. The student who agrees that the lecturer is active and has the expertise and knowledge for the class has a higher level of satisfaction with distance learning ($p<0.001$). The student who agrees about the platform quality, understandable learning guide, and facility from faculty has a higher level of satisfaction with distance learning ($p<0.001$).

Keywords: benefits, challenges, distance learning, medical students

Abstract ID: 7236

Tetanus in Elderly

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Purpose: We conducted a systematic review on the delayed diagnosis, risk factors, status of immunization, management, requirement of airway and breathing management, duration of treatment, and outcome of tetanus, with a focus on patients more than 50 years old

Methods: Systematic reviews using the electronic database on case report journal publication from January 1st, 2016, until October 31st, 2021, were screened using PubMed in English. The [MeSH] terms included "tetanus", "elderly", "adult", and "case report". Eligibility criteria: Publication with full text available in English and patients over 50 years old were included. Reports that did not state patient vaccination history, tetanus in animal, report of post-vaccination event, reports that did not state length of stay in the hospital, and the unknown prognosis was excluded.

Results: We identified 64 articles. 51 articles were excluded, and 13 articles containing 16 case reports were included. 9 of 16 patients are diagnosed more than 2 days after the symptom is presented. 13 cases had known causal injury. All of the patients are not adequately vaccinated. 10 cases need either airway and/or breathing support. 15 cases are hospitalized for more than 14 days with the longest duration being 204 days. Elder people are susceptible to tetanus because vaccination status is not completed or updated for more than 10 years. Patients are not come to medical services to treat minor but dirty wounds, so they are not given anti-tetanus serum or tetanus immunoglobulin as prophylaxis. Patients come to the hospital after the symptom is presented but the rarity of the disease makes the doctor not acknowledge the symptom. The prolonged duration of therapy and the requirement of airway and breathing management such as tracheostomy and mechanical ventilator make managing the disease challenging in developing countries, such as Indonesia.

Keywords: tetanus, eldery, vaccination

Abstract ID: 8741

Blood Pressure, BMI, and the Castelli Risk Index among Young Female Adults and the Association with the Physical Fitness Index

Desy Nofita Sari, Welan Rahmani, Fathiyyatul Khaira, Atika Indah Sari

Background: Some studies showed that the prevalence of overweight and obesity in young adults is increasing. Increased intake of high-calorie foods and decreased physical activity is the risk factor for obesity. Physical inactivity has emerged as an essential cardiometabolic risk factor.
Purpose: This cross-sectional study compares the physical fitness index among obese and non-obese young female adults. We were assessing the correlation between the physical fitness index and the castelli risk index (CRI1 and CRI2), blood pressure, and body mass index in female adults between 18 to 22 years old.
Methods: The subjects were divided into two groups 34 obesity and 28 non-obesity. Using the modified Harvard's Step test and calculated PFI. All statistical analysis has been done by using Statistical Package for the Social Sciences.
Results: The obese group had higher systole blood pressure, diastole blood pressure, and body mass index ($p<0.05$). CRI2 was higher in the obese than non-obese ($p<0.05$). Blood pressure and BMI are negatively correlated with PFI ($p < 0.05$) but not with the CRI 1 and CRI 2 ($p>0.05$).
We conclude that the state of physical fitness correlates with blood pressure and body mass index in young female adults. We suggest that individuals with obesity should exercise consistently to improve their health significantly

Keywords: cardiovascular risk, CRI, Harvard step test, obese, PFI

Abstract ID: 9019

The Castelli Risk Index- 1 and Castelli Risk Index-2 are higher in young female adults with more cardiovascular disease risk factors

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Background: The atherosclerotic process can begin at an early age, although clinical manifestations of cardiovascular disease appear in middle age. Lipid ratios, such as Castelli Risk Index-1 and Castelli Risk Index-2, are biochemical parameters used to assess cardiovascular disease risk. Identifying and managing modifiable risk factors for cardiovascular disease is essential to prevent cardiovascular disease.
Methods: Seventy-two female students –39 obese and 33 normal-weight– signed up voluntarily in this study. Subjects were interviewed regarding family health history before blood pressure, anthropometric, and lipid profile measurements were performed.
Results: This study found that obese female students had higher systolic blood pressure, diastolic blood pressure, and anthropometric measurements (body mass index, mid-upper arm circumference, waist circumference, hip circumference, and waist-to-hip ratio) compared to female normal-weight students. In addition, there was an association between the number of risk factors for cardiovascular disease and obesity (p=0.041) and a significant difference between the Castelli Risk Index-1 and Castelli Risk Index-2 based on the number of cardiovascular disease risk factors. The Castelli Risk Index-1 and Castelli Risk Index-2 are higher in young women with more cardiovascular disease risk factors. Therefore, managing modifiable risk factors for cardiovascular diseases, such as losing weight and adopting a healthy lifestyle, is hoped to reduce the prevalence of cardiovascular disease in the future.

Keywords: castelli risk index-1, castelli risk index-2, cardiovascular risk factor, obesity, cardiovascular disease