2022

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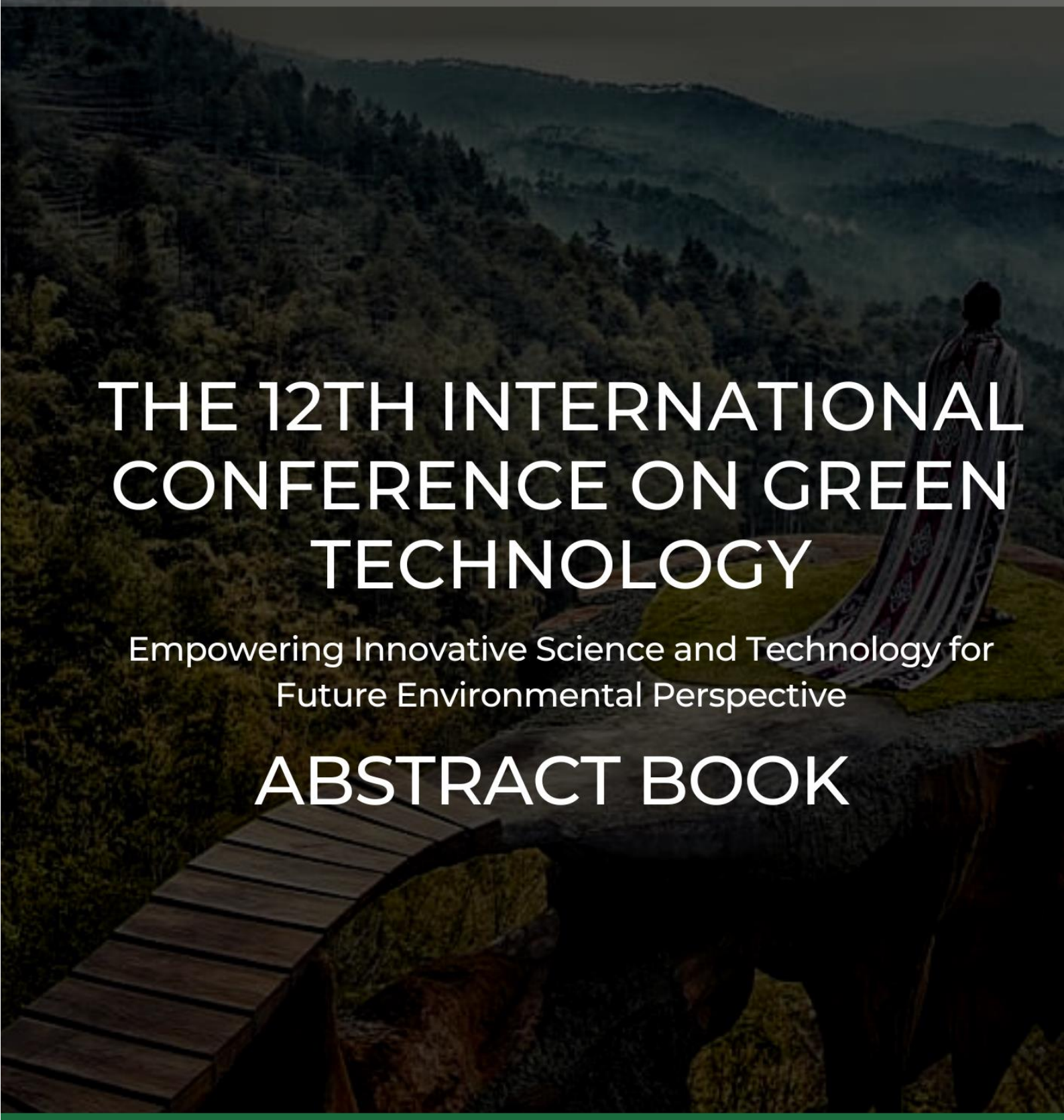

THE 12TH INTERNATIONAL CONFERENCE ON GREEN TECHNOLOGY

Empowering Innovative Science and Technology for Future Environmental Perspective

ABSTRACT BOOK

GreenTech

Savana Hotel, Malang
October 26 to 27, 2022

The 12th International Conference on Green Technology (ICGT) 2022

Book of Abstracts

Organized by
Faculty of Science and Technology
UIN Maulana Malik Ibrahim
Malang

October 26-27th, 2022
at Savana Hotel, Malang
Hybrid Conference

Welcome Address

This book contains the abstracts of paper presented at The 12th International Conference on Green Technology (ICGT) 2022. They reflect the authors's opinions and are published as presented without change, in the interest of timely dissemination. Their inclusion in this publication does not necessarily constitute endorsement by the organizers.

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Opening Speech

DEAN OF SCIENCE AND TECHNOLOGY FACULTY
UIN MAULANA MALIK IBRAHIM MALANG

We are pleased to welcome all participants to the 2022 12th International Conference on Green Technology (ICGT 2022) in the Faculty of Science and Technology, Universitas Islam Negeri Maulana Malik Ibrahim Malang, although we can only meet virtually. The main topic of the conference is "*Empowering innovative science and technology for future environmental perspective*". Right now, we are still recovering from a pandemic that hit us hard. Thus, we hope through this conference we can contribute our research in recovering global condition. We hope this conference can bring academic scientists, engineers, industry researchers together to discuss, exchange, and share their experiences and research results about green technology, especially in sustaining productivity during the pandemic era.

We want to thank:

1. Rector and Vice-Rectors of Universitas Islam Negeri Maulana Malik Ibrahim for their assistance and support for the 11th International Conference on Green Technology.
2. Science and Technology Faculty vice-Deans for supporting The 12th International Conference on Green Technology.
3. All the keynote speakers who willingly attended this conference.
4. Academic board committee for work in abstract and paper review.
5. The event organizing committee for managing this conference.

We wish all participants of the 12th International Conference on Green Technology get an enjoyable scientific virtual meeting. We look forward to seeing all of you next year at the 13th International Conference on Green Technology.

Dean of Faculty of Science and Technology
UIN Maulana Malik Ibrahim Malang

Dr. Sri Harini

Welcome Speech

Chairperson of The 12th International Conference on Green Technology

Dear Colleagues,

We have the pleasure to welcome you to the 12th International Conference on Green Technology 2022. The conference is annually organized by Science and Technology Faculty, Universitas Islam Negeri Maulana Malik Ibrahim Malang. We hope through this event we can exchange and explore the issues, innovations, and integrated perspectives towards environmental sustainability.

The emergence of science and technology has offered solutions for daily life's problems in the modern era, including the covid-19 pandemic. The Covid-19 pandemic ultimately evolves our life patterns, from how companies work to accomplishing our daily activities while adhering to the health protocols. However, research revealed across the economy, productivity tends to be stable and even more, increase. This happens at the cost of innovations in the science and technology field. Therefore, it is not too much to say that the Covid-19 pandemic makes room for innovations and research in science and technology.

Concerning this, we set "Empowering innovative science and technology for future environmental perspective" as the main topic of the 12th International Conference of Green Technology (ICGT). The 12th ICGT will be held on 26th-27th October 2022.

This booklet contains the abstracts of contributions presented at the conference, either as a keynote speaker or oral presentation.

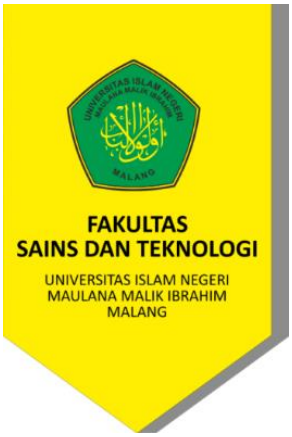
Finally, I would like to thank the Rector and Vice-Rectors of UIN Maulana Malik Ibrahim Malang for supporting this event. And thanks to Dean and Vice-Deans for the guidance and support for this event. And also for all the committee who helped in the organization of this conference, big thanks to all of you.

Chairman of ICGT 2022
Organizing Committee

Dr. Elly Susanti

Sponsors

Financial support for this conference is mainly provided by the Faculty of Science and Technology UIN Maulana Malik Ibrahim Malang.



Faculty of Science and Technology
UIN Maulana Malik Ibrahim Malang

About the Conferences

The International Conference of Green Technology (ICGT) is an annual multidisciplinary forum for promoting and fostering interactions between researchers, scientists, academia, and related industrial communities in studying the development of science and green technology. These conferences introduce newcomers to the field, keep practitioners aware of current developments, and provide unparalleled networking opportunities. Innovative science and technology must be developed to offered solutions for new normal adaptation in Post pandemic life in all fields. Therefore, "*Empowering innovative science and technology for future environmental perspective*" become the main topic of The 12th ICGT 2022.

Considering the uncertainty of the COVID-19 outbreak, The 12th ICGT 2022 will be held fully hybrid on October 26-27, 2022. The scientific programs will include keynote lectures, plenary lectures and invited lectures in parallel sessions. All participants will have virtual access to join the conferences and all authors will have opportunities to present work either virtually or on-site, in Malang Indonesia.

Participants who want to present their papers should submit their full papers. Only selected papers will be presented at the conferences.

The selected paper (which are subject to a full review process) will be will be considered for publications in the Conference Proceedings by **Atlantis Press (part of Springer Nature)** indexed by **CPCI (WoS)**, CNKI, WangFang Data, Google Scholar, Compendex (if applicable), etc.

Scopes

We accept full article submissions in the domains of science and technology that contain innovative contributions on theory, methodology, and practical applications, including but not limited to the following technical areas:

Track 1 – Advances in Engineering Research (AER):

- Energy and Industry Application
- Architectural Design and Engineering
- Bioengineering
- Engineered Materials

Track 2 – Advances in Intelligent Systems Research (AISR)

- Information System and Engineering
- Computation and Processing

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- Rieza Firdian R., Universitas Islam Negeri Maulana Malik Ibrahim, Malang, Indonesia (ID)

Technical Information

- The conference is conducted in hybrid mode.
- All time in the program schedule are in Western Indonesia Time (WIB; GMT+7). Please pay attention and adjust it to your local time. Current time in WIB can be found on http://time.bmkg.go.id/
- All online presenter should join the conference through zoom meeting application and use the official virtual background of the ICGT 2022 during the sessions.
- All online presenter must be stand by in the virtual room 20 minutes before the presentation.
- Due to the busy schedule, the presenter is not allowed to change the presentation time without permission from the organizing committee.
- If the presenter does not appear onsite or in the virtual room during their presentation time then the committee does not provide the replacement time.
- E-certificate will be sent by email after the conference.
- E-certificate as presenter is given to those who present their talk, meanwhile e-certificate as participant is given to those who fully attend the conference.
- The organizing committee will announce the schedule of all presenter sessions via email.
- The maximum duration of the presentation is 15 minutes question & answer session.
- The onsite participant is suggested to use an earphone or similar devices when join the online parallel session.

Conferences Schedule

Venue: Savana Hotel & Convention
First Day: Wednesday, October 26th, 2022

TIME	ACTIVITIES	PERSON IN CHARGE
07.00 – 08.15	Registration	
08.15 – 08.30	Traditional Dancing	Mathematics' Students
08.30 – 08.45	Opening Ceremony	MC
08.45 – 09.05	Speech: 1. The chairman of 12th ICGT 2. The rector of UIN Maulana Malik Ibrahim Malang Praying	 Dr. Elly Susanti, M.Sc. Prof. Dr. H. M. Zainuddin, M.A. Juhari, M.Si
09.05 – 09.15	Photo Session	All Participants
09.15 – 10.00	**Wahyudi Hasbi, Ph.D.** Satellite Technology Center-Organization Research for Aeronautics and Space, Indonesia **Satellite Systems**	Moderator: Ari Kusumastuti, M.Si
10.00 – 10.10	**Coffee Break**	
10.10 – 10.55	**Prof. Indah Emilia Wijayanti** Universitas Gadjah Mada, Indonesia **Ring and Module Theory**	Moderator: Ari Kusumastuti, M.Si
10.55 – 11.30	**Dr. Noppadon Kitana** Chulalongkorn University, Thailand **Animal Physiology and Conservation Biology**	Moderator: M. Nafie Jauhari, M.Si
11.30 – 12.05	**Prof. F.J.S Wijsen** Radboud University, Netherlands **Intercultural and Interreligious**	
12.05 – 13.00	**Break**	
13.00 – 16.00	Parallel Session I	
	Offline Room: - Room A: - Room B: - Room C:	 Panupong, Mujahidin Ahmad Wahyudi Hasbi; Hisyam Fahmi Erna Hastuti
	Online Room: - Breakout Room 1: - Breakout Room 2: - Breakout Room 3: - Breakout Room 4: - Breakout Room 5:	 Muhammad Saefi Utiya Hikmah Heni Widayani Susi Nur Khalifah Firma Sahrul Bahtiar

Venue: Savana Hotel & Convention
Second Day: Thursday, October 27th, 2022

TIME	ACTIVITIES	PERSON IN CHARGE
08.00 – 08.45	**Prof. Taufik (*)** California Polytechnic State University, USA **Power Electronics and Power System**	Moderator: Dr. Heni Widayani, M.Si
08.45 – 09.30	**Dr. Sri Harini** Universitas Islam Negeri Maulana Malik Ibrahim, Indonesia **Statistics**	
09.30 – 10.15	**Prof. Hadi Susanto (*)** Khalifa University, United Arab Emirates **Applied Mathematics**	
10.15 – 10.30	**Coffee Break**	
10.30 – 11.05	**Dr. Sitti Maesuri Patahuddin** University of Canberra, Australia **Spatial Reasoning in Mathematics Learning**	Moderator: Utiya Hikmah, M.Si
11.05 – 11.40	**Dr. Erna Hastuti** Universitas Islam Negeri Maulana Malik Ibrahim, Indonesia **Material Science**	
11.40 – 12.45	**Break**	
12.45 – 15.00	Parallel Session II	
	Offline Room - Room A: - Room B: - Room C:	Noppadon Kitana; M. Saefi Fachrul Kurniawan M. Arsyad Bahar
	Online Room: - Breakout Room 1: - Breakout Room 2: - Breakout Room 3: - Breakout Room 4: - Breakout Room 5:	Mujahidin Ahmad Fachrur Rozi Armeida Dwi Rihowati M. Firma Sahrul Bahtiar Ernaning Setiyowati
15.00 – 15.30	Announcement of Best Presentation Closing by the dean of Science and Technology Faculty	Scientific Committee Dr. Sri Harini, M.Si

*) Online Speakers.

The Parallel Session Schedule

of "The 12th International Conference on Green Technology"

Wednesday, October 26th, 2022
Offline, 13:00 – 15:30 WIB (Western Indonesia Time)

No	Time	Room A PIC: Panupong T. C., Mujahidin A.	Room B PIC: Wahyudi Hasbi; Hisyam Fahmi	Room C PIC: Erna Hastuti
1	13:00 - 13:15	**ID 186** **Utami Sri Hastuti** *Endophytic Fungi Isolated from Jasminum sambac L.*	**ID 347** **Muhammad Khudzaifah** *Implementation of Rubik's Cube Algorithm and Rivest-Shamir-Adleman (RSA) Algorithm on Iris Digital Image Security*	**ID 245** **Rizki Fitriana Dewi** *Eco-Friendly Synthesis of $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$ via Molten Salt Method*
2	13:15 - 13:30	**ID 226** **Maya Sari** *Development of Ecoenzyme Based on Local Wisdom to Improve the Quality of Agricultural Products in Nagari Cubadak, Batusangkar*	**ID 211** **Ilfi Nur Diana** *Fuzzy Time Series Markov Chain Method to Forecast The Amount of Strawberry Production in Batu City*	**ID 332** **Nurul Fitriathus Sholikhah** *Eco-Friendly Synthesis and Characterization of SrBi4Ti3.9Fe0.1O15 via Molten Salt Method*
3	13:30 - 13:45	**ID 228** **Ana Widiana** *The Utilization of Cajuput Leaf Waste Compost as Organic Fertilizer on Growth and Development of Tomatoes (Lycopersicum Esculentum L.)*	**ID 205** **Fasya Ilya Cahyadina** *The Dynamic Analysis of Conventional and Electric Smokers Population Models*	**ID 346** **Ahmad Ghanaim Fasya** *Molecular Docking of Selected Phytosterol From Hydrilla Verticillata on Estrogen Receptors B (ER- B) as Candidates of Anti-Breast Cancer*
4	13:45 - 14:00	**ID 272** **Rachata Maneein**	**ID 206** **Savira Winny Wirahmasari**	**ID 364** **Elok Kamilah Hayati**

No	Time	Room A PIC: Panupong T. C., Mujahidin A.	Room B PIC: Wahyudi Hasbi; Hisyam Fahmi	Room C PIC: Erna Hastuti
		Herbicide Residues in Rice Field Crab of Nan Province, Thailand	*On the Dynamic Analysis of Drug Addiction Model with Rehabilitation Factors and Health Campaigns*	*UHPLC-Q-Orbitrap HRMS Based Metabolomic of Acalypha indica Linn Based on Different Altitude*
5	14:00 - 14:15	**ID 274** **Patchara Sittishevapark** *Screening Thai Herbs with Anti-hematoxic activities against the eastern Russell's viper venom*	**ID 210** **Anastasia Angie Nugraha** *Analysis of the Stability of the Mathematical Model of Metapopulation Spread of the Ebola Virus*	**ID 368** **Lulu'atul Hamidatu Ulya, Andri Yulianto** *Photocatalytic Degradation of Methyl Orange Solution by TiO2/N Loaded on Zeolite and Activated Carbon as Supporting Material*
6	14:15 - 14:30	**ID 275** **Panupong Thammachoti Charunrochana** *Technique evaluation of Environmental DNA for Panha's Crocodile Newt Tylototriton panhai in Thailand*	**ID 185** **Nia Nurkhanifah** *The Dynamic Analysis Behavior of the Covid-19 Spread Model in the SEIHRV Population with Optimal Control*	**ID 293** **Saidun Fiddaroini** *ZSM-5 Synthesis Using Solvent-free Method with Variations in Silica Precursors, Aging Time and Crystallization Temperature*
7	14:30 - 14:45	**ID 262** **Musa'Adah** *Potential Polyphosphate Bacteria Screening of Uranium-Tolerant Bacteria Isolated from Radionuclide Waste in Batan, Yogyakarta*	**ID 220** **Mohammad Agus Kholilurrohman** *Bases of Dihedral Groups*	**ID 325** **Harsasi Setyawati** *Potency Complex Compound Mn(II)-TMPyP as a Dye Sensitizer on DSSC*

No	Time	Room A PIC: Panupong T. C., Mujahidin A.	Room B PIC: Wahyudi Hasbi; Hisyam Fahmi	Room C PIC: Erna Hastuti
8	14:45 - 15:00	**ID 300** **Ida Kinasih** *Effect of Application of Propolis as Feed Supplement and Preservation Agent to Pathogenic Microbes Contamination of Local Chicken Meat*	**ID 279** **Muhamad Sabit Munawar** *Analyzing the Impact of COVID-19 Pandemic in The High Number of Divorce Cases in Malang Using K-Means Clustering Algorithm Approach*	**ID 281** **Aisyah Ainur Rachma** *Effect of Fermentation Time on Antibacterial Activity of Rhizopus oryzae Fermented Red Rice bran in Inhibiting Staphylococcus aureus and Escherichia coli*
9	15:00 - 15:15	**ID 331** **Astuti Kusumorini** *An Identification of Insects Visitors to Oil Palm Flowers in the Community Plantation of Kalicinta Village, North Kotabumi District, North Lampung Regency*	**ID 278** **Habiba Amalia Az Zahra** *Determination of the Shortest Path of Zakat Distribution with Ant Algorithm and Greedy Algorithm (Case Study in Karangrena Village)*	
10	15:15 - 15:30		**ID 221** **Mohammad Bagus Dimas Prayugo** *Human Voice Recognition System with Backpropagation Neural Network Method*	

Wednesday, October 26th, 2022
Online, 13:00 – 15:30 WIB (Western Indonesia Time)

No	Time	Room 1 PIC: Muhammad Saefi	Room 2 PIC: Utiya Hikmah	Room 3 PIC: Heni Widayani
1	13:00 - 13:15	**ID 180** **Yani Suryani** *The Potential of Effective Microorganism-4 (Em-4) on the Yield of Garlic (Alium Sativum L.) Lumbu Kuning Local Cultivar, Indonesia*	**ID 250** **Mirza Akbar Sadewa** *Earthquake Microzonation using Microtremor Analysis and Horizontal to Vertical Spectral Ratio Method Study Case at Ampelgading and Tirtoyudo Sub-District, Malang, East Java*	**ID 236** **Nurul Rahmah** *Liveworksheets: Contextual-Based Geometry E-LKPD for Junior High School Level*
2	13:15 - 13:30	**ID 307** **Lukman Nulhakim** *Ginger (Zingiber Officinale): Drying to encapsulation in Alginate-PVA Beads*	**ID 264** **Siti Rohmah** *Soil Vulnerability Level Based on Microtremor Data in The Affected Area of the Earthquake, at South of East Java In 2021 (Warak-Majangtengah Village Sub-District Dampit Malang Regency)*	**ID 338** **Maula Uswatun Hasanah** *Electronic Mathematics Student Worksheet Development using Adobe Flash CS6*
3	13:30 - 13:45	**ID 342** **Dien Puji Rahayu** *Effect of chitosan mouthwash, with and without fluoride and peppermint oil presence on anti-biofilm activity against Streptococcus mutans*	**ID 313** **Muhammad Achirul Nanda** *AHP Method for Weighting Various Factors in Determining Energy Generation Site from Municipal Solid Waste*	**ID 178** **Nur Ilmayasinta** *Numerical Simulation of Covid-19 Mathematical Modelling with Optimal Control in Indonesia*

No	Time	Room 1 PIC: Muhammad Saefi	Room 2 PIC: Utiya Hikmah	Room 3 PIC: Heni Widayani
4	13:45 - 14:00	**ID 263** **Ely Nuril Fajriyah** *Optimization of Centella asiatica (L.) Urban Dosage in Improving Memory of Mice with Brain Necrosis Model*	**ID 333** **Unung Lesmanah** *The Use of Coastal Wind for Electricity Generation through Savonius Vertical Axis Wind Turbine at Remote Islands in East Java Offshore*	**ID 192** **Ahmad Lazwardi** *Variable Manipulation on Ops Transformation*
5	14:00 - 14:15	**ID 298** **Miftahul Afifatur** *Macrozoobenthos Diversity in the Upper of Sampean River, Maesan District, Bondowoso Regency*	**ID 258** **Prima Aswirna** *Development of a Physics Module Assisted by Camtasia Studio on Students' Critical Thinking Ability*	**ID 227** **Nahlia Rakhmawati** *Sustainable Transportation and the Role of Intuitionistic Fuzzy Optimization*
6	14:15 - 14:30	**ID 299** **Efa Lusiana** *Study Effect Immunomodulatory of Juwet Fruit Extract (Syzygium cumini) for The Antibody Titter in Male Mice (Rattus norvegicus)*	**ID 222** **David Lee Giant Axala** *In-Situ Sol-Gel Method of TiO2-reduced Graphene Oxide as Photocatalyst*	**ID 271** **Fidyatus Safitri** *Laplacian Spectrum of Identity Graph of Commutative Ring Z2p*
7	14:30 - 14:45	**ID 255** **Isabella Darapuspita Salsabila** *Effect of Fungal Chitosan Against Penicillium digitatum and Penicillium citrinum In Vitro*	**ID 304** **Umi Masruroh** *Application of Geoelectric Method of Dipole-Dipole Configuration to Identify Subsurface Rock Structures of Landslide-Prone Zones*	**ID 314** **Marsudi** *Dynamics of HIV Transmission with Saturated Incidence and Treatment Strategy*
8	14:45 - 15:00	**ID 266** **Robiatul Adawiyah**	**ID 309** **Zaidina Mutiara** *Synthesis of N-Doped Carbon Dots Derived from Green Algae for Material Photocatalyst*	**ID 357** **Kirania Ramara Insani, Elly Susanti** *D-Orthogonality in Standard 2-Normed Space*

No	Time	Room 1 PIC: Muhammad Saefi	Room 2 PIC: Utiya Hikmah	Room 3 PIC: Heni Widayani
		Antiaging potency of Centellaasiaticaextract on fibroblast cells of Rattusnorvegicusfetus by in vitro and in silico approach		
9	15:00 - 15:15			**ID 283** **Cahya Ramadhani Azhar** *Horizontal Sliced Shallots Fractal as an Innovation of Nusantara Batik*

Wednesday, October 26th, 2022
Online, 13:00 – 15:30 WIB (Western Indonesia Time)

No	Time	Room 4 PIC: Susi Nur Khalifah	Room 5 PIC: Firma Shahrul Bahtiar
1	13:00 - 13:15	**ID 183** **Muhammad Yusuf** *The Manufacture of Polyblend Plastic Film Containing Polystyrene and Poly(d-Valerolactone) That Was Obtained Using Bis(Dibenzoylmethane)Zirconium(IV) Catalyst*	**ID 233** **Debbi Chyntia Ovami** *Data Analytics and Its Implication on Auditing*
2	13:15 - 13:30	**ID 195** **Bekti Palupi** *Alkaline Pretreatment Optimization of Tobacco Stalks for Bioethanol Production*	**ID 234** **Ilham Ramadhan Nasution** *Perspective Information Security to Cybersecurity for Finance in Indonesia*
3	13:30 - 13:45	**ID 301** **La Agusu** *Optimal Composition of Graphene/Mn3O4 Nanoparticle for Profenofos Sensor Material Using the Mangenese Ore as Mn Source*	**ID 235** **Andi Auliya Ramadhany** *Application Laku Pandai (Branchless Banking) in Kepulauan Riau, Indonesia*
4	13:45 - 14:00	**ID 319** **Dedi Futra** *Potential of Anthocyanin from Young Fruit Skin of Elaeis Guneensis As a pH Sensor*	**ID 237** **Rebecca Evadine** *Tax Innovation in Improving Taxpayer Compliance in Indonesia*

No	Time	Room 4 PIC: Susi Nur Khalifah	Room 5 PIC: Firma Shahrul Bahtiar
5	14:00 - 14:15	**ID 246** **Muhammadal-Abror Lathif Al-Abror** *Degradation Methylene Blue using SrBi4Ti4O15 Synthesized Molten Salt Synthesis*	**ID 179** **Wahyu Megarani** *Algorithm and Programming: A Fully Fuzzy Nonlinear Systems Solution Based on The Broyden Method*
6	14:15 - 14:30	**ID 296** **Selvia Indriani** *Synthesis TiO2/Activated Carbon from Rice Straw for Photodegradation Methyl Orange Dye*	**ID 191** **Winda Yulistiana** *Customer Relationship Management Design In Application of Laundry Services Based on Odoo ERP Using User Centered Design Method*
7	14:30 - 14:45	**ID 242** **Ratna Farihatur Rohmani A** *Potential of Lerak Fruit Waste (Sapindus rarak DC) as Activated Biosorbent Against Lead (Pb)*	**ID 240** **Diah Rahmadhita Islami** *The Development of E-Ma'had Information Systems Using SCRUM Methodology*
8	14:45 - 15:00	**ID 277** **Yuni Tria Lestari, Berliana Aulia Khabibah** *Antibacterial Activity Test Turmeric (Curcuma longa L.) Extract Herbal Oil in Extra Virgin Olive Oil Against Staphylococcus aureus and Propionibacterium acnes*	**ID 241** **Salsabella Elizzah** *E-Ma'had Informating System Evalution Using End-User Computing Satisfaction Methodology*
9	15:00 - 15:15		**ID 247** **Amila Fadhila Rahmaniati** *Determination of The Sector Damage Level of The Post Natural Disaster Based on Machine Learning*

Thursday, October 27th, 2022
Offline, 12.45 – 15.00 WIB (Western Indonesia Time)

No	Time	Room A PIC: Noppadon Kitana, Muhammad Saefi	Room B PIC: Fachrul Kurniawan	Room C PIC: Mohammad Arsyad Bahar
1	12:45 - 13:00	**ID 284** **Tongchai Thitiphuree** *Herbicide contamination and corresponding biomarkers in freshwater bivalve in agricultural catchments in Northern Thailand*	**ID 317** **Rusli** *Identification of the Disappearing of "Syafaq" by Color Space Transformation*	**ID 219** **Mohammad Arsyad Bahar** *Analysis of the Differences between the Design and Construction of Temporary Houses for Semeru Eruption Disaster in 2021*
2	13:00 - 13:15	**ID 196** **Ulfa Maynisa Rohmanningrum** *Review potential albumin nanoparticles in drug delivery systems*	**ID 365** **Abdul Basid** *On Disaster Mitigation STEM Education Research-Based Learning Activities to Mapping the Risk Level of Earthquake Damage*	**ID 315** **Muhammad Andryan Wahyu Saputra** *Clickbait News Classification and Twitter Sentiment Analysis Of Conflict Between Russia And Ukraine Using An Artificial Neural Network*
3	13:15 - 13:30	**ID 197** **Ana Mar'A Konita Firdaus** *Synthesis of Chitosan and Alginate Nanoparticles with Ionic Gelation Method in Encapsulation Application Drug*	**ID 359** **Moh. Husnus Syawab, Sri Harini** *The Influence of Gender, Age, Personal Selling and Brand Activation on Consumer Purchase Intentions on Xiaomi*	**ID 259** **Dita Ayu Saputri** *Application of the Linear Method in the Design of Water Surface Treatment with Aquatic Ecological Approach*
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7	14:15 - 14:30	**ID 308** **Darul Huddi** *Identification of Colchicine-Induced Porang (Amorphophallus muelleri Blume) Polyploidy Using RAPD Molecular Markers*	**ID 251** **Fatma Indika Sari** *Halal Restaurant Selection Recommendation Using Multi Criteria Recommender System Method Based on Mobile*	**ID 341** **Nur Hayati** *Impact Impact Analysis of the Implementation of Librarian Infopreneurship at the Public Library and Regional Archives Service of Malang City as a Form of Library Marketing in the Digital Age*
8	14:30 - 14:45		**ID 345** **Alvani Misbah Wadih** *Usability of Bandongan Streaming Content as Information Resources and Services in The Perspective of Student Ponpes Sabilurrosyad Malang*	**ID 343** **Dinda Ayu Novianti** *Evaluation of the Library Program based on Social Inclusion in the Batu City Public Library based on the Kirkpatrick Evaluation Model*

Thursday, October 27th, 2022
Online, 12.45 – 15.00 WIB (Western Indonesia Time)

No	Time	Room 1 PIC: Mujahidin Ahmad	Room 2 PIC: Fachrur Rozi	Room 3 PIC: Armeida Dwi Ridowati Majid
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2	13:00 - 13:15	**ID 344** **Lud Waluyo** *Detergent-tolerant Heterotrophic Bacteria Consortium Strain Decomposer to Improve Environmental Health*	**ID 334** **Satriya Adika Arif Atmaja** *Commognitive-Based Creative Model Development in Controversial Mathematical Reasoning Activities*	**ID 335** **Alya Ika Nur Afifah** *The Study on Corrosion Inhibition Activities of Nitrogen Compounds Derived from Coconut Oil Methyl Ester Using Autoclave Method*
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No	Time	Room 1 PIC: Mujahidin Ahmad	Room 2 PIC: Fachrur Rozi	Room 3 PIC: Armeida Dwi Ridowati Majid
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6	14:00 - 14:15	**ID 270** **Ilvi Nurdhiana** *Identification of Microplastic Contamination in The Digestive Channel of Fish Consumption from Sendang Biru Beach, Malang Regency, East Java*	**ID 369** **Ina Maya Sabara** *Agglomerative Hierarchical Clustering Analysis Based on Partially-ordered Hasse Graph of Poverty Indicators in East Java*	**ID 287** **Ida Irma Afriani** *Antibacterial Activity Acorus calamus L. Rhizome and Determination of Total Flavonoid Content of Isolates from Column Chromatography*
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Thursday, October 27th, 2022
Online, 12.45 – 15.00 WIB (Western Indonesia Time)

No	Time	Room 4 PIC: Firma Shahrul Bahtiar	Room 5 PIC: Ernaning Setiyowati
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3	13:15 - 13:30	**ID 230** **Irawan** *Blockchain and Its Application to Public Sector Accounting In Indonesia*	**ID 362** **Dinda Putri Wijayanti, Ernaning Setiyowati** *Green Building Concept Application to the Pet Care Center Design in Sidoarjo Indonesia*
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5	13:45 - 14:00	**ID 232** **Henny Zurika Lubis** *Digital Innovation of Financial Management In The Development Of Creative Industry In Indonesia*	**ID 297** **Mochammad Khosiuun** *Analysis of the Quality of Public Space at the Comboran Flea Market Corridor, Malang City*

No	Time	Room 4 PIC: Firma Shahrul Bahtiar	Room 5 PIC: Ernaning Setiyowati
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7	14:15 - 14:30	**ID 321** **Aisyatin Kamilah** *Identification of Subsurface Rock Structures in Banyu Biru Hot Springs Using Gravity Method*	**ID 353** **Risyad Ahmed Apriliandi** *Rainwater Harvesting System in Flood Prone Areas in Kali Ulu Village, North Cikarang, Bekasi Regency*

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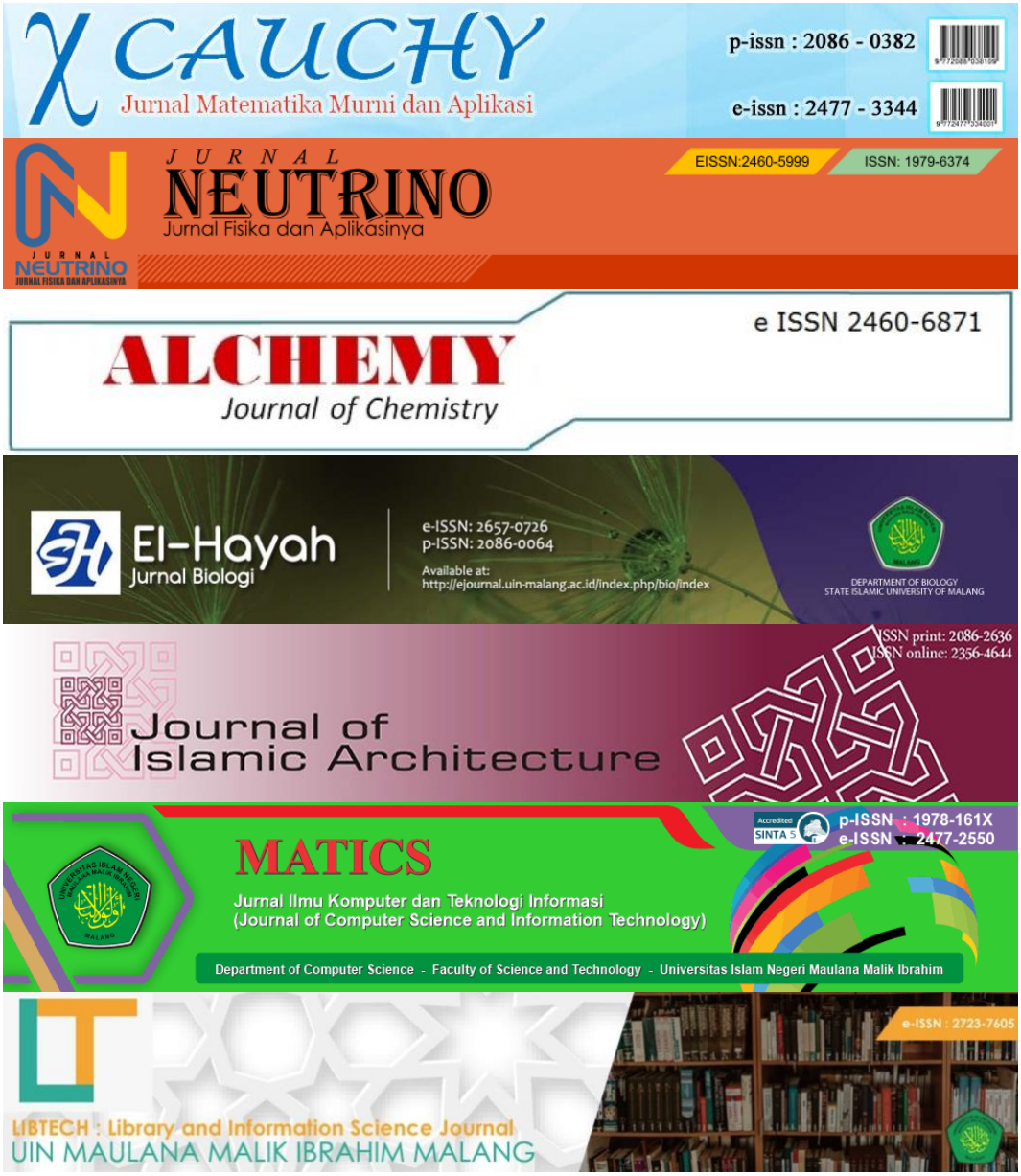

KEYNOTE SPEAKERS

Prof. Hadi Susanto
Khalifa University
United Arab Emirates
Applied Mathematics

Prof. Taufik
California Polytechnic State University
USA
Power Electronics and Power System

Prof. Indah Emilia Wijayanti
Universitas Gadjah Mada
Indonesia
Ring and Module Theory

Wahyudi Hasbi, Ph.D.
Satellite Technology Center-Organization
Research for Aeronautics and Space
Indonesia
Satellite Systems

Prof. F.J.S Wijsen
Radboud University, Nijmegen
Netherlands
Intercultural and Interreligious

PLENARY SPEAKERS

Dr. Noppadon Kitana
Chulalongkorn University
Thailand
Animal Physiology and Conservation Biology

Prof. Sitti Maesuri Patahuddin
University of Canberra
Australia
Spatial Reasoning in Mathematics Learning

Dr. Sri Harini
Universitas Islam Negeri Maulana Malik Ibrahim Malang
Indonesia
Statistics

Dr. Erna Hastuti
Universitas Islam Negeri Maulana Malik Ibrahim Malang
Indonesia
Material Science

Table of Content

KEYNOTE SPEAKERS

Mathematics and Plankton Dynamics

Hadi Susanto

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The oceans contain only about 0.5% of total global biomass of primary producers. However, they provide a similar amount of total annual production to that on land, and turnover times for organic matter in the ocean is 1000-times faster than terrestrial ecosystems. Therefore grazing by zooplankton is disproportionately important and competition among grazers is high. Microzooplankton, copepods, and phytoplankton form an important tri-trophic food-web system, where grazing and predation are mediated by the release of infochemicals such as dimethyl sulphide (DMS). It is crucial to understand the dynamics of these plankton systems as they form the basis of larger marine food-webs (including fish, seabirds, and marine mammals) and DMS can form cloud condensation nuclei, leading to an important role in climate regulation. In this talk, I will briefly review the role of mathematics in understanding the dynamics and hence its contributions in green energy and environment.

Hybrid AC/DC House: The Road to a Sustainable Future

Taufik Taufik

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San Luis Obispo, USA

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The Hybrid AC/DC house is a sustainable alternative to preexisting residential power systems. The implementation of a DC bus in current homes will allow inefficient DC-AC and AC-DC conversions to be circumvented. This provides a direct path for current to flow to DC loads from DC sources such as solar panels to minimize power losses. In doing so, this will give users the ability to power their homes strictly from renewable sources and substantially decrease reliance on the utility. For this purpose, the hybrid AC/DC house is also designed in such a way to be completely grid independent to provide power to rural communities that do not have access to the typical AC grid. In this presentation, the significance of incorporating DC to leverage the use of renewable energy in residential applications will be explained. Components and features that make up the hybrid AC/DC house will be described. Recent progress in the development of the hybrid AC/DC house along with the challenges will also be presented.

Contributions of Algebra in Cryptography

Indah Emilia Wijayanti

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As a public key cryptosystem, RSA has a very broad role in data security systems. This cryptosystem is one of the best public key cryptosystems and is used to maintain the security of various networks, such as web security, digital signatures, email, key exchange, chat applications, electronic commerce protocols and other types of communication where data transmission between two parties needed. The security of RSA depends not only on the security of the secret key, but also on the difficulty of factoring a number, which is a product of two prime numbers. These prime numbers play a very important role in RSA cryptosystem. From mathematics point of view there are many kind developments of RSA cryptosystem. We show that some algebraic structures such as matrices, polynomials, and semigroups, contribute the ideas to construct cryptosystem motivated by RSA.

Keywords: RSA cryptosystem, public key, matrices, polynomials, semigroups

Small Satellite Roles in Disaster Mitigation & Environment Monitoring in Indonesia

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Indonesia lies within the Ring of Fire, making the country highly prone to geophysical disasters such as earthquakes and tsunamis and weather-related disasters such as floods, landslides, and wildfires. Remote sensing & communication satellite technology has been a vital part of Indonesia's early warning system and also for disaster mitigation for the past decade. Communication during a disaster also could be done by using a voice repeater payload in the satellite. However, although the current system in place has managed to help many lives in the past decade, it is still very far from sufficient when benchmarked with other similarly prone regions and countries. Besides the role of this satellite, satellite assets also use to monitor environmental changes. The environmental changes monitoring is very important also to become an early warning prior to the disaster happening.

Green Theology and Technology; A Humanities Perspective on Innovate Science

Frans J. S. Wijsen

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This paper argues that a humanities perspective can contribute to empowering innovative science for green technology. A humanities perspective not only helps to explore the "why" and "what for" of green technology, but also to get insight into the perspectives of the users. Too often, green products are designed in laboratories of universities or companies, but they are not used because the producers neglect the users' point of view. Insight into users' perspectives is also beneficial for entrepreneurs to discover market opportunities for green products. As an example I will elaborate on a case study on the use of plastic bottles for the distribution of mineral water and the plea for biodegradable ones, where (Islamic) theology and technology interfere. I will argue that innovative science can use a living lab approach co-creating knowledge from a trans-disciplinary perspective.

PLENARY SPEAKERS

Innovations for Society – Chulalongkorn University Technology for Sustainable Reforestation and Afforestation

Noppadon Kitana[1,2]

[1] Center of Learning Network for the Region, Chulalongkorn University, Bangkok, Thailand
[2] Department of Biology, Faculty of Science, Chulalongkorn University, Bangkok, Thailand

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Forests in Thailand and other Southeast Asian countries have been critically declined due to anthropogenic activities leading to deforestation and forest degradation, as well as environmental decline such as soil erosion, flooding and drought. Efforts to increase the forest area by reforesting and afforesting has been in practice with various degree of success depending on forest type. Deciduous dipterocarp forest, a forest dominated by a single family of trees in Dipterocarpaceae, is commonly found in tropical region. This forest type is among the fastest disappearing, and its restoration is urgently required. At the Center of Learning Network for the Region, Chulalongkorn University, Saraburi and Nan provinces, innovative approaches of reforestation and afforestation has been carried out based on comprehensive research of the Department of Biology and Department of Botany, Faculty of Science, Chulalongkorn University. First, planting soil was mixed with biopolymer to increase water holding capacity. Field observations suggested that the biopolymer could last for up to 3 years in the field. Second, selected ectomycorrhizal fungi have been used as inoculum to enhance growth and survival of dipterocarp seedlings. Inoculation with the ectomycorrhizal fungi: *Astraeus odoratus and A. asiaticus* enhances growth and survival of many dipterocarp tree species such as *Diptercarpus alatus, D. obtusifolius, D. tuberculatus, Shorea roxburghii, S. obtuse, S. siamensis and Hopea odorata*. Furthermore, these ectomycorrhizal fungi can produce edible mushrooms which can become another source of food and income in the future. Third, Miyawaki method has been used for afforesting in bare areas so that numerous small patches of dense forest can be rapidly established. To date, more than 200 hectares of reforestation and afforestation have been carried out. Evaluation of biomass and carbon storage in these areas suggests that each dipterocarp tree can store carbon dioxide as its biomass up to 780 grams (within 4 years) or 8.7 kilogram (within 15 years). The university innovative approaches for dipterocarp reforestation and afforestation could increase forest area for conservation and restoration of watershed forest, and provision of various

ecosystem services to a growing population at the local, regional and global scale.

Keywords: biopolymer, deciduous dipterocarp forest, ectomycorrhizal fungi, Miyawaki method, wild mushroom

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Department of Biology, Faculty of Science, Chulalongkorn University
Sakchai Manopak and team
Center of Learning Network for the Region, Chulalongkorn University

Numerical solutions to spatial visualisation nuances

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The presentation aims to understand the impact that spatial visualisation plays in the problem-solving strategies of pre-service teachers when those teachers were asked to solve school-mathematics assignments that required measurement reasoning. The intricacies included in the pre-service teachers' strategies were dissected in order to investigate the part that spatial visualisation played in the process of finding a solution. The findings suggest that inadequately visualising the spatial configurations of the tasks led to incorrect numerical solutions despite the presence of conceptual knowledge. This was the case despite the fact that participants knew what they were supposed to be doing. In addition, there was a tendency to rely on formula-based rules, which seems to have limited the preliminary spatial analysis of the tasks. In a theoretical sense, the work provides some insights into the possible mechanisms that are at play in the completion of mathematical tasks with a spatial component. The findings imply that pre-service instructors need to encourage or enact activities that require sufficient levels of spatial reasoning.

Classification of Covid-19 Spread Patterns in the Malang Region with a Kernel Radial Basis Function Approach

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Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia

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Corona virus (Covid-19) is a new type of virus in humans that causes upper respiratory tract infections. This virus has behaviors such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV) with clinical manifestations of infection such as acute respiratory disorders (fever, cough, and shortness of breath) which can cause pneumonia, lung syndrome , kidney failure, and even cause death. To prevent the spread of this virus, WHO has recommended the provision of vaccines to actively increase a person's immunity against Covid-19 attacks, so that when exposed to the disease, they will not get sick or only experience mild illness and will not become a source of transmission. This study classifies Covid-19 data in the Malang Region before and after vaccination with the Kernel Radial Basis Function approach. The data used in this study is a series of Covid-19 data in the Malang Region (Malang City, Malang Regency, and Batu City) from November 2020 to December 2021. The results of this study showed the rate of decline in Covid-19 cases after the implementation of the vaccination program from July to December 2021, with an average accuracy rate of 97%. It can be concluded that the Kernel Radial Basis Function method is suitable for classifying the pattern of the spread of Covid-19 in the Malang Region.

Keywords: Classification, Covid-19 spread pattern, Kernel Radial Basis Function

Potential of MnO_2 as Electrode Materials for Electrochemical Energy Storage

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MnO_2 is an electrode material that is being extensively studied for electrochemical energy storage applications. MnO_2 is an active, low-cost, biofriendly, and theoretically capacitive material. It has a polymorphic crystal structure, which includes the following elements: α, β, γ, ε and δ. Several efforts were made to improve the performance of MnO_2, including cation doping.
MnO_2 doped materials were synthesized using a hydrothermal method at 140 °C for 5 hours. Characterizations such as XRD, SEM, and HRTEM were used to examine phases, structure, microstructure, and morphology. Furthermore, XPS and XAS were used to investigate the dopant-induced oxidation state, defect (oxygen vacancy), coordination number, and distortion in MnO_2 octahedrons. Complex impedance methods are used to investigate conductivity, capacitance, and dielectric properties of MnO_2.
MnO_2 was found to have α-MnO_2 structure with a tunnel (2 x 2) that can be filled with K^+ ions, as well as the nanorod morphology. Substitutional defects increased micro strain, and oxygen vacancy were observed in Fe and Cu doped MnO_2. When the Fe dopant reached (MF-15), the phase changed from α-MnO_2 to R-MnO_2, causing the tunnel dimensions to change (2 x 1). Mn has multivalence, according to the oxidation state analysis: 2+, 3+, and 4+. Electrical characterization revealed that electrical properties influenced by crystal structure, morphology, the oxidation state of the cations at the octahedron site, oxygen vacancy and lattice distortion of Fe and Cu doped MnO_2.

Wednesday, October 26th, 2022 (Offline)

Room A

13.00 – 15.30

ID ABSTRACT: 186

Endophytic Fungi Isolated from *Jasminum sambac* L.: Histological Observation, Identification, and Secondary Metabolites Content Analysis

Utami Sri Hastuti, Vivi Novianti, Dwi Rahmawati, Ria Yustika Sari, Nadila Sekar Zahida

Universitas Negeri Malang

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Abstract

The *Jasminum Sambac* L. plant, especially the flower used for ritual ceremony, i.e: the wedding ceremony. The flower is also used for aroma therapy. Some medicinal plant have mutualism symbiotic interaction with several endhophytic fungi species. This research aimed to: (1) determine the endophytic fungi position in the J. sambac leaf, twig, and petal tissue by histologic observation; (2) Identify the endhopytic fungi species isolated from *J. sambac* plant parts tissues; (3) to analyze several secondary metabolite contents produced by each endhophytic fungi species isolated from *J. sambac* leaf, twig, and petal. The endhopytic fungi mycelium position in the leaf, twig, and petal tissues were determined by histologic observation. The endophytic fungi was isolated from healthy J. sambac plant parts, then inoculated on Potato Dextrose Agar (PDA) medium and incubated in 27 ℃ for 7 days. Each endophytic fungi isolates were identified. Each endophytic fungi species on PDA medium were cut into 5x1 cm in size inoculated on Potato Dextrose Broth medium and shook at the speed of 120 rpm at 27 ℃ for a week. Afterward the liquid culture is centrifugated and the supermarket was used to detect the content of secondary metabolite compounds, i.e: flavonoid, tannin, saponin, alkaloid and terpenoid. The research results are: (1) The endophytic fungi mycelium was found on the leaf stomata guard cell and neighbour cell wall, the twig parenchym and epidermis cell wall, and the petal epidermis cell wall; (2) ten endophytic fungi species were found: *Colletotrichum kahawae, Chaetomium reflexum, Colletotrichum alienum, Mycelia sterilia, Nigrospora gorlenkoawa, Nigrospora oryzae, Cladosporium allienum, Geotrichum candidium, Nigrospora musae,* and *Alternaria tennuis*; (3) Each endophytic fungi species could produce secondary metabolites, which was the flavonoid content ranged: 904,06 – 1661,88 mg/kg; the tannin content ranged: 56,09 – 131,77 mg/kg; the alkaloid content ranged: 27,34 – 56,37 mg/kg; the saponin content ranged: 1, 05 – 5,63 mg/kg; the terpenoid content ranged: 116,23 – 222,59 mg/kg.

Keywords*:* endophytic fungi, identification, histological observation, secondary metabolites, *Jasminum sambac L.*

ID ABSTRACT: 226

Development of Ecoenzyme Based on Local Wisdom to Improve the Quality of Agricultural Products in Nagari Cubadak, Batusangkar

Maya Sari, Venny Haris, Roza Helmita, Aidhya Irhash Putra, Najmiatul Fajar, Hadiyati Idrus

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Abstract

Batusangkar is one of the district which is the center of agriculture in the province of West Sumatera. However, the extent of agricultural land in Nagari Cubadak, Batusangkar has not been able to improve the welfare of farmers'lives. The prices of syntetic chemical fertilizer which always increase every year is one of the reasons of the decline in the economy of farmers. The purposes of this reaserch is to develop ecoenzymes based on local wisdom as a substitute for syntetic chemical fertilizers to increase agricultural production in Nagari Cubadak. This reaserch is a experimental reaserch to make ecoenzymes using vegetables, fruits and other added ingredients originating from Nagari Cubadak then testing the number and types of microorganisms whose work is carried out at the MIPA Laboratory of IAIN Batusangkar. The result showed that there were 14 to 20. 106 number of microorganisms with coccus-shaped morphology. Tests on the growth of tamotoes plants indicated that there were differences in plant height and fruit number between tomatoes plants that were given the ecoenzyme and those that were not. Thus, it can be conclude that the developed ecoenzymes have succeeded in increasing agricultural production in Nagari Cubadak, Batusangkar

Keywords*:* ecoenzymes, local wisdom, microorganisms

ID ABSTRACT: 228

The Utilization of Cajuput Leaf Waste Compost as Organic Fertilizer on Growth and Development of Tomatoes (Lycopersicum esculentum L.)

Ana Widiana, Ukit Ukit, Azat Sudrajat

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Abstract

The annual production of Cajuput oil in Indonesia can reach 88,607 tons. This has implications on the accumulation and abandonment of the waste, as happened at The Cajuput Oil Factory Jatimunggul, Indramayu Regency, West Java. One of the efforts to reduce the amount of Cajuput waste is to use this waste as organic fertilizer. This study aimed to determine the content of C, N, P, and K of Cajuput leaf waste fertilizer and their effect on the growth and development of tomato plants (Lycopersicum esculentum L.). This study used a Completely Randomized Design (CRD) with P0+ Treatment (EM4 Fertilizer); P0- (No Fertilizer); and treatment with the ratio (%) of Cajuput leaf waste fertilizer: chicken manure, including P1 (100: 0); P2 (75:25); P3(50:50); P4 (25:75); P5(0:100). Data were analyzed by ANOVA and Duncan's test. The results showed that Cajuput leaf waste fertilizer (P1) contained 20.08-44.28% organic C, 1.76-2.82% total N, and 11.21-18.71 C/N ratio. However, this treatment contained P 1.25-1.63% and K 0.29-0.61%, which is lower than the treatment of chicken manure (P5). The P2 treatment had a higher content of N-total (2.82%) and C-Organic (44.28%) with a C/N ratio of 15.70%, directly proportional to the results of the best vegetative growth response, indicated by a plant height of 125, 75 cm, stem diameter 0.665 cm and the 15.75 number of leaves. The P2 treatment was considered to have the best for tomato plant development by producing fruit sizes (diameter; length) up to 3.40 cm; 3.49 cm with a weight of 20 g.

Keywords*:* Compost, Cajuput Leaf Waste, Organic Fertilizer, Tomato

ID ABSTRACT: 272

Herbicide Residues in Rice Field Crab of Nan Province, Thailand

Rachata Maneein, Thunyaluk Boonsrang, Noppadon Kitana

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Abstract

Herbicides have been routinely utilized in agricultural practices of Nan Province, northern Thailand for more than a decade in order to boost crop yield. Since the herbicides may have adverse effects on non-target organisms, it is crucial to monitor herbicide contamination in animals living in agricultural areas. The goal of this study was to monitor the trend of herbicide residues (atrazine and paraquat) in the non-target animal between 2010 and 2019. The rice field crab Esanthelphusa nani, which is the sentinel species in this study, were obtained from two agricultural areas in Nan Province: 1) the reference rice field where there was no record of herbicide use for more than ten years; and 2) the contaminated rice field where herbicides were actively and routinely utilized. The crab samples were freeze-dried and extracted. Then, an enzyme-linked immunosorbent assay was used for detecting atrazine and paraquat residue in the extract. The analysis showed that atrazine residue in crabs living in the reference site ranged from 2.22 to 13.26 ng/g in 2010 and 3.01 to 15.07 ng/g in 2019, while the atrazine residue of those in the contaminated site ranged from 4.96 to 23.71 ng/g in 2010 and 3.77 to 8.34 ng/g in 2019. These levels of contamination were still lower than the maximum residue limited of atrazine in food (40 ng/g wet weight; Health Canada 2011, or equivalent to 70 ng/g dry weight). For paraquat, residue in crabs living in the reference site ranged from 29.04 to 48.29 ng/g in 2010 and 4.39 to 73.75 ng/g in 2019 whereas the paraquat residue of those in the contaminated site ranged from 30.23 to 56.40 ng/g in 2010 and 29.31 to 466.60 ng/g in 2019. It is of important to note that paraquat residue was much higher than the maximum residue limit in food (5 ng/g wet weight; Codex Alimentarius 2006, or equivalent to 5.4 ng/g dry weight), and there seems to be a trend of increasing levels in the contaminated site. Since the rice field crab is used as food for local farmers, this level of contamination indicates that herbicide utilization in this area is not in line with good agricultural practice and could pose some serious risk for human consumption. The findings of this study could be used as tools to raise awareness about the possible impact of herbicide use on health of sentinel species, farmers and environments.

Keywords*:* Paraquat, Atrazine, Esanthelphusa nani, non-target organisms, sentinel species

ID ABSTRACT: 274

Screening Thai Herbs with Anti-hematoxic activities against the eastern Russell's viper venom

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Abstract

The eastern Russell's viper, Daboia siamensis, is a significant venomous snake in Thailand. Its venom possesses hematotoxin causing pathological alterations to circulatory and renal systems. Although antivenom serum is used for standard medical treatment, its high cost per dose, ineffectiveness for some symptoms, and risk of developing allergic reactions in patients have drawn attention to an alternative remedy including the medicinal herb. Appropriate screening assays are required for finding medical herbs. In prior studies, we have established effective in vitro and in vivo assays for screening Thai herbs with anti-hematotoxic activities against D. siamensis venom. Three in vitro assays including phospholipase, coagulation, and fibrinogenolytic activities have been successfully validated. Chick embryo has been used as an alternative animal model and its changes in embryonic vasculature were verified as effective markers for the hematotoxic effect of snake venom in the in vivo assay. Ten herbal extracts were screened with validated in vitro assays. The results revealed that Areca catechu is the most effective herb with 45.93% inhibition against the venom. Various concentration of A. catechu extract was applied to neutralize D. siamensis venom at LD50 concentration (6.35 μg/μL), and the mixture was applied to the chick embryo. It was found that A. catechu extract reduced the mortality of chick embryos in a dose-dependent manner. The median inhibitory dose (ID50) of A. catechu against D. siamensis venom in chick embryo during 4-hour exposure was calculated at 4.42 μg/μL. With the strong anti-hemotoxic effect and the low toxicity of A. catechu (LD50 of 445.16 μg/μL), this herb should be further developed into an herbal remedy for snakebite treatment.

Keywords*:* phospholipase, fibrinogenolysis, coagulation, chick embryo assay, Areca catechu, hematotoxin

ID ABSTRACT: 275

Technique evaluation of Environmental DNA for Panha's Crocodile Newt Tylototriton panhai in Thailand

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Abstract

Panhai's crocodile newt, Tylototriton panhai, is distributed throughout high land of Loei-Phetchabun ranges in north-eastern Thailand. In addition, the Panhai's crocodile newt is belived to be threatened due to habitat destruction and alteration in the area. However, this covert species is challenging to find by visual survey leading to challenging for conservation policy. Here we purpose an indirect technique to survey the species rage. Environmental DNA (eDNA) is a technique that can notice species that have not seen individual. Therefore, this study subjects to evaluate a technique for detecting eDNA using mitochondrial DNA markers (16S rRNA and ND2). First step we evaluated tecniques by using a vacuum filter (GAST model DOA-P504-BN-LabModel) and filter paper with a diameter of 0.7 micrometers (Whatman international Ltd./ GE Healthcare). We tested the technique by captivity and using genetic materials of axolotl and Chinese fire belly newt instead because we have very limitation of those from Panhai's crocodile newt. The result of technique evaluation reveals that environmental DNA from axolotl and Chinese fire belly newt could be detected with 0.1 picograms per µL as a detection limit. After that we preliminary analysed water samples from natural habitat of Panhai's crocodile newts from montane creek in Uttaradit Province. However, the result present that the quantity of genetic materials is lower than limit of detection. Then we are modifying the tecniques and will be adding more water samples from other areas in the near future. This study is initial research applying new molecular biology techniques for exploring obscure amphibian species that will lead to advance in amphibian biodiversity research.

Keywords*:* genetic marker, molecular ecology, salamander, species detection, species range

ID ABSTRACT: 262

Potential Polyphosphate Bacteria Screening of Uranium-Tolerant Bacteria Isolated from Radionuclide Waste in Batan, Yogyakarta

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Abstract

Uranium contamination is one of the worldwide quite dangerous or hazardous environmental problem. Uranium contaminant removal can be processed using or adding phosphates in to the contaminated environment that called Phosphate-mediated Biomineralization process. It is one of the effective methods to remove uranium contamination from the environments because resulted a stable form so that it can be removed to the final disposal. The uranium-tolerant bacteria can be used as a phosphate-mediated biomineralization agent because of its ability in polyphosphate metabolisms. The aim of this study is to get polyP potential isolates of uranium-tolerant bacteria in Indonesia. The study was conducted by selecting uranium-tolerant bacteria that has been isolated from uranium waste qualitatively based on their ability to grow on phosphate-free media and quantitatively relied on their ability to take and accumulate phosphate from the media. Furthermore, the selected isolate will be characterized by amplifying its 16S rRNA gene. The results of this study obtained one selected isolate from qualitative and quantitative screening, namely A67I isolate. A67I Isolate was able to take ± 160 µg/l phosphates or approximately 53,080% of the total phosphate in the media. The results of the 16S rRNA gene sequence analysis showed that the isolate has similarities with Acinetobacter radioresistens NBRC 102413 strain and A. radioresistens FO-1 strain with 99% index identity. The results showed that the A67I isolate was polyP potential and belongs to the Acinetobacter genus.

Keywords*:* Biomineralization, Uranium, polyP, Characterisation

ID ABSTRACT: 300

Effect of Application of Propolis as Feed Supplement and Preservation Agent to Pathogenic Microbes Contamination of Local Chicken Meat

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Abstract

Chicken meat is one of the primary protein sources for the Indonesian market. However, due to the warm and humid climate, chicken meat is subject to microbial contamination, i.e., Escherichia coli dan Salmonella sp. The source of the contamination is chicken gastrointestinal and environment during rearing and post-harvest handling. One of the approaches to solve this problem is by applying the natural product, which is safe for human consumption, as antibiotic and preservation agent. This study used propolis of Trigona laeviceps as a feed supplement and preservation agent for local chicken meat. Chickens were divided into three groups (1) group I, in which chicken did not provide with propolis supplement and the harvested meat did not dip into propolis (2.5%), (2) group II in which chickens provided with propolis supplement and the harvested meat did not dip into propolis (2.5%), (3) group III in which chicken provided with propolis during rearing and the harvested meat did not dip into propolis solution, and (4) group IV in which chicken provided with propolis supplement (propolis 3%) during rearing and harvested meat dipped into propolis. Observation of E.coli dan Salmonella sp. infestation conducted at 0, 4, and 8 hours. The result indicated that the application of 2.5% propolis solution suppressed E.coli for all observation periods. Still, application of propolis during the chicken rearing period did not significantly reduce the E. coli population in the meat. Both Triple-Sugar-Ion (TSI) and Lysne Iron Agar (LIA) tests did not detect any Salmonella sp infestation, although the disc diffusion method showed antibacterial activity of propolis against Salmonella thyprinum. The present finding suggested that Indonesia local chicken is more susceptible to E. coli infestation than Salmonella and the application of propolis.

Keywords*:* Chicken meat, Escherichia coli., Propolis, Salmonella sp., Trigona sp.

ID ABSTRACT: 331

Identification of Insects Visitors to Oil Palm Flowers in the Community Plantation of Kalicinta Village, North Kotabumi District, North Lampung Regency

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Abstract

Palm oil is one of the plantation commodities that have economic value in Indonesia. One of the critical factors affecting the productivity of oil palm fruit is the presence of insects. This study aims to determine the insect visitor of male and female palm flowers based on border habitat types and times. The research was conducted in Kalicinta Village, North Kotabumi District, from August 2020 to September 2020. The study was conducted using the Purposive Sampling method at three observation stations: SS (palm plantations bordering palm plantations) and SK (palm plantations bordering rubber plantations). , SG (palm plantations bordering cassava plantations). Insect collection was carried out using swap and yellow sticky trap methods. There were 25 morphospecies and eight insect orders visiting palm oil flowers. These orders were Coleoptera, Dermaptera, Diptera, Hymenoptera, Hemiptera, Lepidoptera, Odonata, and Mantodea. The types of insects that visited male palm flowers were 25 morphospecies compared to 5 female morphospecies. Elaeidobius sp (Coleoptera: Curculionidae) was the most species that saw male flowers (447 individuals), followed by Apis sp (Hymenoptera: Apidae) with as many as 20 individuals.

Meanwhile, the most insects that visited the female flowers were Elaeidobius sp (Coleoptera: Curculionidae) with 125 individuals, followed by Camponotus sp (Hymenoptera: Formicidae) with 109 individuals. The highest insect visit time occurs in the morning. The SS habitat is the most visited habitat by insects.

Keywords*:* flower, identification, visitor, palm, insect

Wednesday, October 26th, 2022 (Offline)

Room B

13.00 – 15.30

ID ABSTRACT: 347

Implementation of Rubik's Cube Algorithm and Rivest-Shamir-Adleman (RSA) Algorithm on Iris Digital Image Security

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Abstract

Technological developments, especially smartphones, have led to an authentication process that must be developed. One of them is the use of the iris in the authentication process. The use of the iris can increase security in the authentication process because the structure of the iris is unique and differs from individual to individual. Authentication requires encryption and decryption processes to secure data. This research uses a combination of two algorithms: the Rubik's Cube algorithm and the Rivest-Shamir-Adleman (RSA) algorithm. This study aimed to obtain the accuracy and time efficiency results used in the encryption and decryption process. In this study, the encryption process was carried out using Rubik's Cube algorithm, followed by encryption using the Rivest-Shamir-Adleman (RSA) algorithm. In the decryption process, it was obtained using the Rivest-Shamir-Adleman (RSA) algorithm, then continued with the decryption using the Rubik's Cube algorithm. The experimental results indicate that the encrypted image results differ from the initial image. With the results, the average Structural Similarity Index Metrics (SSIM) is 0.01, and the average Mean Square Error (MSE) is 37620.59. Furthermore, evaluations of the encryption and decryption process time were also carried out using the RSA public key (197,403) and RSA private key (53,403). The maximum iteration of Rubik's Cube algorithm was 1. In the encryption process, the average time was 0.796 seconds, and the decryption process obtained an average time of 0.652 seconds. This study has brought new procedures for securing digital images that can be developed in further studies.

Keywords*:* Decryption, Digital Image, Rubikís Cube Algorithm, Encryption, Eyeís Iris, Rivest-Shamir-Adleman (RSA) Algorithm

ID ABSTRACT: 211

Fuzzy Time Series Markov Chain Method to Forecast The Amount of Strawberry Production in Batu City

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Abstract

Strawberry is a subtropical fruit that has high economic value. Until now, strawberry production have not been able to meet market demand, so the price is quite high. Batu city is one of the areas in Indonesia that cultivates strawberries. Every month, the amount of strawberry production in Batu city has decreased or increased. In this study, researchers used Fuzzy Time Series Markov Chain method to forecast the amount of strawberry production in Batu city, so that is can be used as one of the considerations in making decisions to maximize production results in accordance with market demand. The data used in this study is secondary data on the amount of strawberry production in Batu city from January 2016 until December 2020. Fuzzy Time Series Markov Chain is an incorporation of the Fuzzy Time Series and Markov Chain. Based on the research results, forecasting the amount of strawberry production in Batu city from Januari 2016 until December 2020 using Fuzzy Time Series Markov Chain method has excellent forecasting ability because Mean Absolute Percentage Error (MAPE) value is 8.740%.

Keywords*:* Forecasting, Fuzzy Time Series Markov Chain, Strawberry, MAPE

ID ABSTRACT: 205

The Dynamic Analysis of Conventional and Electric Smokers Population Models

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Abstract

The number of conventional cigarette users is currently increasing. With the existence of e-cigarettes as a tool to stop smoking, it is hoped that this study can help to reduce the number of conventional smokers. This study analyzed the conventional and electric smokers population models dynamically. The dynamic analysis in the model included smokers-free equilibrium points and endemic equilibrium points, the stability of equilibrium points, determining the basic reproduction number R_0, bifurcation analysis, and numerical simulation. In addition, this study also analyzed the parameter sensitivity to the value of R_0 so that it can be seen which parameters were effective in reducing the spread of smoking habits. This study divided the population into four populations, namely the potential smokers' population ($\hat{P}$), conventional smokers' population ($\hat{S}$), e-smokers' population ($\hat{E}$), and quitting smokers' population ($\hat{Q}$).

The results of the analysis showed that the model had two equilibrium points, namely smokers-free equilibrium points $e_0 = (S_0, E_0, Q_0)$ and $e^* = (S^*, E^*, Q^*)$. The stability of smokers-free equilibrium points would be locally asymptotically stable when $R_0 < 1$, while the endemic equilibrium points would be locally asymptotically stable when $\gamma_1 > \beta_2 Q^*$ dan $\beta_1 > \alpha/S^*$. Then a bifurcation phenomenon occurred when $R_0 = 1$. The reverse bifurcation occurred when $R_c < R_0 < 1$, which caused a change in stability at the endemik equilibrium points, while forward bifurcation occurred when $R_0 > 1$. The parameters that had the highest level of effectiveness in reducing the basic reproduction number R_0 were γ_1 (rate of conventional smokers who quit smoking voluntarily), then g (rate of conventional smokers using e-cigarettes), and γ_2 (rate of electric smokers quitting smoking).

Keywords*:* Dynamic Analysis, Sensitivity Analysis, Bifurcation, E-cigarette

ID ABSTRACT: 206

On the Dynamic Analysis of Drug Addiction Model with Rehabilitation Factors and Health Campaigns

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Abstract

The study of population dynamics of drug addicts in an area with rehabilitation and health campaigns is carried out in this study. When there are addicts in an environment, it is worried that other populations of individuals will be compelled to take drugs because of their high curiosity so that if they cannot control themselves, that person will become an addict as well. Therefore, in this study, a mathematical model of drug addiction was built with rehabilitation and health campaign factors in the form of a system of non-linear differential equations with six equations that form a dynamic system. In this model, two equilibrium points are found, namely the disease-free equilibrium point and the endemic equilibrium point. The results of this study indicate that the stability of the disease-free equilibrium point is locally asymptotically stable, while the stability of the endemic equilibrium point also shows that it is locally asymptotically stable. The curve for the infected, rehabilitated and cured population shows a drastic increase. By giving control of treatment and health campaigns, it can reduce the curve so that it can minimize drug users without increasing the number of new users.

Keywords*:* drug addiction model, rehabilitation, health campaign, equilibrium point, and stability analysis

ID ABSTRACT: 210

Analysis of the Stability of the Mathematical Model of Metapopulation Spread of the Ebola Virus

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Abstract

The research discussed the stability analysis of the meta mathematical model of the ebola virus spread. The population is classified into five variables of the Susceptible–Infected–Hospitalised–Deceased–Patogen (SIHDP). The only thing that makes up a mathematical model is a common differential equations system of the one order for a time of five variables. The model is then searched for a spot of equilibrium and defined the local stability properties of every dot. The two points of equilibrium between this model, namely the point of sickness free equilibrium and endemic equilibrium. Then, linierization around every point of equilibrium is used for local stability requirements. Substitution parameters match the parameters of north and south Kivu data on jacobian evaluated around the disease-free equilibrium point produces five eigen values which one is of positive value. Substitution parameters according to north and south Kivu data on jacobian evaluated around endemic stability results in five ethically negative. Numerical analysis of this study will use Runge Kutta $4th$ order. The simulations on this study obtained $\beta_1 = 0.67 \neq 0$ and $\beta_1 = 0$ on infected individuals, where the effects of fear affect the number of populations that interact with pathogens in the environment, with increasing value if $\beta_1 = 0$.

Keywords*:* Behavioral Analysis, Ebola Virus, Fear Function, Runge Kutta 4th order, Stability Analysis

ID ABSTRACT: 185

Dynamic Analysis Behavior of the Covid-19 Spread Model in the SEIHRV Population with Optimal Control

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Abstract

In this study discusses the dynamic analysis of the Covid-19 spread model in the SEIHRV population, then proceed with numerical simulations with optimal control. The SEIHRV mathematical model divides the human population into five classes, namely Susceptible (S), Exposed (E), Infected (I), Hospitalized (H), Recovered (R) and one additional compartment, Virus (V). Dynamic analysis is carried out by determining the equilibrium point, the basic reproduction number ($\mathscr{R}_0$), equilibrium point stability analysis. Then proceed with determining the optimal conditions by formulating the control function γ_2 with the rules of optimal control stages. Next, γ_2 as a function of controlling the effectiveness of treatment for infected individuals and recovered individuals. The result of this research is that the basic reproduction number is $\mathscr{R}_0 > 1$. The disease-free equilibrium point is unstable and the endemic equilibrium point is locally asymptotically stable. Numerical simulations are carried out when conditions are free of disease and conditions are endemic in situations γ_2 as constant and control function. Numerical simulation results show that when there is no disease-free condition, there is no difference in the current graph γ_2 as constant and control function. While in endemic conditions, the graph γ_2 as constant and control function is different so that information is obtained that giving treatment to infected individuals is able to minimize the number of infected individuals and maximize the number of recovered individuals. In further research, other controls can be added, for example the application of 3M (Wear a mask, Wash hands, Keep your distance).

Keywords*:* Basic Reproduction Number, Control of γ_2, Dynamic Analysis, Equilibrium Points, Mathematical Model of SEIHRV

ID ABSTRACT: 220

The Bases of Dihedral Groups

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Abstract

Groups can be viewed as a generalization of vector spaces. Some researchers have developed the concept of bases and dimensions to groups. Let G be a group. A set B of conjugacy classes of G is a basis of G if B is an independent set which generates G. This study aims to determine the bases of dihedral groups. We obtained a conjecture about the bases of dihedral groups D_{2n} generally by finding the bases of dihedral groups D_{2n} for $n = 3, 4, 5, 6, 7, 8$. Given $n \in \mathbb{Z}, n \geq 3$, the bases of dihedral groups D_{2n} for n odd are $\{[sr^i]\}$ for $0 \leq i \leq n-1$ and the bases of dihedral groups D_{2n} for n even are $\{[r], [sr^{2i}]\}, \{[r], [sr^{2i+1}]\}, \{[sr^{2i}], [sr^{2i+1}]\}$ *for* $0 \leq i \leq \frac{n}{2} - 1$.

Keywords*:* Bases, Dihedral Groups, Independent Set, Conjugacy Classes, Generating Set

ID ABSTRACT: 279

Analyzing the Impact of COVID-19 Pandemic in The High Number of Divorce Cases in Malang Using K-Means Clustering Algorithm Approach

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Abstract

COVID-19 has created several problems such as social, economic, education, and marriage problems. Religious Court in Malang (Pengadilan Agama Kota Malang) noted that divorce cases increased in 2021, which was 139 cases from the previous year. The study aims to form groups in divorce cases during COVID-19 in Malang using K-Means Cluster. It has done based on the average of the nearest cluster. The method can minimize errors from object partitions in the cluster. Data in this study use Surabaya Religious High Court (Pengadilan Tinggi Surabaya) in 2021 regarding factor divorced cases in Malang Raya from 2020 to 2021. Based on K-Means Cluster using Elbow and Silhouette, 2 clusters were formed. The first clusters are conflicts between spouses and economic factors during the pandemic. The second clusters are adultery, drunken, gambling, leaving one party behind, imprisonment, polygamy, domestic violence, physical abuse, forced marriage, apostasy.

Keywords*:* Divorce, COVID-19, K-Means, Cluster

ID ABSTRACT: 278

Determination of the Shortest Path of Zakat Distribution with Ant Algorithm and Greedy Algorithm (Case Study in Karangrena Village)

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Abstract

COVID-19 pandemic gives many challenges in every aspect of social life, one of them on zakat fitrah distributed activity. This matter because the obligation of strict health protocols to decrease the spread of SARS-COV2 even once zakat fitrah distributed activity. Zakat fitrah distributed with scheme come to mustahiq become one of the solutions so that zakat fitrah distributed activity can be right on target and no crowd. To optimize the business of managing zakat fitrah, the shortest route of zakat distribution is needed. The Ant Algorithm and greedy algorithm can be used to determine the shortest path of the zakat distribution path. In this, study, a case study was conducted in Karangrena Village, Maos, Cilacap, Central Java with data processed from the results of an interview with the Head of Karangrena Village. The shortest route is obtained by comparing the Ant and Greedy Algorithms. This method then analyses the Python programming language using Google Colab. The shortest total distance is 4.67 km. The resulting route is V1-V7-V5-V4-V6-V2-V3-V1. At- Taqwa Mosque - The house of hamlet head 6- The house of hamlet head 4- The house of hamlet head 3- The house of hamlet head 5- The house of hamlet head 1- The house of hamlet head 2- At-Taqwa Mosque.

Keywords*:* greedy's algorithm, ant algorithm, zakat

ID ABSTRACT: 221

Human Voice Recognition System with Backpropagation Neural Network Method

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Abstract

The system on the computer can make everything run quickly and efficiently, so that it becomes a tool in information processing. One of the computer systems is an Artificial Neural Network (ANN). Along with technological advances, events that require computational models to perform speech recognition can be useful for science, as well as for making practical applications such as voice-based security systems. Artificial neural network is a method of grouping and separating data that has a working system like a neural network in humans. Artificial neural networks can pick up patterns that have been perfectly studied and well received. Backpropagation is a systematic method for training multiple layers of artificial neural networks. The backpropagation network model is composed of an input layer, at least one hidden layer and an output layer. Voice data in the form of signals is converted into discrete data by LPC and FFT methods. The activation function used is the sigmoid function, 2 hidden layers and the number of neurons 15. Optimal training was obtained in the 4th experiment with an MSE error of 0.19413 with a time of 11 seconds with 678 iterations. system accuracy to training data is 90%, and accuracy to test data is 40%. This means that the level of system accuracy can run well.

Keywords*:* Artificial Neural Network, Backpropagation, Voice, Mean Square Error (MSE)

Wednesday, October 26th, 2022 (Offline)

Room C

13.00 – 15.30

ID ABSTRACT: 245

Eco-Friendly Synthesis of $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$ via Molten Salt Method

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Abstract

The molten salt synthesis has been known as an eco-friendly synthesis method because it does not produce hazardous waste and also there is no requirement high a calcination temperature. In this research, we synthesized $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$ photocatalytic material via the molten salt method using NaCl, KCl, and NaCl/KCl salt. The diffractogram sample showed that $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$ product that obtained using KCl salt had successfully obtained with no impurities, but the $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$ product that synthesized using NaCl salt has found an impurities phase of $Bi_4Ti_3O_{12}$ and TiO_2 (brookite). $SrCO_3$ impurities was also found on $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$ product that synthesized using NaCl/KCl salt. The micrographs showed that the morphology of sample is plate-like and still found agglomeration. The results of Kubelka-Munk calculation showed that the $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$ has a band gap energy of about 2.32-2.55 eV.

Keywords*:* Molten salt synthesis, NaCl, KCl, NaCl/KCl, $SrBi_4Ti_{3.95}Fe_{0.05}O_{15}$

ID ABSTRACT: 332

Eco-Friendly Synthesis and Characterization of $SrBi_4Ti_{3.9}Fe_{0.1}O_{15}$ via Molten Salt Method

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Abstract

One method of synthesizing metal oxide compounds is the molten salt method. This method is an environmentally friendly method because it does not produce waste from residual solvents and uses a lower temperature. In this research, the synthesis of the compound $SrBi_4Ti_{3.9}Fe_{0.1}O_{15}$ was carried out using the molten salt method using different salt i.e NaCl, KCl and NaCl-KCl. The sample diffractogram shows that the compound $SrBi_4Ti_{3.9}Fe_{0.1}O_{15}$ which was synthesized using KCl and NaCl-KCl was successfully synthesized without any impurities. Meanwhile, the sample of $SrBi_4Ti_{3.9}Fe_{0.1}O_{15}$ which was synthesized with NaCl was still found to be impurity in the form of TiO_2. The morphology of compounds synthesized using NaCl-KCl has a smaller size compared to compounds synthesized with single salts of NaCl and KCl. The results of the calculation of the band gap energy show that the compound $SrBi_4Ti_{3.9}Fe_{0.1}O_{15}$ has a band gap energy at range ~2.31-2.21 eV.

Keywords*:* $SrBi_4Ti_{3.9}Fe_{0.1}O_{15}$, molten salt method, photocatalyst

ID ABSTRACT: 346

Molecular Docking of Selected Phytosterol from Hydrilla verticillata on Estrogen Receptors β (ER- β) as Candidates of Anti-Breast Cancer

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Abstract

Hydrilla verticillata is an aquatic plant that contains various secondary metabolites, such as triterpenoids and steroids. Several steroid compounds contained in *Hydrilla verticillata* are β-sitosterol, stigmasterol, fukosterol, campesterol, and cholesterol. Steroid compounds have potential as candidates for breast cancer compounds. Estrogen receptors are important factors in the inhibition and invasion of breast cancer cells. The estrogen receptor complexed with genistein is often the target model for drug action. The docking of phytosterol compounds in *Hydrilla verticillata* to estrogen receptors has been carried out to test the docking energy associated with the affinity and type of binding between the ligand and the receptor.

Five steroid compounds Hydrilla verticillata which have the potential to inhibit the growth of breast cancer cells as well as genistein as comparisons were taken from the PubChem database. Molecular docking of these compounds to estrogen- and estrogen-β receptors was carried out using software such as RSCB Protein Data Bank, PyrX Virtual Screening Tool and BIOVIA Discovery Studio Visualizer.

The results showed that β-sitosterol, stigmasterol, fukosterol, campesterol, and cholesterol had binding affinities of -7.3, -8.1, -7.7, -8.1 and 7.6 kcal/mol towards 1X7R estrogen-β receptor and -6.8, -6.8, -7.5, -6.8 and 6.3 kcal/mol towards 1X7J estrogen-β receptor. While genistein as a control has a binding affinity of 7.7 kcal/mol towards 1X7R and 6.4 kcal/mol towards 1X7J. Some phytosterol compounds from *Hydrylla verticillata* have a better binding affinity than gynestein as a positive control, so it can be concluded that these compounds have the potential as anti-cancer.

Keywords*:* Phytosterol, Hydrilla verticillata, ER-β, anti-breast cancer

ID ABSTRACT: 364

UHPLC-Q-Orbitrap HRMS Based Metabolomic of Acalypha indica Linn Based on Different Altitude

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Abstract

Achaplpha indica Linn is a weed that has antioxidant activity. In this study, the value of antioxidant activity was determined, and chemical compounds were analyzed using the UHPLC-Q-Orbitrap-HRMS profile to determine the grouping of compounds based on differences in growth locations, and compounds that were thought to have a significant contribution as antioxidants in Achaplpha indica Linn extract. The antioxidant activity values were Tuban (TBN) 94,880 g/mL, Banyuwangi (BW) 96,280 g/mL, Magetan (MGT) 110.778 g/mL, and Malang (MLG) 108,538 g/mL. The Tuban area (TBN) with an altitude of 20-50 above sea level is classified as a low area which has the smallest IC50 value. Based on the altitude area where Achaplpha indica Linn grows, it can be grouped based on the UHPLC-Q-Orbitrap HRMS profile using principal component analysis (PCA). Partial least squares analysis (PLS) has identified several chemical compounds, catechin compounds most likely to contribute to antioxidant inhibitory activity.

Keywords*:* Zeolite, ZSM-5, Solvent-free

ID ABSTRACT: 368

Photocatalytic Degradation of Methyl Orange Solution by TiO_2/N Loaded on Zeolite and Activated Carbon as Supporting Material

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Abstract

TiO_2 modified N loaded on zeolite (TNZ) and activated carbon (TNC) was prepared by sonication method. This photocatalysts were characterized by X-Ray Diffraction (XRD) and UV-Vis Diffuse Reflectance Spectroscopy (DRS). Their photocatalytic activities was examined by the degradation of methyl orange solution under UV light irradiation. The results show that TiO_2/N loaded on zeolite and activated carbon affected the crystal size of photocatalysts, the decrease of band gap energy of photocatalyst and the increase of photocatalytic degradation of methyl orange. The crystal size of TNZ photocatalyst is 47.37 nm and TNC photocatalyst is 56.84 nm. The band gap energy of TNZ photocatalyst is about 2.76 eV and TNC photocatalyst is about 2.80 eV. Supporting material zeolite shows higher degradation percentage than activated carbon, degradation percentage of TNZ photocatalyst is about 56.04% and TNC photocatalyst is about 53.03% under 60 minutes UV light irradiation. The photocatalytic degradation of methyl orange solution by TiO_2 and TiO_2/N was also tested and the degradation percentage was 48.54% and 52.96% respectively.

Keywords: Photocatalyst, Degradation, Methyl orange, TiO_2/N, Zeolite, Activated carbon, Supporting material

ID ABSTRACT: 293

ZSM-5 Synthesis Using Solvent-free Method with Variations in Silica Precursors, Aging Time and Crystallization Temperature

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Abstract

ZSM-5 which was synthesized by the solvent-free method using silica gel as a precursor with grinding variations of 15 and 60 minutes did not produce a significant difference in product. The aging time of 60 minutes resulted in a better product with a lower reactant intensity. Meanwhile, increasing the crystallization temperature (160^{o}C) resulted in a better ZSM-5 product with a high XRD reactant intensity and the morphological results resulted in a clearer crystal size. ZSM-5 which was synthesized using a solvent-free method using TEOS precursors with various crystallization temperatures produced the best results at 160^{o}C with better product intensity and clearer product morphology. While the crystallization temperature of 180^{o}C produces a more different. ZSM-5 after calcination showed stronger absorption at a wave number of 473 cm^{-1} which indicated a double ring of pentasyl framework composing of MFI type zeolite.

Keywords*:* Zeolite, ZSM-5, Solvent-free

ID ABSTRACT: 325

Potency Complex Compound Mn(II)-TMPyP as a Dye Sensitizer on DSSC

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Abstract

Both inceasing human population and increasing energy consumption are main factors which cause energy crisis. In this situation/due to this crisis, we need a new alternative energy sources. DSSC (Dye Sensitized Solar Cells) has great potential to develop because the dye as a light catcher can be directly applied in daily life. In this research, Mn(II)-TMPyP complex compound have been synthesized as a dye sensitizer from several substances such as $MnCl_2.4H_2O$, derivatives of phorphyrin (TMPyP), (5,10,15,20-Tetrakis(1-methyl-4-pyridinio)porphyrin, and tetra(p-toluenesulfonate). Mn(II)-TMPyP complex compound has been characterized using a UV-Vis spectrophotometer and showed a wavelength of 439.50 nm and 461 nm, and the vibration of Mn-N at wavenumber of 300.90 cm^{-1}. The performance of Mn(II)-TMPyP complex compound as photosensitizer respectively obtained the value of short-circuit current (Jsc) at 5 mA/cm^2, with an open circuit voltage (Voc) at 0.40 V and the value of efficiency at 3.64%.

Keywords*:* Mn(II)-TMPyP, complexes, dye-sensitizer, Dye-Sensitized Solar Cells

ID ABSTRACT: 281

Effect of Fermentation Time on Antibacterial Activity of *Rhizopus oryzae* Fermented Red Rice bran in Inhibiting *Staphylococcus aureus* and *Escherichia coli*

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Abstract

Rice bran is a by-product of the rice milling process which is rich in nutrients and bioactive compounds such as flavonoids, alkaloids, triterpenoids, and so on. Pigmented rice bran such as brown rice bran is richer in bioactive compounds because it contains anthocyanin compounds. The number of bioactive components found in brown rice bran can be used as an antibacterial. Fermentation with the fungus *Rhizopus oryzae* can increase the content of active compounds in rice bran. The purpose of this study was to determine the effect of variations in fermentation time on the antibacterial activity of brown rice bran fermented with *Rhizopus oryzae*. Brown rice bran of Inpari 24 variety was prepared and fermented with variations of 3, 4, 5, and 6 days of fermentation at 37º C. The fermented bran was extracted by maceration method using ethanol solvent. The bran extract obtained was then analyzed for its antibacterial activity using the agar diffusion method. The test bacteria used were *Stapylococcus aureus* and *Escherichia coli* bacteria. The average results of the largest antibacterial activity test were 2.53 mm for *S. aureus* and 3.9 mm for *E. coli*. Based on the One way statistical test (ANOVA) it was found that the variation in fermentation time had an effect on the inhibition zone produced in the antibacterial activity test of *S. aureus* and *E. coli*.

Keywords*:* Rice Bran, fermentation, Rhizopus oryzae, antibacterial

Wednesday, October 26th, 2022 (Online)

Room 1

13.00 – 15.30

ID ABSTRACT: 180

The Potential of Effective Microorganism-4 (Em-4) on The Yield of Garlic (Alium sativum L.) Lumbu Kuning Local Cultivar, Indonesia

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Abstract

In order to enhance self-suffiency program of garlic 2021, the Indonesia government is re-promoting some local varieties, including Lumbu Kuning variety. A research on the applications of effective microorganism-4 (EM-4) was done to determine the production of garlic cv. Lumbu Kuning. The study was conducted in the experimental field of Vegetable Research Institute Lembang since October 2018 until February 2019. The research was arranged in randomized completed design with three treatments and repeated three times i.e. without EM-4, 50% of EM-4 and 100% of EM-4. The data obtained were then analyzed statistically by the Tukey's test (HSD). The result showed that there was no real response to the production of garlic. However based on observations, the better result of plant growth was shown by EM-4 at a dose of 50%.

Keywords*:* bion-up, effective microorganism, garlic, local variety

ID ABSTRACT: 307

Ginger (*Zingiber officinale*): Drying to encapsulation in Alginate-PVA Beads

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Abstract

Ginger is one of the most widely produced horticultural commodities from the spice and medicinal plant group compared to other commodities. Ginger can be used in the form of dry powder or the form of ginger essential oil. Ginger essential oil has properties: Ginger essential oil is unstable and susceptible to oxidation and degradation in the presence of oxygen, light, metals, and high temperatures. Encapsulation is a solution to maintain the quality of red ginger essential oil. This study provides information about the drying process of red ginger with a rotary dryer, extraction kinetics using the soxhletation method, and encapsulation of red ginger essential oil. 1.5 kg of red ginger cut into cubes with dimensions of ± four mm3. The pieces of red ginger were put into a rotary dryer which rotated at a speed of 19, 30, and 55 rpm. The dried ginger pieces are then mashed. The ginger powder was extracted in a socket at a temperature of 70 o C using n-Hexane as solvent. The resulting ginger essential oil is then encapsulated in Alginate-PVA granules. Drying with a rotary dryer is still less effective in drying red ginger with a maximum moisture content of 20%. The extraction process using the Soxhlet method with n-Hexan as a solvent resulted in a yield of 7.834% (extraction kinetic constant of 0.211). Ginger essential oil can be encapsulated in Alginate-PVA beads with an average diameter of 1.25 mm.

Keywords*:* Encapsulation, Ginger, Soxhlet Extraction, Rotary Dryer

ID ABSTRACT: 342

Effect of chitosan mouthwash, with and without fluoride and peppermint oil presence on anti-biofilm activity against Streptococcus mutans

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Abstract

Mouthwashes are used in oral health to prevent and treat dental biofilms which are caused by bacteria attaching to the hard surfaces of teeth resulting in the onset of dental diseases. Chitosan (CS), a natural biodegradable and biocompatible polysaccharide, possesses an antibacterial effect. Mouthwash formulations can contain one or more antibacterial agents. Fluoride or essential oil or both have been used extensively in mouthwash formulation. Our previous study has indicated that Lysine-modified chitosan (CS Lys) improved the antibacterial activity against cariogenic species (Streptococcus mutans). In this study, we incorporated fluoride ions into the polymer (CS Lys F) and formulated it into mouthwash with and without peppermint oil. The chitosan-based mouthwash effect on S. mutans biofilms was investigated through crystal violet dye. The toxicity of the mouthwash formulation was assessed against human gingival fibroblast (HGF) cells. The findings showed that fluoride (775 ppm) and peppermint oil (0.25%) added to mouthwash formulation had no significant effect on improving the antibacterial activity. However, the modified mouthwash exhibited low toxicity against the HGF cells compared to the 0.2% chlorhexidine mouthwash.

Keywords*:* Fluoride, Peppermint oil, Chitosan, Streptococcus mutans, Mouthwash

ID ABSTRACT: 263

Optimization of *Centella asiatica* (L.) Urban Dosage in Improving Memory of Mice with Brain Necrosis Model

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Abstract

Brain necrosis in mice can be triggered by injection of streptozotocin (STZ), causing nerve cell injury that can trigger neurodegenerative diseases. *Centella asiatica* (L.) Urban is one of the herbs whose triterpenoid compounds have neuroregenerative activity, so it is widely used as Centella asiatica (L.) Urban extract (EkCa). The aim of this study was to determine the optimization of EkCa dose in improving memory of mice in brain necrosis model. The design of this study was completely randomized design with 36 male Balb/C strain mice weighing 25-30 g with 6 treatments (control, EkCa 20, 30, 40 mg/kgBW, and metformin 25 mg) with each treatment repeated 6 times. Brain necrosis mice were made by injecting multiple doses of STZ intraperitoneally at a dose of 40 mg/kgBW for 3 days and 60 mg/kgBW for 2 consecutive days. Memory was obtained from the calculation of retention time (RT-LT > 0). Data analysis used One Way Anova test followed with Duncan test. The results showed that the optimum dose was 30 mg/kgBW ($P < 0.05$). From the results of the study, it can be concluded that EkCa has neuroregenerative activity so that it can improve the memory of mice with brain necrosis model.

Keywords*:* Brain nekrosis, *Centella asiatica* (L.) Urban extract (EkCa), memory, streptozotocin

ID ABSTRACT: 298

Macrozoobenthos Diversity in the Upper of Sampean River, Maesan District, Bondowoso Regency

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Abstract

Water is a compound whose function cannot be replaced by other compounds. In addition, water is a resource that is needed by living things to survive. One of the water resources that support life is the river. Macrozoobenthos are aquatic organisms that live on the bottom of the water, stick to rocks, make holes in the bottom of the water, and can be a bioindicator of water quality. The purpose of this study was to determine the diversity of macrozoobenthos in the Upper Sampean River, Maesan District, Bondowoso Regency. This research is quantitative descriptive research with an exploratory method. The sampling technique used was purposive sampling. Analysis of the data used is the Shannon Wiener Diversity Index (H') and the Simpson Dominance Index (C). Identification was carried out to the genus level based on the morphology of each specimen. The results of this study were 286 specimens. The number of genera is 12 genera. There were 85 specimens with 11 genera at station I. Then, there were 77 specimens with 6 genera at station II. Obtained 70 specimens with 7 genera at station III. At station IV, 55 specimens were found with 3 genera. The results of PCA analysis are that station I is marked with the genus Prosimulium, station II is marked with the genus Hydropsyche, stations III and IV are marked with the genus Potamopyrgus. The result of Cluster Analysis showed that the genus Potamopyrgus was in a separate group, the other group consisting of the genus Hydropsyche and the genus Prosimulium, the last group consisted of the genera Oligoneuriopsis, Heptagenia, Melanopsis, Calopteryx, Goera, Potamonautes, Calicnemia, Glossiphonia, and Perlodes. The diversity index at stations I to III is moderate while at station IV is low. While the dominance index at stations I to III shows no dominance, at station IV there is dominance .

Keywords*:* Dominance, Diversity, Macrozoobenthos, Sampean River

ID ABSTRACT: 299

Study Effect Immunomodulatory of Juwet Fruit Extract (Syzygium cumini) for The Antibody Titter in Male Mice (Rattus norvegicus)

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Abstract

The immune system is the body's relationship to pathogens (bacteria, viruses, fungi and other parasites). This response is to protect the body from the infection of microorganisms and help repair damaged cells. Antibodies are immunoglobulin proteins secreted by B cells that are ordered by antigens. Immunomodulators help the body tukutimuntan Khang's immune system function is the main system that plays a role in the body's defense where most people easily experience immune system disorders. Juwet fruit emits high anthocyanin content and has an antocyanin polyphenol acid and polyphenol acid which is able to act as an antioxidant. The use and use of juwet fruit is quite extensive, especially in the field of pharmacology as an immunomodulator because it contains compounds that encourage various immunomodulator activities, such as error acid. The research method was carried out by the Juwet Fruit Extract Hemaglutination Test (Syzygium cumini) into 4 groups of treating groups I, II, III, IV Demat each dose of 0mg/kgBB, 100mg/kgB, 15000 0mg/kgBB. The dependent variable in this study is the antibody titer value. The results showed an increase in antibody titers. Ethanol extract group juwet fruit at a dose of 150 mg/kgBB, with an antibody titer value of 3.98 followed by a dose of 100 mg/kgBB The value of antibodies of 3-ratana value of 3-ratah tilapia tilapia tilapia tilapia tilapia value value 2. Purpose of This study is Tukuhui Potential of Juwet Fruit Extract (Syzygium cumini) as an immunomodulator of male mice and effective doses of juwet fruit extract (Syzygium cumini) to increase the value of antibodies titers in male mice induced by cow's red blood cells

Keywords*:* Immunomodulator, Syzygium cumini, Mile Mice, Titter Antibody

ID ABSTRACT: 255

Effect of Fungal Chitosan Against Penicillium digitatum and Penicillium citrinum In Vitro

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Abstract

Penicillium digitatum and Penicillium citrinum are most commonly found as citrus fruit post-harvest pathogens. Proper handling is needed to reduce that pathogenic fungus for saving the environment, human health, and citrus crop harvest. Therefore, to inhibit the presence of P. digitatum and P. citrinum in postharvest citrus, chitosan can be used as coating agent for citrus fruit. In this study, the endophytic fungi were selected as chitosan source was EJL-1 fungi obtained from the endophytic tissue of lemon fruit. The aim of this study is to know the characteristics of EJL-1 fungal chitosan and the effect of EJL-1 fungal chitosan on Penicillium digitatum and Penicillium cirinum. The research of antifungal activity from EJL-1 fungal chitosan against Penicillium digitatum and Penicillium cirinum was carried out in vitro. The result showed that the characteristic of EJL-1 fungal chitosan had a deacetylation degree value of 42%, which can be interpreted as the quality or purity of EJL-1 fungal chitosan being quite low. In vitro inhibition tests showed that EJL-1 chitosan fungi had no significant effect on the inhibitory activity of the Penicillium digitatum, but had a significant effect on the inhibitory activity of the Penicillium citrinum.

Keywords*:* fungal chitosan, Penicillium digitatum, Penicillium citrinum, in vitro

ID ABSTRACT: 266

Antiaging Potency of Centellaasiaticaextract on Fibroblast Cells of Rattusnorvegicusfetus by in vitro and in silico Approach

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Abstract

Aging is a physiological process that cannot be avoided, but can be prevented by giving antioxidants. Antioxidants can be obtained from Centellaasiatica extract (EkCa). EkCa has secondary metabolites that have biological effects related to inflammation and prevent aging . The purpose of this study was to determine the anti-aging potential of EkCa in fibroblast cells of Rattusnorvegicusfetus and which compounds that act as anti-aging on EkCa using in vitro and in silico approach. The method usedin this study was completely randomized design with 5 treatments (control, 10% , 15 %, 20%, 25%), each repeated 4 times on fibroblast cells of Rattusnorvegicus fetusthat were 18 days pregnant. In vitro approach used to determine the confluency and viability on fibroblast cells of Rattusnorvegicus while in silico approach used to screening which active compounds that have the potential as anti-aging using Way2Drug PASS online software. Data analysis used One Way ANOVA followed by Duncan's test. The results showed thatthe highest level of confluency and viability was found in the 25% treatment ($P < 0.05$) and quercetin-3- arabinosidewas the compound in EkCa that has the potential as anti-aging with Pa:0.922 and Pi: 0.003 . From the result, it can be conclude that EkCa has the potential as anti-aging onfibroblast cells of Rattusnorvegicus.

Keywords*:* extractCentellaasiatica (Ek Ca.), rat fetal fibroblast cells , confluency, viability , screening

Wednesday, October 26th, 2022 (Online)

Room 2

13.00 – 15.30

ID ABSTRACT: 250

Earthquake Microzonation using Microtremor Analysis and Horizontal to Vertical Spectral Ratio Method Study Case at Ampelgading and Tirtoyudo Sub-District, Malang, East Java

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Abstract

The earthquake that occurred on April 10, 2021, with a magnitude of 6, was felt in several areas on the island of Java and Ampelgading and Tirtoyudo sub-districts are the most affected areas. Due to the impact caused by the earthquake, a method is needed to be able to reduce the destructive effects of earthquakes. One way is to conduct a seismic hazard assessment or microzonation using microtremor. Microtremor data was measured in these two sub-districts are able to determined the parameters of soil characteristics based on natural frequency, amplitude, and seismic susceptibility index. Microtremor data analysis used the HVSR method with geopsy software to collect two main parameters, f0 and A0. then from these parameters can be used to calculate the seismic susceptibility index parameter. The results showed that the natural frequency ranged from 1.28 - 13.23 Hz, with areas with low natural frequencies being in the central to southern Ampelgading District and the central to northern Tirtoyudo District. The amplitude has a value range of 1.33 - 10.77, with high amplitude areas located in the middle part of Ampelgading and Tirtoyudo Districts. The seismic susceptibility index has a value range of 0.13 - 29.91, with areas with a high seismic susceptibility index located in the central part of Ampelgading and Tirtoyudo Districts, including Jogomulyan Village, Kepatihan Village, Sumbertangkil Village located in Tirtoyudo District, as well as Wirotaman Village and Sonowangi Village located in Ampelgading District and were the villages most affected by the earthquake

Keywords*:* HVSR, microtremor, microzonation, seismic susceptibility index

ID ABSTRACT: 264

Soil Vulnerability Level Based on Microtremor Data in The Affected Area of The Earthquake, at South of East Java in 2021 (Warak-Majangtengah Village Sub-District Dampit Malang Regency)

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Abstract

Malang Regency is one of the areas that often feel the impact when tectonic earthquakes occur, this is caused by local and regional fault activity. Majangtengah village was one of the areas that were heavily affected by the earthquake in southern East Java on 10 April 2021. These impacts include damage to houses, and public facilities, and cause fatalities. One of the geophysical techniques used to determine the subsurface structure is microtremor measurement. This research aims to determine the level of vulnerability based on dominant frequency values (f0), amplification (A0), and seismic vulnerability index (Kg) using HVSR analysis in Warak-Majangtengah Village Dampit District. Measurement of microtremor data contained 9 points with a recording duration of 45 minutes. The results of microtremor data analysis obtained dominant frequency values of 2.42 – 4.33 Hz, amplification of 2.78 – 8.19, and seismic vulnerability index of 3.19 – 20.11. Based on these parameters, it can be concluded that Warak-Majangtengah Village has a moderate to the high level of seismic vulnerability which indicated the type of soft soil.

Keywords*:* HVSR, Microtremor, Seismic Vulnerability Index, Majangtengah Village

ID ABSTRACT: 313

AHP Method for Weighting Various Factors in Determining Energy Generation Site from Municipal Solid Waste

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Abstract

Organic debris is determined to make up the majority of municipal solid waste (MSW), which has significant potential as an energy source. However, this material's primary issues include inadequate planning, urban growth, and a lack of managerial abilities. According to reports, selecting suitable landfill sites for energy generation is a critical planning step in the MSW management system. However, this process is still tricky since it must consider various economic, social, and environmental concerns. Based on this study, an AHP method was applied to weigh the factors determining the appropriate location. This strategy is well-liked in decision-making since it considers the intricacy of multidimensional issues. The results showed that 3 factors and 14 sub-factors were formulated and structured in the AHP hierarchy, with their information obtained to create pairwise comparisons by 10 involved experts. In this study, the AHP output was the weight value associated with a systematic priority level, indicating that the environment was the highest factor in determining a suitable landfill site for energy generation. This study confirmed that the environment was the highest priority factor in determining a landfill site. This indicated that various parties, especially the government, should be more focused on completing appropriate environmental criteria for landfill site selection.

Keywords*:* AHP Method, Energy Generation, Municipal Solid Waste

ID ABSTRACT: 333

Use of Coastal Wind for Electricity Generation through Savonius Vertical Axis Wind Turbine at Remote Islands in East Java Offshore

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Abstract

Although Wind Turbine Generator has commonly use in several countries, in Indonesia, this thing has rarely use, even though Indonesia's geographic itself stored lot of potential in developing such energy source. Indonesia is an archipelagic nation, with 5 main islands and thousands small islands. This makes coastal wind very important and great potential energy source which hasn't sufficiently developed. In here we develop limited capacity electric generator to be used in remote small islands in East Java Offshore which no yet connected to national power grid. Because the inconsistency of the direction of coastal wind, we chose the Vertical Axis Wind Turbine to develop. In this research we studying the connection of wind blade curve angles with the wind turbine efficiency. We used three different type of wind blade and measure the rotation speed according to the respected wind velocity. Our experiment shows that the bigger the curve angel resulted in higher rotational speed of the wind turbine. With the wind velocity at 6 m/s, the results are with 0o (flat blade) the average rotation speed is 175.5 rpm, 45o the average rotation speed is 212.55 rpm and 90o the average rotation speed is 266.25 rpm.

Keywords*:* Wind turbine, vertical axis, power generation, blade shape

ID ABSTRACT: 258

Development of A Physics Module Assisted by Camtasia Studio on Students' Critical Thinking Ability

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Abstract

This research is motivated by the lack of critical thinking skills of students. Critical thinking is very important in learning so that students can solve the problem they face. One effort to overcome this is to create a physics module with the help of Camtasia Studio on students' critical thinking skills. This study aims to develop a physics module assisted by Camtasia Studio on the ability to think critically on the matter of heat temperature and gas kinetics theory that is valid, practical, and effective. The results of this study have produced a physics module assisted by Camtasia studio on students' critical thinking skills that are very valid, very practical, and effective. The results of the validity test analysis by expert validators showed that the developed media was very valid in terms of material, language, and media with a value of 86% with a very valid category, the results of practicality analysis by educators and students were very practical with an average of 80% with a very practical category, while the effectiveness of the physics module assisted by Camtasia studio on critical thinking skills is 84% with a very effective category. Camtasia studio-assisted physics module on students' critical thinking skills and is suitable for use in learning

Keywords*:* Module Physics, Camtasia Studio, Critical Thinking

ID ABSTRACT: 222

In-Situ Sol-Gel Method of TiO_2-reduced Graphene Oxide as Photocatalyst

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Abstract

Nanocomposites of TiO_2-reduced Graphene Oxide were synthesized with graphene oxide (GO) loadings of 4, 8, 12, and 16 mg via in situ sol-gel method. The raw material of graphene oxide was coconut shell charcoal which was processed using a modified Hummer's method by dissolving the graphite into the acid mixture of H_2SO_4 and H_3PO_4. The rGO-TiO_2 composites were characterized by X-ray Diffraction (XRD), Inductance, Capacitance & Resistance Meter (LCR-Meter), and UV-Vis. LCR-meter results revealed that the highest electrical conductivity of the sample is 5.37×10^{-6} Scm^{-1} with a GO composition of 4 mg. XRD analysis results show that the sample was having both anatase and rutile phases with anatase as the dominant phase. The photocatalytic activity of the sample was investigated using a photocatalytic reactor under UV exposure using methylene blue as a pollutant. Composite with GO loading 4 mg resulted in the best percentage of degradation reaching 81.37% in 15 minutes.

Keywords*:* rGO, TiO_2, Composite, Photocatalytic activity

ID ABSTRACT: 304

Application of Geoelectric Method of Dipole-Dipole Configuration to Identify Subsurface Rock Structures of Landslide-Prone Zones

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Abstract

This study aims to identify subsurface rock structures in landslide-prone areas in the Payung Area, Batu based on resistivity values. This research uses the geoelectric method of resistivity of dipole-dipole configurations, in the Payung Area, Batu. The study was conducted using 4 passes where each trajectory is 100 meters long with an electrode space of 3 meters. Based on research that has been carried out in the Payung Area, Songgokerto, Batu with the geoelectric method, the arrangement of type resistance on tracks 1 and 4 after undergoing a grouping process has three layers of subsurface constituent rocks, namely soil, clay layers and sandstone. While tracks 2 and 3 have two layers of rock, namely soil and clay. The study area has a dominant underground structure with loamy soils, with a thickness ranging from 6,9 to 16 meters and supported by geographical factors that indicate a steep slope.

Keywords*:* Geoelectric, dipole-dipole, Batu

ID ABSTRACT: 309

Synthesis of N-Doped Carbon Dots Derived from Green Algae for Material Photocatalyst

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Abstract

Green algae are organisms which are described by having chlorophylls produce the same kind of carbohydrates during photosynthesis. It has carbohydrates, proteins, and polyunsaturated fatty acids, which allows them to produce more carbon and can be used as a precursor in the synthesis of carbon dots. Carbon dots is a novel carbon-based materials that have the attractive benefits of cheap nanomaterials, low toxicity, environmental friendliness, abundant, photostability, and easy to synthesis. In this studi, carbon dots were synthesized from green algae by a hydrothermal method at a temperature of 160℃ and 180℃ and modified with nitrogen doping. The FT-IR and UV-Vis spectra shows the distinct functionalization and energy gap of the surface states of the CDs and N-CDs. The carbon dots were then applied as a photocatalyst materials to degrade methyl red. These results indicate that the doping of nitrogen are superior for reduction of methyl red and offer great potential for application in environmental.

Keywords*:* green algae, carbon dots, photocatalyst

Wednesday, October 26th, 2022 (Online)

Room 3

13.00 – 15.30

ID ABSTRACT: 236

Liveworksheets: Contextual-Based Geometry E-LKPD for Junior High School Level

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Abstract

Mathematics is a science that cannot be separated from science and technology, so that mastery of mathematics in the future requires the integration of technology as a form of teaching innovation in order to achieve learning objectives. This study discusses the development of teaching materials in the form of contextual-based electronic worksheets using Liveworksheets at the SMP/MTs level. This study aims to determine the final results of E-LKPD, validity and practicality. This type of research is R&D using the ASSURE development model. This research was conducted at Datok Sulaiman Palopo Junior High School with the research subject being 15 male students of class VIII. The data collection techniques were obtained using interview guide sheets, material expert validation sheets and media experts, as well as practicality questionnaires to class VIII students at the school. The data obtained were analyzed descriptively qualitatively and descriptively quantitatively. The final result of the development is in the form of electronic teaching materials with attractive and interactive displays that contain a variety of learning activities such as easy-to-understand learning videos, interesting practice questions and are equipped with contextual images and supporting animations. Based on the results of data analysis, it can be concluded that contextual-based E-LKPD by using Liveworksheets on flat-sided geometry is valid and practical to be used as teaching materials.

Keywords*:* E-LKPD, Contextual Learning, Liveworksheets

ID ABSTRACT: 338

Electronic Mathematics Student Worksheet Development using Adobe Flash CS6

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Abstract

This study discusses the development of electronic mathematics student worksheets assisted by Adobe Flash CS6 at SMAN 2 Palopo. Electronic student worksheets in mathematics were developed with the help of Adobe Flash CS6 in the form of applications that can be accessed via Android or computers. The development of this learning application was carried out using research and development (R&D) research with the ADDIE model.

The data used was based on data from the validation results from media expert validators and material expert validators obtained from the questionnaire instrument; data from the practical test obtained from the results of questionnaires distributed to students; and data obtained from the effectiveness test through the results of questionnaires and material test tests given to students. Based on the results of the data analysis, this learning application has met the requirements for being valid, practical, and effective so that it can be used in the learning process.

Keywords*:* Composition Function, Mathematic Electronic Student Worksheet, Adobe Flash CS6

ID ABSTRACT: 178

Numerical Simulation of Covid-19 Mathematical Modelling with Optimal Control in Indonesia

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Abstract
The mathematical model of COVID-19 considered in this study is the SEIR model which is defined by four ordinary differential equations that describe the number of susceptible, infected, infected and cured individuals by applying optimal control theory in the form of treatment and quarantine. To characterize the optimal control in the COVID-19 seir mathematical model, the Pontryagin maximum principle is used. The purpose of this study was to reduce the number of susceptible, infected and infected individuals and increase the number of recovered individual populations. The covid-19 mathematical model with optimal control is solved using the Runge-kutta order 4 method and the results are represented graphically. The results obtained from the simulations carried out show that optimal control can work well on the Covid-19 mathematical model that has been formed with the data used being actual data on Covid-19 cases in Indonesia.

Keywords*:* covid-19, mathematical model, optimal control, SEIR model, PMP method

ID ABSTRACT: 192

Variable Manipulation on Ops Transformation

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Abstract

Previously, the Ops transformation has been proven to be able to simplify the calculation process for ordinary generating functions. In this paper, we will describe a variable manipulation technique in the Ops transformation that can make the Ops transformation able to solve a power series in the form of a function composition

Keywords*:* Ops Transformation, Ordinary generating function, Variable manipulation

ID ABSTRACT: 227

Sustainable Transportation and the Role of Intuitionistic Fuzzy Optimization

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Abstract
Sustainable transportation can be done by re-activating public transportation so that it can reduce the use of private vehicles. In this study, the need for sustainable transportation planning that can facilitate the community to gain access to the nearest public facilities will be assessed. Using an interval valued intuitionistic fuzzy approach, a discrete mathematical model is designed that represents the condition of Jombang district to redefine public transportation routes that cover all sub districts in Jombang.

Keywords*:* public transportation, optimization, interval value, intuitionistic fuzzy, reroute

ID ABSTRACT: 271

Laplacian Spectrum of Identity Graph of Commutative Ring $\mathbb{Z}_{2p}$

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Abstract

Research on the spectrum of graph with algebraic structure in still attracts many attention. Let $\mathbb{Z}$ be a commutative ring. The $I(\mathbb{Z})$ is a graph with vertex set $\mathbb{Z}$ and two vertices $x, y \in \mathbb{Z}$ are adjacent if and only if $x \,.\, y = 1$, and also every vertices adjacent with 1. In 2020, Laplacian eigenvalues of the zero divisor graph of the ring $\mathbb{Z}_n$ have been studied. This paper determines the Laplacian spectrum of identity graph of commutative ring $\mathbb{Z}_{2p}$, that can be construct with investigate the eigenvalues of $I(\mathbb{Z}_{2p})$. We find the Laplacian spectrum of $I(\mathbb{Z}_{2p})$ are integer.

Keywords*:* graph, spectrum, identity graph, commutative ring

ID ABSTRACT: 314

Dynamics of HIV Transmission with Saturated Incidence and Treatment Strategy

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Abstract

In this paper, an HIV/AIDS epidemic model with saturated incidence rate and treatment is formulated. The system has two equilibria, namely the disease-free equilibrium and the endemic equilibrium. The theorical analysis shows that the disease-free equilibrium locally and globally asymptotically stable if the basic reproduction number less than unity. It is proved using differential equation theory and a comparison theorem. By Lyapunov function and the LaSalle invariance principle, it is proved that the endemic equilibrium is globally asymptotically stable if the basic reproduction number greater than unity. Furthermore, sensitivity analysis is performed on the key parameters to determine their relative importance and potential impact on the dynamics of HIV/AIDS epidemic. Numerical simulations are also conducted to support the analytic results.

Keywords*:* Dynamics of HIV

ID ABSTRACT: 357

D-Orthogonality in Standard 2-Normed Space

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Abstract

There is a concept that is applied to the inner product space, namely orthogonality because orthogonality is related to the angle between two vectors. Given that $\boldsymbol{x}, \boldsymbol{y}$ satisfies $\langle \boldsymbol{x}, \boldsymbol{y} \rangle = 0$ in the inner product space, then $\boldsymbol{x}, \boldsymbol{y}$ is said to be orthogonal. There are several orthogonalities in the inner product space, namely *P*-orthogonality, *I*-orthogonality, *BJ*-orthogonality, *g*-orthogonality, *D*-orthogonality and *b*-orthogonality. Previous research has been carried out by Hendra Gunawan et al, in which the study explained that there is a mapping in the norm-2 space where for each $\boldsymbol{x}, \boldsymbol{y} \in X$ defined $\|\boldsymbol{x}, \boldsymbol{y}\| = \begin{vmatrix} \langle \boldsymbol{x},\boldsymbol{x} \rangle & \langle \boldsymbol{x},\boldsymbol{y} \rangle \\ \langle \boldsymbol{y},\boldsymbol{x} \rangle & \langle \boldsymbol{y},\boldsymbol{y} \rangle \end{vmatrix}^{\boldsymbol{1/2}}$ satisfies the properties of a norm-2 space and *D*-orthogonality fulfills some basic properties of orthogonality in a norm-2 space, but no detailed proof has been carried out on this. This research was conducted to prove the explanation made by Hendra Gunawan et al in more detail. The first step is to prove that the mapping $\|\boldsymbol{x}, \boldsymbol{y}\| = \begin{vmatrix} \langle \boldsymbol{x},\boldsymbol{x} \rangle & \langle \boldsymbol{x},\boldsymbol{y} \rangle \\ \langle \boldsymbol{y},\boldsymbol{x} \rangle & \langle \boldsymbol{y},\boldsymbol{y} \rangle \end{vmatrix}^{\boldsymbol{1/2}}$ satisfies the properties of norm-2. Next, proving that the *D*-orthogonality satisfies some basic properties of orthogonality in the standard norm-2. Based on this evidence, it is found that the mapping $\|\boldsymbol{x}, \boldsymbol{y}\| = \begin{vmatrix} \langle \boldsymbol{x},\boldsymbol{x} \rangle & \langle \boldsymbol{x},\boldsymbol{y} \rangle \\ \langle \boldsymbol{y},\boldsymbol{x} \rangle & \langle \boldsymbol{y},\boldsymbol{y} \rangle \end{vmatrix}^{\boldsymbol{1/2}}$ fulfills the properties of norm-2 and *D*-orthogonality satisfies the properties of non-degeneration, symmetry, homogeneity and continuity in the standard norm-2.

Keywords*:* Vector Space, Normed Space, 2-Normed Space, Inner Product Space, and Orthogonality

ID ABSTRACT: 283

Horizontal Sliced Shallots Fractal as an Innovation of Nusantara Batik

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Abstract

Batik is Indonesia cultural heritage fabric which is processed in special way. Batik pattern is varied and evolved as time goes by. Generally, batik pattern is repeated by it self. In every piece of cloth, there is one core pattern then repeated in a certain way. In mathematics, these recurrent shapes are called fractals. Fractals are geometric solids with self-similar structures at different magnification levels. In this case, batik was made with a new pattern using a circular motif which was adapted from the horizontally sliced form of shallots.

Keywords*:* Fractal, Shallots, Batik

Wednesday, October 26th, 2022 (Online)

Room 4

13.00 – 15.30

ID ABSTRACT: 183

The Manufacture of Polyblend Plastic Film Containing Polystyrene and Poly (d-Valerolactone) that was Obtained Using Bis(Dibenzoylmethane)Zirconium(IV) Catalyst

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Abstract

Currently, polystyrene (PS) is a type of plastic that is often used in everyday life to be used as packaging. Plastics made from polystyrene have many advantages, including light weight, flexibility, durability, heat resistance, and strength. However, PS also has a drawback that is difficult to degrade. To overcome this problem, PS plastic was modified by mixing it with a biodegradable polymer such as poly(δ-valerolactone) (PVL). The aim of this study was to find the optimum mixture of PS and PVL polyblend and study its mechanical properties. The PVL used in this study was produced through polymerization with a bis(dibenzoylmethane)zirconium(IV) catalyst. The Mixing was carried out using a blending technique using a solvent with a PS/PCL ratio of 10/0, 10/1, 10/2, 10/3, and 10/4, respectively. Furthermore, the characterization of the mechanical properties was carried out using a tensile test, and the optimum mechanical properties were obtained at a ratio of 10/2. Last, the chemical and thermal properties were also analysis to find out how PS and PVL physical interact with each other.

Keywords*:* Poly(?-valerolactone), polystyrene, polyblend, and bis(dibenzoylmethane)zirconium(IV)

ID ABSTRACT: 195

Alkaline Pretreatment Optimization of Tobacco Stalks for Bioethanol Production

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Abstract

The sustainable biomass production of fuels, chemicals, and other commercial products from lignocellulosic materials has received widespread attention. One of the potential biomass resources to be developed into biofuels is tobacco stalks. Production of tobacco plants in East Java Province was 84,100 tons, with the highest production from Pamekasan Regency at 13,520 tons, followed by Jember Regency at 13,110 tons. This shows that Jember Regency has the potential to develop tobacco stalks to produce biofuels because their availability is relatively abundant. One of the biofuels that can be produced from tobacco stems is bioethanol. Bioethanol production has increased every year along with the increasing demand for bioethanol so that the bioethanol market opportunity is wide open and can strengthen the nation's economy. Besides being used as a source of energy fulfillment, bioethanol is also needed as a raw material for production in the fields of cosmetics and pharmaceuticals. The increasing need for hand sanitizers during the Covid-19 pandemic has caused the need for bioethanol to increase. Pretreatment in this study was carried out using alkaline, namely NaOH, by varying the temperature and concentration. The purpose of this study was to find the optimum conditions for the pretreatment processes during the production of bioethanol. The optimum conditions in this study were NaOH concentration of 6%, the temperature of 140oC, and rotational speed of 150 rpm with the yield of lignin 12.463%, cellulose 31.194%, and hemicellulose 3.172%.

Keywords*:* Alkaline pretreatment, Bioethanol, Tobacco stalks

ID ABSTRACT: 301

Optimal Composition of Graphene/Mn3O4 Nanoparticle for Profenofos Sensor Material Using the Mangenese Ore as Mn Source

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Abstract

Detection of environmental pollutants become an important issue accompanying the technological advances in the socio-economic activities. Agricultural waste, for example, supplies various kinds of pesticides into the soil and aquatic environment. In the case of sensors, graphene has been intensively studied as a sensor material due to its ability to conduct charge quickly. Here, we report the recent performance of sensory material based graphene/Mn_3O_4 nanoparticles (NPs). The Mn_3O_4 NP was specifically extracted from the low grade of manganese ore. Mn_3O_4 NPs have been extracted from the manganese ore by using the co-precipitation method. The average crystal diameter is ~25.56 nm. Graphene was then synthesized separately by using the modified Hummers method. A study on the effect of different composition of graphene/Mn_3O_4 nanoparticle has been conducted by means of cyclic voltammetry method. Three different weight ratios of Graphene and Mn_3O_4 NPs (0.8:0.1, 0.8:0.3, and 0.8:0.5) were involved in the study. The optimal composition graphene/Mn_3O_4 NP paste electrochemical sensor was 0.8:0.5 (w/w). The anodic and cathodic peak currents are 5.95 x 10-5 A and -5.57 x 10-5 A, respectively, at a scan rate of 0.05 V/s. The limit of detection for profenofos type pesticide was 0.00486 M with a repeatability of 0.0165. A repeatability value less than 1.0 indicates a good level of detection.

Keywords*:* Graphene, Mn_3O_4 nanoparticles, paste electrode, profenofos, manganese ore

ID ABSTRACT: 319

Potential of Anthocyanin from Young Fruit Skin of Elaeis Guneensis As a pH Sensor

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Abstract

The increased consumer demand for the freshness and safety of food products would contribute to providing new technologies, which could function intelligently and could monitor the freshness of the packaged foods. Chemical indicators are often used to monitor the freshness of food, but they have toxic properties and potential carcinogens. This work was aimed to explore the potential of young oil palm fruit skin (Elaeis guineensis), which was carefully designed on Whatman 42 filter paper and exactly used as a pH indicator. The pH sensor was developed by simple immersion of Whatman 42 paper into a solution of E. guineensis young fruit skin extract. Color change of the pH indicator was caused by the addition of various pH buffer solutions, and was directly analyzed by colorimetry to obtain the color parameter values (L*, a*, b* and ΔE). The results showed that the values of total color change (ΔE) were found in a linear range at pH (6 – 11), with a linear regression value was at y = 4.9864x + 9.4774 and value of regression coefficient was at R2=0.92021. Meanwhile, repeatability value of the pH sensor was measured at OD 530 nm and OD 620 nm, at pH (4–12) and found a relative standard deviation value (RSD, n=5) of (6.35–7.85)%. The developed pH sensor has a wide total color change and has a high potential to be used as a pH indicator. Furthermore, this research will be applied for the freshness monitoring in packaging.

Keywords*:* Anthocyanin, pH sensor, Indicator pH, Elaeis Guneensis, Oil palm fruit skin

ID ABSTRACT: 246

Degradation Methylene Blue using $SrBi_4Ti_4O_{15}$ Synthesized Molten Salt Synthesis

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Abstract

$SrBi_4Ti_4O_{15}$ compound has been reported to be potentially used as a photocatalyst material. In this research, $SrBi_4Ti_4O_{15}$ was prepared by the molten salt method using NaCl/KCl and then used to degrade methylene blue. The analysis of sample diffractogram indicated that the $SrBi_4Ti_4O_{15}$ was obtained but there was still the impurities of $Bi_4Ti_3O_{12}$. The micrograph showed that particle shape of $SrBi_4Ti_4O_{15}$ is plate-like (sheets) with a lot of agglomeration. The band gap energy of $SrBi_4Ti_4O_{15}$ is 2.97 eV (417.46 nm), according to the Kubelka-Munk calculation from the spectrum of reflectance. The photocatalytic test results showed that $SrBi_4Ti_4O_{15}$ degraded methylene blue to 47.8% in 120 minutes.

Keywords*:* $SrBi_4Ti_4O_{15}$, photocatalyst material, degradation, methylene blue

ID ABSTRACT: 296

Synthesis TiO_2/Activated Carbon from Rice Straw for Photodegradation Methyl Orange Dye

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Abstract

This study aims to determine the catalytic properties of TiO_2-activated carbon materials synthesized using sonication method with variation mass composition and characterized using the UV-Vis DRS, X-Ray Diffraction, and FTIR spectrophotometers. Activated carbon is obtained from rice straw which is activated using a phosphoric acid (H_3PO_4) solution. TiO_2 - Rice Straw Activated Carbon (TiO_2-RSAC) photocatalysts examined their activity to degradation of methyl orange dye with variations in mass composition. The results showed that the synthesized TiO_2-activated carbon composite had a crystal structure with an anatase phase and the band gap energy of TiO_2-RSAC decreases along with the increase in the amount of activated carbon added. The photocatalytic activity of TiO_2-RSAC 5% showed the best results which was able to degrade methyl orange as much as 68.03%.

Keywords*:* titanium dioxide, activated carbon, rice straw, methyl orange, photodegradation

ID ABSTRACT: 242

Potential of Lerak Fruit Waste (Sapindus rarak DC) as Activated Biosorbent Against Lead (Pb)

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Abstract

The lerak plant (Sapindus rarak DC) is a jungle plant from one of the Sapindaceae family that grows wild on the island of Java which is widely used as a traditional detergent for washing batik cloth and has been proven to be able to maintain the quality of batik color, (Moenandar et al., 2021). In addition, lerak has been shown to contain many secondary metabolites that are rich in hydroxyl groups and other functional groups (such as carboxyl), one of which is tannin with a fairly large concentration and acts as a metal chelating agent so that lerak has the potential to be used as a bioborben (Lestari, 2010).

Before biosorbents can be used, lerak needs to be activated to strengthen the adsorbent surface by binding complex-forming groups with metals. Lerak as a biosorbent will be activated with NaOH acid solution to focus on binding metal lead (Pb) as Pb2+ cations. This is because the metal cation Pb2+ acts as a Lewis acid, while the active groups in lerak fruit act as Lewis bases, so that the adsorption process can be applied to classifying hard and soft acids and bases. (Rahmawati, 2012). To test the success of activation, lerak will be characterized using FTIR to determine whether the OH group has been bound. Therefore, in this research, the lerak biosorbent will be activated first with NaOH base which is then contacted with Pb metal solution and analyzed for initial concentration and finally with Atomic Adsorption Spectroscopy (AAS) instrumentation.

Keywords*:* Lerak Fruit (Sapindus rarak DC), biosorbent, Lead Metal Adsorption

ID ABSTRACT: 277

Antibacterial Activity Test Turmeric (Curcuma longa L.) Extract Herbal Oil in Extra Virgin Olive Oil Against Staphylococcus aureus and Propionibacterium acnes

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Abstract

Turmeric and olive oil can be combined to produce herbal oil extracts. The purpose of this study was to determine the content of active compounds and to determine the effect of variations in the concentration of extracts on antibacterial activity. Turmeric is combined with extra virgin olive oil using the hot maceration method. The combination is formulated into five turmeric concentration namely 10%, 20%, 30%, and 40% in 100 mL of solution with variations in oven temperature of 30°C, 40°C, 50°C, and 60°C. The phytochemical test of secondary metabolite compounds, triterpenoid, flavonoid, and tannin. The herbal oil extract positive for triterpenoid and flavonoid compounds. The results of the antibacterial test against Staphylococcus aureus at concentrations of 10%, 20%, 30%, and 40% is 1.7 mm, 3.3 mm, 3.6 mm, and 3.9 mm, while in Propionibacterium acnes is 1.6 mm, 2.6 mm, 2.9 mm, and 3.6 mm. Total Plate Count (TPC) test on the herbal oil extract against Staphylococcus aureu produces living microbes for 5,2x108 CFU/ mL, 4,8x108 CFU/mL, 3,7x108 CFU/mL and 3,4x108 CFU/mL, while in Propionibacterium acne for 3,0x108 CFU/ mL, 2,0x108 CFU/ mL, 1,6x108 CFU/ mL, and 1,3x108 CFU/ mL.

Keywords*:* Curcuma longa L., Olive Oil, Antibacteria, Disc Diffusion, Staphylococcus aureus, Propionibacterium acnes

Wednesday, October 26th, 2022 (Online)

Room 5

13.00 – 15.30

ID ABSTRACT: 233

Data Analytics and Its Implication on Auditing

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Abstract

Data analytics is a new approach for auditors to prevent and detect fraud involving examining patterns in actual data. However, implementing data analytics requires a significant investment in hardware, software, skills, and quality control in the business world. This paper aims to analyze data analytics as a tool for auditors in the audit process and analyze the impact of using data analytics on the auditor profession. This article is a literature review that examines phenomena based on the literature and the results of previous studies. The discussion implies that data analytics helps the auditor to improve audit quality in the big data era. Therefore, auditors should master data analytics skills. Otherwise, the auditor will face more threatening in the future.

Keywords*:* data analytics, auditing, implication

ID ABSTRACT: 234

Perspective Information Security to Cybersecurity for Finance in Indonesia

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Abstract

This paper discusses information security issues that underlie potential developments and risks in cyber security applied to the financial industry. Cyber attacks on financial institutions and financial market infrastructure are becoming more widespread and more sophisticated. Cybercrime is a growing threat in the virtual world as individuals and financial sector organizations rely more and more on the internet at an increasing pace. Awareness of cybercrime risks has increased, companies are actively managing cyber risks and investing in cyber security, and to some extent transferring and pooling their risks through cyber liability insurance policies. International experience shows that the financial sector can develop an effective electronic transaction security framework through the latest methods to maintain public trust and financial stability. Policy measures from the government are very important for financial institutions where diffusion and collaboration while maintaining the confidentiality of data held by each organization is a wider demand.

Keywords*:* Information Security, Cybersecurity, Finance Industry

ID ABSTRACT: 235

Application Laku Pandai (Branchless Banking) in Kepulauan Riau, Indonesia

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Abstract

This study aims to describe Application Laku Pandai Branchless Banking in Kepulauan Riau ,Indonesia. The method used in this study uses qualitative methods, using secondary data. Secondary data is a source of research data obtained by researchers indirectly through intermediary media,literature, journals and sites on the internet related to research conducted. secondary data used is related to the application of Laku Pandai (branchless banking). From the study results, The application of Laku Pandai for people who live in rural areas is beneficial. Its existence helps the community to carry out financial activities properly. However, on the one hand, the government must also continue to facilitate the community by providing adequate infrastructure such as the internet, transportation and to accelerate economic growth, especially in rural areas.

Keywords*:* Laku Pandai, Branchless banking, human touch, accounting system

ID ABSTRACT: 237

Tax Innovation in Improving Taxpayer Compliance in Indonesia

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Abstract

This study aims to provide an overview of the efforts of the Directorate General of Taxes in Indonesia, making innovations related to advances in information technology focused on increasing taxpayer compliance in Indonesia to support sustainable national development and improve the welfare of the Indonesian people. The research uses a literature review method with a tax-innovative approach. The results showed that tax innovation in improving taxpayer compliance produced two different influences, namely tax amnesty did not have a significant effect on taxpayer compliance, while the implementation of electronic systems had a significant effect on taxpayer compliance. The contribution of this research is the importance of scientific literature that analyzes the impact of tax innovations. The data and information used in this study are data that has been published in the media, seminars and books that have been entered into the data center of the Directorate General of Taxes in Indonesia.

Keywords*:* Tax Amnesty; Tax Innovation; Tax Reform; Taxpayer Compliance

ID ABSTRACT: 179

Algorithm and Programming: A Fully Fuzzy Nonlinear Systems Solution Based on The Broyden Method

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Abstract

The main goal of constructing an algorithm and its implementation in a computer program is to obtain an efficient and effective system solution. This article proposes an algorithm based on the Broyden method to solve a system of nonlinear equations of fuzzy triangular numbers and its implementation in the MATLAB program. Furthermore, we can use the proposed algorithm to solve a fully fuzzy nonlinear matrix equation system.

Keywords*:* Broyden method, Pseudocode algorithm, Triangular fuzzy numbers, MATLAB programming

ID ABSTRACT: 191

Customer Relationship Management Design in Application of Laundry Services Based on Odoo ERP Using User Centered Design Method

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Abstract

With the increasingly practical way of life of people who demand that everything can be done easily and quickly, improving the quality of service in all types of businesses, such as in the service sector, is an absolute must. The main factor that is considered by consumers in choosing service products, one of which is laundry services or those made from cloth using a washing machine or often also called laundry services. With good laundry management, it will greatly support the progress of the business, especially with management that is supported by technological advances, the application of IT for companies has an important role and can be the center of business strategy to gain competitive advantage. Based on these needs, the author will also create an application program to facilitate customers. The purpose of this research is to realize a CRM (Customer Relationship Management) application in laundry services to simplify, speed up, save time and costs.

Keywords*:* Customer Relationship Management (CRM), Laundry, ERP, User Centered Design (UCD)

ID ABSTRACT: 240

The Development of E-Ma'had Information Systems Using SCRUM Methodology

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Abstract

The purpose of this research is to design and implement a ma'had management information system. The SCRUM framework is used in the methodology, which is a framework for developing complex products. This framework does not require a needs analysis of the entire management information system to be performed at the outset, allowing the product to be developed continuously and adapted to changing requirements while in development. Sprint Planning, Sprint Review, Sprint Retrospective, and Daily Stand-Up are all SCRUM activities. The duration of sprint activities varies. Scrum framework implementation on e-ma'had in a system that follows what is needed and desired.

Keywords*:* Application Design, E-Ma'had, Scrum

ID ABSTRACT: 241

E-Ma'had Informating System Evalution Using End-User Computing Satisfaction Methodology

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Abstract

The goal of this study was to assess the level of satisfaction of E-Ma'had users based on five variables: content, accuracy, format, ease of use, and timeliness. EUCS is an assessment of the end result of the information system's end user based on the user's experience in determining the system. The population characteristics in this study are users of the E-Ma'had information system itself, which is focused on students at Ma'had Nurul Huda, with a sample technique using questions in a questionnaire totaling 110 respondents. Ma'had Nurul Huda's activity programs and assessments are stored in the E-Ma'had information system. In order to facilitate user access, the E-Ma'had information system was created in the form of a website. People' opinions on the website's use of technology and its material are always varied. Users always place a premium on high-quality content and the veracity of the data offered. The user utilizes the measured system during the travel to determine whether the employed system has been efficient and has performed as planned.

Keywords*:* E-Maíhad, Evaluation, User Satisfaction, End-User Computing Satisfaction (EUCS)

ID ABSTRACT: 247

Determination of The Sector Damage Level of The Post Natural Disaster Based on Machine Learning

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Abstract

In this research, the level of sector damage after a natural disaster was determined using machine learning, with the hope of helping the surveyor team in determining the level of sector damage more efficiently. The problem raised in this paper is that there are often inaccuracies in the data with what happens in the field, due to subjective assessments by the surveyor team. This study aims to find out the accuracy in determining the level of sector damage based on machine learning. The method used in this research is neural network and the model calculations are carried out using forward propagation, which is one of the algorithms of the neural network. The results of this research are obtained from the study using 50 data for determining sector damage based on 5 criterias with 3 alternative scores. There are 4 models that are developed in this research, with different iterations for each model. It was concluded that Model D, with 40,000 iterations, has the highest accuracy level with the value of 72.05 %.

Keywords*:* Natural disaster, Machine learning, Forward propagation, Neural network

Thursday, October 27th, 2022 (Offline)

Room A

12.45 – 15.00

ID ABSTRACT: 284

Herbicide Contamination and Corresponding Biomarkers in Freshwater Bivalve in Agricultural Catchments in Northern Thailand

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Abstract

Agricultural activities result in an intensive utilization of agrochemicals especially herbicides. The constant and intense applications of these chemicals could lead to environmental contamination and accumulation in aquatic organisms. In this study, we aim to validate the potential use of freshwater bivalve as a sentinel species for herbicide contamination at two reservoirs with different agricultural activities in Northern Thailand. Environmental samples were collected to screen for herbicide residues and freshwater bivalve (Uniandra contradens) was used as a sentinel species. The biomarkers determined included biomarker of exposure (herbicide residue in mussel tissue), and biomarkers of effect (condition factor and reproductive activities). Although herbicide contaminations in the water and sediment were less than limit of detection, the residues of atrazine, glyphosate, and paraquat can be found in all bivalve tissues of both sites. There was no significant site-related difference ($p>0.05$, t-test) in condition factor and reproductive activities of bivalves living at these study sites. Correlative study revealed that U. contradens has shown certain characteristics of a good candidate as a sentinel species for herbicide contamination and the condition factor should be used as a suitable biomarker for evaluation the effects of herbicide contamination in a short term. Meanwhile, reproductive effect was not yet conclusive due to seasonal variation and should be determined in a long period.

Keywords*:* freshwater mussel, herbicides, reproduction, condition factor

ID ABSTRACT: 196

Review Potential Albumin Nanoparticles in Drug Delivery Systems

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Abstract

Albumin, a versatile protein carrier for delivery, has been shown to be non-toxic, non-immunogenic, biocompatible and biodegradable. Therefore, this albumin is an ideal material for fabricating nanoparticles for drug delivery. Albumin nanoparticles have received considerable attention due to their high binding to various drugs and are well tolerated without serious side effects. The current review is to bring about a specific discussion of albumin nanoparticles with respect to their types, formulations, main results from in vivo investigations as well as nanoparticle-specific insights for the field of oncology. Specific nanotechnology techniques such as desolvation, emulsification, thermal gelation, nano spray dryer and NAB technology which have been provided for the manufacture of albumin nanoparticles, are also discussed in this review.

Keywords*:* Albumin, Drug delivery, Nanotechnology

ID ABSTRACT: 197

Synthesis of Chitosan and Alginate Nanoparticles with Ionic Gelation Method in Encapsulation Application Drug

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Abstract

Chitosan and alginate nanoparticles have good potential in drug encapsulation applications. The use of natural biopolymers such as chitosan and alginate which are mucoadhesive and biocompatible can improve the encapsulation system of drug compounds. Chitosan and alginate nanoparticles in drug encapsulation applications have their respective advantages and disadvantages. Chitosan nanoparticles have the advantage that they can be adjusted by adding stabilizers which can increase stability in the storage process and do not use organic solvents. However, there are disadvantages, including the need for strict pH regulation because it affects the degree of ionization of chitosan, while alginate nanoparticles have the advantage of being able to prevent drug release when the pH is acidic (1,2) when passing through the stomach, but has a drawback in its complexation which is less strong because it is in the form of porous so it needs to be combined with other polymers.

Keywords*:* alginate, chitosan, drug, encapsulation, ionic gelation

ID ABSTRACT: 198

Literature Review of Gold Nanoparticle: Biosynthesis using Bioreductor Extracts of Plants

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Abstract

The development of industrial technology in all sectors increasingly demands the birth of devices that are simpler, smaller in size, with cheap materials, but have the same or more sophisticated capabilities than previous devices. This demand can be answered by the presence of nanotechnology. Nanoparticles are particles that have a size of 1-100 nm. Gold nanoparticles (AuNPs) are part of nanotechnology which is increasingly useful in various fields of science, such as the environment, drug delivery systems, and energy. The literature review of this article is intended to discuss the synthesis of AuNPs which begins with reducing Au(III) ions using a reducing agent from plants. An alternative method in plant synthesis based on the concept of green chemistry is a green method of synthesizing nanoparticles that is more economical because it is easy, environmentally friendly and does not cause side effects. The method used: Literature study using journals, text books, and scientific articles. Based on several studies that have been carried out previously with green nanoparticle synthesis, it shows results if the nanoparticles are produced through a reduction reaction using plant extract bioreductors with various applications in biomedical, antibacterial, and drug delivery.

Keywords*:* Nanotechnology, Gold nanoparticles (AuNPs), bioreductor, and green synthesis

ID ABSTRACT: 200

Characterization, Antioxidant, and Antibacterial Activity Silver Nanoparticle of *Gelidium spinosum*

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Abstract

The purpose of this study was to characterize AgNP, and determine antioxidant and antibacterial activities. This research is exploratory descriptive research. The characterization method used PSA (Particle Size Analysis) and FTIR (Fourier Transform Infrared Spectroscopy). The antioxidant activity method uses the DPPH (1.1-diphenyl-2-picrylhydrazyl). The antibacterial activity test used the inhibition zone test with paper disc diffusion (Kirby and Bauer Method), the MIC test used the tube dilution method, and the MBC test used the total plate count method. The results of the research on PSA characterization showed that characterization AgNPs *Gelidium spinosum* has a size of 107.1 nm, while the FTIR results showed that AgNPs *G. spinosum* had 7 spectral peaks at wave numbers 466.37 and 534.83(-(CH2)n), 714.11 and 874.27 (C-H aromatic rings), 1035.43 (C-O alcohols, ethers, carboxylic acids, and esters), 1406.24 (C-H alkanes), 1644.42 (C=C alkenes), and 3323.07 (O-H hydrogen bonds in alcohols and phenols). The results of the antioxidant activity of AgNPs *Gelidium spinosum* an IC50 value of 18.34 ± 5,147 ppm, while the antibacterial inhibition zone test on the sample of AgNPs *G. spinosum* against *E. coli* was included in the strong category with an average value of the diameter of the inhibition zone 10.18 mm different from the others sample in the medium category. The results of the minimum inhibitory concentration (MIC) in *G. spinosum* AgNPs were 18.75 ppm, while the *G. spinosum* extract was 37.5 ppm. The result of the minimum bactericidal concentration (MBC) on AgNPs *G. spinosum* was 18.75 ppm, and the extract of *G. spinosum* is 37.5 ppm. Based on the results of this study AgNPs *Gelidium spinosum* had strong antioxidant and antibacterial activity against gram-positive and gram-negative bacteria.

Keywords*:* silver nanoparticle, Gelidium spinosum, antioxidant, antibacterial

ID ABSTRACT: 193

Processing of Tofu Liquid Waste by Phytoremediation of Genjer Plant (*Limnocharis flafa L.*)

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Abstract

Waste is the residue of human activities that is no longer useful and has the potential to pollute the environment. One of the pollution is caused by the waste of tofu production without further processing so that it has the potential to pollute the environment. This study aims to determine the effectiveness of using genjer (*Limnocharis flafa L.*) to reduce the potential for water pollution that occurs in the Nglongsor river, Trenggalek. This type of research is an experimental study using a completely randomized design with 3 repetitions. The results showed that the level of reduction in BOD levels of genjer (*Limnocharis flava L.*). The conclusion of this study was that the level of reduction in BOD levels was higher by using the heaviest genjer (*Limnocharis flava L.*) (gr) in treatment P4 of 85.50%.

Keywords*:* Tofu Waste, Phytoremediation, Genjer (Limnocharis flava L.)

ID ABSTRACT: 308

Identification of Colchicine-Induced Porang (*Amorphophallus muelleri* Blume) Polyploidy Using RAPD Molecular Markers

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Abstract

Porang (*Amorphophallus muelleri* Blume) is a plant that is currently being developed because it contains up to 65% glucoman which can be used as an alternative for food security. For this reason, in increasing productivity, polyploidization is carried out. Plants in polyploid conditions have several advantages, namely higher productivity, larger size and stronger disease resistance. In stimulating polyploidy, colchicine is used as a mutagen which stimulates the addition of chromosome number. After being stimulated, then identified using RAPD molecular markers. Induction was carried out in vitro by immersion in concentrations of 0, 0.05 0.1, 0.15, 0.2 and 0.25% for 24 hours. Extraction was carried out using the NEXprep Plant DNA Mini Kit.. DNA amplification was then carried out by PCR and then visualized under UV light. Data analysis was carried out by scoring data and analyzing genetic diversity using NTSYS software version 2.20. RAPD markers can effectively detect variation and have been widely used in population studies and plant systematics.

Keywords*:* Colchicine-Induced, Polyploidy, Porang, RAPD

Thursday, October 27th, 2022 (Offline)

Room B

12.45 – 15.00

ID ABSTRACT: 317

Identification of the Disappearing of "Syafaq" by Color Space Transformation

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Abstract

Early research on prayer times began to be widely discussed in the past few years, several opinions said that the beginning of prayer isha' and shubuh need to be corrected. The field of astrophotography began to be introduced because some preliminary studies before just analyzed sky brightness without an image as evidence. This study uses an image processing approach to analyze the disappearance of syafaq rays as an early sign of the start of the Isha' prayer. The imagery data were taken in Lombok and Masalembu and transformed into different color spaces from RGB to YUV, YCbCr, and L*a*b* spaces. From the analysis, L*a*b* color spaces have sensitively identified the disappearance of syafaq. A uniform typology of graphs was obtained in 4 color spaces as a sign that the initial physical analysis of beginning isha' times. The color space has a similar typology, only the pixel intensity values differ. The results of data analysis using the color space transformation for the identification of isha' time are not much different from those that have been determined in Indonesia

Keywords*:* Syafaq, Color Transformation, L*a*b*, YCbCr, YUV

ID ABSTRACT: 365

On Disaster Mitigation STEM Education Research-Based Learning Activities to Mapping the Risk Level of Earthquake Damage

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Abstract

Research-Based Learning (RBL) is learning that integrates research in the learning process. Learning with RBL can be done with appropriate approaches, including STEM. STEM integrates the fields of science, technology, engineering and mathematics with the aim of increasing students' proficiency in declarative, procedural, schematic, and strategic knowledge so that practice and content can be studied more deeply. The purpose of this study is to develop research-based learning with a STEM approach to analyze the Peak Ground Acceleration, Vulnerability and Human Development Index in an area that will be used to create a risk map of damage due to earthquakes in the area. With this learning model, students are expected to be able to conduct research to create an earthquake risk map as one of the efforts for disaster mitigation.

Keywords*:* Disaster Mitigation, STEM Education, Mapping, Risk Level, Earthquake Damage

ID ABSTRACT: 359

The Influence of Gender, Age, Personal Selling and Brand Activation on Consumer Purchase Intentions on Xiaomi

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Abstract

Competition and prospecting in the business world today is getting tight. It is also felt by businesses such as Xiaomi. Many other attempts that have sprung up with the characteristics of each. That customers are satisfied and do not move to another place, then the company should know the factors that affect customer satisfaction. Customer satisfaction can be created through pricing, quality products and quality service. In particular, this study discusses customer satisfaction's Xiaomi. This study examined four independent variables, gender, age, personal selling, and brand activation. The purpose of this study was to determine the effect of the four independent variables on purchase intention. This research was conducted by using a questionnaire to 60 Xiaomi customers obtained using purposive sampling technique. Then analyzed the data obtained by T-Squared Hotelling test, Goodness of Fit test through regression coefficients, logistics regression analysis, and correlation test. Testing the suitability of the model using Hotelling's T-Squared, the error probability value is 0% which is smaller than the 10% error rate. This shows that the logistic regression model is suitable for testing the effect of gender, age, personal selling, and brand activation on purchase intention. With five classifications of consumer purchase value levels which include Y=1 (strongly disagree), Y=2 (disagree), Y=3 (undecided), Y=4 (agree) and Y=5 (strongly agree) the appropriate logistics regression model is obtained as follows: [y=3] = 5.460 - 1.147x1 + 0.515x2 + 0.255x3 + 0.378x4 [y=4] = 8.866 - 1.147x1 + 0.515x2 + 0.255x3 + 0.378x4 The logistics regression model shows that consumers' purchase intentions are still in a position of hesitation and agree to choose Xiaomi products, where of the four independent variables, gender and brand activation variables have a significant effect on purchase intention with a Nagelkerke correlation value of 0.525.

Keywords*:* gender, age, personal selling, brand activation, purchase intention

ID ABSTRACT: 184

Usability Analysis to Measuring Effectiveness of Online Final Project System

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Abstract

Final Project is one of the academic stages that must be passed by students to obtain a degree. In the era of the Covid-19 pandemic, the stages to achieving this degree must be done online by students. To accommodate this, we need a system that can bridge so that the final project stages can run even online. The system is an online final project system that was built to match the flow of the final project needs of each university. In the system there are stages of guidance, scheduling, conducting assessments, and uploading revised results. From all these stages, evaluation and assessment are needed so that the online final project system can be developed easily. The evaluation and assessment method used is usability, because usability techniques can find out the shortcomings of the system directly from the user. Using the Software Usability System (SUS) questionnaire which involved 58 respondents at State Islamic University of Maulana Malik Ibrahim Malang, resulted in an average score of 78.92. Based on the results of the average score of the SUS questionnaire on the online final project system which resulted in 78.92, the online final project system has a good usability level.

Keywords*:* Final Project, usability, SUS, questionnaire, respondents

ID ABSTRACT: 213

Emotion Recognition in Speech Using the Bayesian Network for A High Degree of Accuracy

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Abstract

This paper proposes a method to identify emotions in a speech better to improve accuracy. A Bayesian framework is used in this paper to discuss emotion identification from human speech. The Bayesian approach consists of three steps. The openSMILE tool is used in the initial step to extract speech signal waveforms from the Berlin emotional speech database. In the second step, strategies for feature selection can be utilized to gather data for feature selection. Samlam software is used to produce an acyclic directed graph representing all results of distributed feature selection. In the final step, the emotion identification model is trained to identify seven common emotions: anger, fear, sadness, happiness, boredom, disgust, and neutral. The results revealed that the 40x1092 feature is the best; the ranking of features based on information collection could reach 90% accuracy.

Keywords*:* Emotions recognition, feature extraction, feature selection, the bayesian network, an acyclic directed graph

ID ABSTRACT: 260

Effect of Microwave Irradiation on Photocatalytic Activity of rGO-TiO_2 Composites

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Abstract

The photocatalytic activity of TiO_2 can be enhanced by combining TiO_2 with reduced graphene oxide (rGO). The good electrical properties of rGO make rGO-TiO_2 composites have a lower rate of charge recombination than pure TiO_2 in their photocatalytic process. The microwave-assisted approach was also chosen because of its rapid thermal process. This study used the in-situ sol-gel method to produce the rGO-TiO_2 composites, together with a microwave-assisted technique that varied the irradiation time (5, 10, 15, and 20 minutes). The Fourier Transform Infra-Red (FTIR), Inductance, Capacitance & Resistance Meter (LCR-Meter), and UV-Vis were used to analyze the rGO-TiO_2 composites. The photocatalytic activity of the sample was observed utilizing a photocatalytic reactor and methylene blue as a pollutant. The result discovered that samples that had been microwave-irradiated for 20 minutes had the highest electrical conductivity and the highest photocatalytic degradation, measuring 1.2310-7 S/cm and 92.95%, respectively.

Keywords*:* rGO-TiO_2 composites, Photocatalytic activity, Microwave irradiation

ID ABSTRACT: 251

Halal Restaurant Selection Recommendation Using Multi Criteria Recommender System Method Based on Mobile

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Abstract

Mojokerto is one of the regencies located in East Java. Not a little tourists who make Mojokerto a culinary destination. Determining halal tourism destinations is still an obstacle for tourists. Traveler can hire a tour guide for information and place recommendations halal restaurant. However, this of course can cost quite a bit. Therefore we need a recommendation system that can help tourists in obtaining recommendations for halal restaurants in Mojokerto and can reduce the costs incurred. In this study using Multi Criteria Recommender System (MCRS) by comparing 2 equations, namely cosine based similaity and person correlation similarity to produce recommendations for halal tourist attractions in Batu City. Recommendations are obtained from the results of giving user ratings on the 7 criteria and the overall rating (R0) stored in the script table object in Unity3D. Rating is done at a minimum of 2 out of 10 tourist attractions. Rating The similarity between users is calculated using cosine-based similarity and person correlation. From calculation results using MCRS trial results 100 reference data and 10 test data by comparing the calculations generated by the system and real data, obtained an average accuracy in the calculation of cosine based similarity with a value of 0.624218327% greater than with the results of the average person correlation similarity calculation with a value of 0.613953%.

Keywords*:* Multi Criteria Recommender System, Halal Resataurant, Accuracy, Criteria

ID ABSTRACT: 345

Usability of Bandongan Streaming Content as Information Resources and Services in The Perspective of Student Ponpes Sabilurrosyad Malang

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Abstract

The rise of technology was massively utilized by Ponpes Sabilurrosyad Malang to make learning the yellow book (bandongan) based on bandongan streaming content. However, this utilization is still not well received by the students due to limitations in understanding java (pegon). The purpose of this study is to determine the characteristics of users of streaming bandwidth content and measure or evaluate the usefulness of streaming bandwidth content. The research method is descriptive research through surveys or questionnaires with a system usability scale (SUS) technique to 20 students out of a total of 400 students who were used as respondents. The results of the study showed that PonpesgasekTV's bandongan streaming content was still quite sufficient with a final score of 65 on a scale of 1 to 100. PonpesgasekTV's streaming content also gets a category high enough to be accepted with a high acceptance rate. Streaming content is also in the sufficient category based on the adjective rating value for its users.

Keywords*:* bandongan, streaming content, ponpes sabilurrosyad, ponpesgasektv, system usability scale

Thursday, October 27th, 2022 (Offline)

Room C

12.45 – 15.00

ID ABSTRACT: 219

Analysis of the Differences between the Design and Construction of Temporary Houses for Semeru Eruption Disaster in 2021

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Abstract

This study was prepared to determine the difference between design and construction of Temporary Houses for post-disaster Semeru eruption in 2021. From the design documents and actual construction on the site, there are some changes, and the factors that influence these changes can be seen. The eruption of Semeru at the end of 2021 caused several areas in Lumajang Regency damage and the community had to be relocated to new places that were considered safer and feasible. The accelerated relocation program is accompanied by a Temporary Houses design concept provided by Indonesian Architect Association (IAI) East Java region. However, along the way, there are several adjustments to support post-disaster rehabilitation acceleration programs. The focus of temporary housing is fast, cheap, safe, and can be mass-produced. From this study, factors that influence the design adjustment are Site Condition, Number of Building Units, Material Availability, Human Resources, and Government Policies and Policies. Design adjustments have occurred very often, such as in the construction of common buildings, there are planning documents, known as detailed engineering drawings (DED), then there are adjustments to site conditions, becoming shop drawings (drawings that will be implemented) and finally, there are drawings according to the building being built, as-built drawing.

Keywords*:* Differences, Desain, Construction, Temporary, Houses, Post-Disaster, Semeru Eruption

ID ABSTRACT: 315

Clickbait News Classification and Twitter Sentiment Analysis of Conflict between Russia and Ukraine Using an Artificial Neural Network

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Abstract

The conflict between Russia and Ukraine has become a topic that is often discussed by the public lately on various social media, one of which is news portals and Twitter. This is what makes journalists try to attract attention and take advantage of the emotions of readers psychologically and create experiences that make readers read, because they do not get the quality of content that journalists expect. Not a few of Twitter users expressed opinions about the Russia-Ukraine Conflict through uploaded tweets. Therefore, it is necessary to design a system that can automatically analyze sentiments of opinions in positive and negative sentiments. In order for the system to be able to classify large and diverse data, it is necessary to use one of the functions of text mining, namely text classification, by taking several samples of tweets discussing the Russian-Ukrainian conflict. Based on the results of this study, it can be said that the accuracy of the Neural Network for analyzing twitter sentiment is 82%, while for the classification of clickbait news it is 80%. From the results of the accuracy values above, it can be said that the Neural Network model that has been designed in this study is included in the good classification category.

Keywords*:* Clickbait Classification, Sentiment Analysis, Text Mining, Artificial Neural Network

ID ABSTRACT: 259

Application of the Linear Method in the Design of Water Surface Treatment with Aquatic Ecological Approach

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Abstract

Bukit Semarang Baru or commonly called BSB City Semarang is a new city development area with an area of 1000 hectares which has complete and modern facilities in the form of residential, industrial, shopping and educational areas. There is an artificial lake, namely Lake BSB, a lake that gives the feel of a natural panorama that is rarely found in the city of Semarang and is an area of the lungs of the city. This lake is located quite close to the city center of Semarang which is currently only functioned as an undeveloped public area. The lake environment is a green environment and is an urban forest, but the construction of housing and other facilities around the lake can have an impact on the surrounding environment, such as flooding, lack of clean water supply during the dry season, and drying of BSB City lake. Therefore, an approach that can maximize the potential of nature and minimize its damage is needed, besides that, an ecological approach that focuses on lake conservation is the most suitable approach in overcoming these issues.

Keywords*:* Water Surface Treatment, Linear, Akuatik, Ekologi

ID ABSTRACT: 290

Spatial Characteristics of Pesantren Sabilurrosyad Settlements in Gasek Karang Besuki Malang

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Abstract

Indonesia is currently home to the majority of Muslims in the world. This shows that most of Indonesia's population is Muslim. Indonesians are used to learning about Islamic boarding schools this way. A pesantren's environment usually connects to both the goings-on in the neighborhood and the regional order. In this study, the characteristics of the Sabilurrosyad Islamic boarding school village in Gasek Hamlet, Karang Besuki Village, are shown to understand the nature of settlements for the Islamic community and analyze the impact of the existence of Islamic boarding schools on the spatial of existing communities. The technique of this study uses a descriptive qualitative approach, which will later collect qualitative data to characterize the distinctive findings of the research using partial theory. The Sabilurrosyad Islamic Boarding School exhibits characteristics of settlements composed of people, society, Shells, and networks that coexist happily and sustainably. The Sabilurrosyad Islamic Boarding School settlement's spatial pattern includes the layout, circulation, surrounding natural environment, geographical setting, behavioral setting, socioeconomic setting, and cultural setting. The activities that take place there has an impact on the settlement patterns near Muslim boarding schools. Examining such things is crucial to provide context for a settlement's current regular behaviors. Thespatial components of an Islamic settlement must be taken into account when planning and building it. So that those users can do their responsibilities more quickly. The quality of the immediate surroundings, including its culture, social activities, and environmental conditions, must also be considered. This will result in a better andmore organized residential area for the neighborhood.

Keywords*:* Spatial, Characteristics, Pesantren, Settlement

ID ABSTRACT: 339

Digital Library Innovation Toward the Metaverse Library

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Abstract

The innovation being developed is a digital world called Metaverse. By utilizing Metaverse, digital libraries will become more innovative, interesting, and efficient for users because apart from being able to search for information on the available collections, users can also discuss directly without additional applications. Metaverse-based digital libraries are designed to increase public interest in reading, especially students and students, as well as to develop technology in the library world. The methods used are Object Oriented Analysis Design (OOAD) and Object Oriented Analysis Design (OOAD) methods. The software used to develop this library is SandBox. However, due to software limitations, some of the features in the table of functional requirements and use cases cannot be applied. So the available features are not sufficient to realize a fully functional metaverse library. The results of interviews and FGDs conducted concluded that this digital metaverse library is quite interesting because it is similar to an online game that can interact with each other. This library is also the latest innovation with a more enjoyable user experience. But this metaverse library still needs further development.

Keywords*:* Innovation, Digital Library, metaverse, active discussion, technology

ID ABSTRACT: 340

Analysis of Social Media Behavior Based on Bandura's Theory

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Abstract

Instagram account "L" is an account that provides or publishes various types of information ranging from political news, celebrities and viral things. This often provokes Instagram users who see the news to give different responses. This research aims to determine the social media behavior of followers of the Instagram account "L" based on Bandura's learning theory which has been divided into three indicators, including human behavior affecting the environment, human perspective and way of thinking about information and human behavior being influenced by the environment. The research method used is quantitative with a descriptive quantitative approach. Data collection is conducted by distributing questionnaires in the form of Google Forms via direct message (DM) Instagram. The sampling technique used is sampling that provides equal opportunities for each selected population to be a member of the sample (Probability Sampling) with a total of 102 respondents. According the results of respondent data analysis, from the three indicators of Bandura's social learning theory, only a person's perspective or mindset has been proven to have an impact on a person's media behavior, especially as a follower of the "L" Instagram account.

Keywords*:* information behavior, Instagram Account ìLî, Social Media Behavior, Way Thinking or Mindset

ID ABSTRACT: 341

Impact Analysis of the Implementation of Librarian Infopreneurship at the Public Library and Regional Archives Service of Malang City as a Form of Library Marketing in the Digital Age

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Abstract

Infopreneurship is an information marketing activity carried out by selling information in digital platform, and then distributing it through internet pages. In the realm of libraries, this infopreneurship activity provides many benefits for both the users and the library itself. Based on the results of this study, it was found that infopreneurship activities, especially in the Regional Library and Archives Service of Malang City, had more positive impacts on their users. The positive impacts include the fact that users can always get the latest information related to the library, both in terms of services, collections, in terms of operating hours, and etc quickly and easily

Keywords*:* infopreneurship implementation form, library, librarian, infoprenenur, information repackaging, librarian infopreneurship, digital era

ID ABSTRACT: 343

Evaluation of the Library Program based on Social Inclusion in the Batu City Public Library based on the Kirkpatrick Evaluation Model

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Abstract

A library based on social inclusion is a library that plays an active role in providing information to the wider community without discrimination against certain groups. It aims to strengthen the role of public libraries in advancing human resources who have high literacy skills by balancing creativity. Based on the results of the study in the form of evaluation of activities using the kickpatrick model, social inclusion in the Batu City Public Library itself consists of four activity services, namely decoupage techniques, cooking, English Club, and e-Book. In terms of supporting activities, the facilities and infrastructure owned by the Batu City Public Library are quite adequate both from the place and the tools and materials needed to carry out social inclusion activities. The social inclusion held by the Batu City Public Library has not been implemented optimally so that to achieve the ultimate goal of improving welfare has not been achieved. In reality, there are informants who do not apply it for various reasons and only make it a knowledge.

Keywords*:* Social Inclusion, Public Library, Kirkpatrick Evaluation

Thursday, October 27th, 2022 (Online)

Room 1

12.45 – 15.00

ID ABSTRACT: 214

Design Engineering and Economic Analysis of Maggot Cultivation as Basic Material for Pellet Manufacturing

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Abstract

Waste is a problem facing all countries in the world. Not only in developing countries, but also in developed countries. Without realized it, waste will accumulate longer and will continue to growth without effective countermeasures. To overcome the waste problem, one solution is carried out as a medium for cultivating maggots. Maggots are one of the potential organisms to be used as an agent to decompose organic waste. In addition, maggots can be used as alternative raw materials for fish pellets because maggots have an animal protein source with protein levels ranging from 30-45%. To carry out the cultivation of maggots should be carried out constantly and the right working steps. The life cycle of maggots can be produced in a short time for 40 days. Maggot cultivation can begin with the manufacture of cages. Therefore, to design the manufacture of cages, an engineering design method is used. In addition to design engineering, there is also something that supports the cultivation of this maggot, namely cost. From the calculation of bep wet and dry maggots of 17 Kg and 2 Kg and IDR 200,000 and IDR 111,111.

Keywords*:* Design Engineering, HPP, Maggot Cultivation, Pellet

ID ABSTRACT: 344

Detergent-tolerant Heterotrophic Bacteria Consortium Strain Decomposer to Improve Environmental Health

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Abstract

Environmental pollution in Indonesia has been a serious issue during the last few decades, especially in big cities. The main causes of pollution in the river, lake, and other public water bodies are the domestic waste (40%), the industrial waste (30%), and the farming waste. Currently, only around 25% of the wastewater receives certain types of treatment before being dumped to the open environment, while the rest remain untreated. One of the solutions to handle the problem of domestic wastewater is to use the indigenous microbe isolate which could potentially decompose the waste by isolating it, and then process the results by in-vitro culture in the laboratory. The potential microbe which decomposes the waste and kills the pathogens is produced in which the laboratory and is used as a starter for the waste decomposition process. The microbiology waste processing should take several issues into consideration to ensure the effectiveness of the microbe employed. For example, the microbe should be tolerant to detergent and its active components, be capable of decomposing organic substances, and be capable of killing pathogens. In order to solve the problems of environmental pollution, isolation, potential testing and identification of the indigent heterotrophic microbes which are detergent tolerant and antagonistic towards pathogens were conducted to obtain some consortium formula candidates for the waste decomposing microbes in effort to improvement environmental health.

Keywords*:* waste decomposer, microbe decomposer, improvement, environmental health

ID ABSTRACT: 323

Catalytic Upgrading of Palm Oil Derived Bio-crude Oil Using Protonated Zeolite-Y as Catalyst

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Abstract

In this research, bio crude oil (BC) obtained by pyrolysis of palm oil was subjected to catalytic upgrading using protonated zeolite-Y, with the main purpose to study the effect of zeolite protonation on biogasoline content of the upgraded BCO. Zeolite-Y (Na-Y) was synthesized from rice husk silica and aluminum foil by hydrothermal method, and then subjected to proton exchange treatment with ammonium nitrate solution with different concentrations of 2.0; 2.5; 3.0; and 3.5 M to produce protonated zeolite-Y (H-Y). The formation of zeolite Na-Y and H-Y were confirmed using XRF, XRD, and XRF. The XRF analysis indicates that protonation process applied resulted in substitution of Na+ with H+, with the highest reduction of Na content up to 89.948% from the initial content in the Na-Y prepared. Characterization using XRD showed that the samples were dominated by faujasite phase, which is the characteristic phase of zeolite-Y, and SEM characterization revealed the presence of particles with cubic-octahedral structure. Catalytic upgrading experiments demonstrate that H-Y zeolites functioned to increase the biogasoline content to 55.26% from initial content of 23.23% in the BCO. This increase was achieved using the H-Y produced from ion exchange process with ammonium concentration of 2.5 M.

Keywords*:* Bio crude oil, catalytic upgrading, zeolite-Y, protonated zeolite-Y, biogasoline

ID ABSTRACT: 291

Diversity of Soil Spiders in Simple and Complex Coffee Agroforestry in Wonosalam District Jombang Regency

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Abstract

Wonosalam District is a priority area for coffee commodity development in Jombang Regency. Coffee cultivation in the area uses an agroforestry system. Soil spiders have an important role in agroforestry systems, namely as detrivores and biological controllers. This study aims to identify the genus of soil spiders, and to determine the diversity of soil spiders in simple and complex coffee agroforestry. The study used exploratory methods, and data collection using a pitfall trap. In each agroforestry area, 3 observation stations were made and at each station 15 traps were installed, the observations were repeated 3 times with an interval of 2 days. The results of the identification of spiders in simple and complex coffee agroforestry, Wonosalam District, Jombang Regency, obtained 6 families and 9 genera. Principal component analysis (PCA) show that simple agroforestry is characterized by the genus Pardosa, while in complex agroforestry it is characterized by the genus Hygrolycosa. The clustering show that formed into 3 groups, the first group is genus Pardosa, the second group is the genera of Zelotes, Apostenus, Hygrolycosa, Trochosa, and Heteropoda based on this, the grouping occurs because the amount obtained is more in complex agroforestry, the third group formed is genera Synaphosus, Agorius, and Ctenus. Soil spider diversity index in simple and complex coffee agroforestry was 0.858 and 1.078, respectively. The soil spider dominance index in simple coffee agroforestry is 0.6628, while in complex agroforestry it is 0.4873. The evenness index of soil spiders in simple coffee agroforestry was 0.295 lower than that of complex agroforestry, which was 0.49. The similarity index value of two simple and complex agroforestry lands is 0.758.

Keywords*:* Agroforestry, coffee, soil spider, wonosalam

ID ABSTRACT: 238

Ethnobotany of Medicinal Wild Plants in the Community of Kutorejo Subvillage, Buffer Area of Alas Purwo National Park Banyuwangi Regency

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Abstract

Alas Purwo National Park has a buffer area, namely Kutorejo Subvillage, Kalipahit Village, Tegaldlimo District, Banyuwangi Regency. The community has local wisdom in the use of medicinal wild plants. The purpose of this study is to identify the use of medicinal wild plants and identify the potential of medicinal wild plants used by the Kutorejo Subvillage community. The population of this research is the people of Kutorejo Subvillage. The research sample consisted of people who understand medicinal plants. Sample determination is done by random sampling. The study was conducted from May to June 2021. The results showed that identified as many as 17 species from 14 families of medicinal wild plants used by the community of Kutorejo Subvillage from several habitus groups. The largest Species Use Value (SUV) is *Heliotropium indicum* (0.8). The largest percentage of use of plant organs as medicinal ingredients is leaves at 82.36%. There are 4 species of medicinal wild plants originating from the Alas Purwo forest that have the potential to be develope and cultivate, namely *Abtonia scholaris, Melaleuca leucadendra, Ardisia elliptica*, and *Amomum dealbatum*.

Keywords*:* Ethnobotany, Medical Wild Plant, Alas Purwo Natinal Park

ID ABSTRACT: 270

Identification of Microplastic Contamination in The Digestive Channel of Fish Consumption from Sendang Biru Beach, Malang Regency, East Java

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Abstract

Plastic waste is one of the most common types of waste on land and oceans. Plastic waste in the environment will eventually experience fragmentation so that it becomes microplastic. The impact of this microplastic can damage the environment and the biota that live in it. This study aims to determine the presence of microplastic contamination in the digestive tract of consumption fish from Sendang Biru Beach, Malang Regency, East Java. This is motivated by the use of the beach as a place for fish auctions and tourist destinations so that it is very vulnerable to pollution. This research was conducted at Sendang Biru Beach, Malang Regency, East Java. Sampling was carried out in January-February 2022. This study used the Purposive Sampling method by determining 4 points of sampling locations. Station 1 backrest of the Navy post, station 2 is Sendang Biru Beach, station 3 is Pondok Dadap Fish Sales Place (TPI), and station 4 is Kondang Buntung Fish Sales Point (TPI). In every station, 5 samples of Samples of Banyar mackerel (Rastrelliger kanagurta), tuna (Euthynnus affinis) and red snapper (Lutjanus argentimaculatus) were taken with 3 repetitions. The methods used in this study were fish dissection, preparation, incubation, identification, and analysis of fish samples. The analysis used in this study was to identify the type and abundance of microplastics followed by the FTIR test to determine the type of polymer contained in the microplastic particles. The types of microplastics found were fiber, fragments, and films.

Keywords*:* Microplastics, Fish Consumptiion, Sendang Biru Beach

ID ABSTRACT: 252

Antibacterial Activity Test of Ethanol and Ethyl Acetat Extract of Sapindus rarak Against Staphylococcus aureus and Escherichia coli

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Abstract

Lerak fruit contains a variety of secondary metabolites that have pharmacological effects, especially as an antibacterial agent. This research was conducted to determine the secondary metabolite compounds contained in lerak fruit (Sapindus rarak) and the antibacterial activity of ethanol and ethyl acetate extracts of lerak fruit at various concentrations, namely against Staphylococcus aureus and Escherichia coli bacteria by disk diffusion test. The results showed that the antibacterial activity of the ethanol extract of lerak fruit against Staphylococcus aureus was 9.62 mm with active compounds that act as an antibacterials, that were alkaloids, phenols, tannins, saponins, and flavonoids. While the antibacterial activity of ethyl acetate extract of lerak fruit against Escherichia coli was 6.50 mm, where tannin and phenol became active compounds that acted as an antibacterial.

Keywords*:* lerak fruit (Sapindus rarak); Staphylococcus aureus; Escherichia coli

Thursday, October 27th, 2022 (Online)

Room 2

12.45 – 15.00

ID ABSTRACT: 355

Stummel Spaces and Its Emebddings

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Abstract

In this research we will study the relationship between Stummel spaces and Morrey spaces which have great importance in studying partial differential equation. It has already been known that there exist an embedding from Stummel spaces equipped with the norm $\|\cdot\|_{p,q,\lambda}$ with $q = \infty$, to Morrey spaces $L^{p,\lambda}$. Generally Stummel spaces can be equipped with norm $\|\cdot\|_{p,q,\lambda}$, for $1 \leq p < \infty$, and for $1 \leq q \leq \infty$. There are two main aims in this research. Firstly, is there an embedding between Stummel spaces $\mathfrak{S}^{p,q,\lambda}$ for $q_1 \neq q_2$. Secondly, how do we embed Morrey spaces $L^{p,\lambda}$ to Stummel spaces $\mathfrak{S}^{p,q,\lambda}$.

Keywords*:* Embedding, Morrey spaces , norm, Stummel spaces

ID ABSTRACT: 350

Commuting Additive Mappings in Certain Classes of Rings

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Abstract

Let R be an associative ring and Z(R) denotes the center of R. An addi- tive mapping D : R → R is called a derivation on R if D(xy) = D(x)y + xD(y) holdsforallx,y∈R. Afunctionf:R→Riscalledacentralizingon Rif [f(x),x)] ∈ Z(R) holds for all x ∈ R. In the special case where [f(x),x)] = 0 for all x ∈ R, f is said to be commuting on R. The study of such mappings were initiated by Posner [Proc. Amer. Math. Soc. 8(1957), 1093-1100]. In the year 1957, he established that if a prime ring R has a nonzero commuting derivation on R, then R is commutative. An analogous result for commuting automorphisms on prime rings was obtained by Mayne [Canad. J. Math. 19 (1976), 113-115].

In this talk, we will discuss about the recent development on commuting and centralizing mappings in rings and algebras. Subject to availiability of time, we will also discuss some examples and counter examples for questions raised naturally.

Keywords*:* Commuting and centralizing mapping, derivation, prime and semi-prime ring

ID ABSTRACT: 254

Ridge Regression Model Using Kibria Parameter

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Abstract

Stock prices in the economy, especially in Indonesia, is very important that so many people want to get benefits from investing stocks. The rate of return that owned by investor is called return investment. In this research, we are looking for return of stock model, which is useful for predicting return of stock at a certain time. Method that used forecasting of return is ridge regression using tuning parameter Kibria. The purpose of using this method is for eliminate multicollinearity that cannot be in OLS method. Model of return of JKSE is searched by following the steps in regression method and using tests to get the best model. Based on the result of the study, it was obtained that the equation of the ridge regression model with all the independent variables had a significant effect on return of stock. The tests that perfomed are normality test, multicollinearity test and parameter significant test. The VIF value obtained is also less than 10, namely $X_1 = 3{,}6310, X_2 = 0{,}8428, X_3 = 3{,}2148, X_4 = 2{,}1465, X_5 = 2{,}0458, X_6 = 1{,}4058$, dan $X_7 = 0{,}8270$ with a coefficient of determination is 0,9626 which means that all the independent variables on return of stock is 96,26% while 3,74% is influenced by other independent variables. Therefore, the ridge regression method using tuning parameter Kibria can be used to predict.

Keywords*:* OLS, Ridge, Kibria, Return of Stock, Multicollinearity

ID ABSTRACT: 287

The First and Second Zagreb Eccentricity Index and Coindex on the Total Graph of the Integer Ring Modulo 2*p*

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Abstract

Graph theory is the extension of the ring, graph is a pair of sets (V, E) where V is non-empty finite set of objects called vertices and E is a (possibly empty) set of unordered pairs of different vertices of V called edge. The purpose of this research is to determine the general form of the first and second Zagreb index and co-index on the total graph of the integer ring modulo $2p$ with $p \geq 3$ where p is a prime number. The research method used literature study using several books and scientific journals. The research results obtained are as follows:

1. The first Zagreb index and co-index on the commutative ring total graph $\mathbb{Z}_{2p}$ with p is a prime number and $p \geq 3$ is:
   $E_1\left(\Gamma\left(\mathbb{Z}_{2p}\right)\right) = 4 \times 2p$
   $\overline{E_1}\left(\Gamma\left(\mathbb{Z}_{2p}\right)\right) = 4 \times \left(p(p-1)\right)$
2. The second Zagreb index and co-index on the commutative ring total graph $\mathbb{Z}_{2p}$ with p is a prime number and $p \geq 3$ is:
   $E_2\left(\Gamma\left(\mathbb{Z}_{2p}\right)\right) = 4p^2$
   $\overline{E_1}\left(\Gamma\left(\mathbb{Z}_{2p}\right)\right) = 4 \times \left(p(p-1)\right)$

Keywords*:* First Zagreb Eccentricity Index and Coindex, second Zagreb Eccentricity Index and Coindex, total graph, ring integers modulo $2p$

ID ABSTRACT: 201

Implementation of the Lax Friedrichs Method in Solving the Burgers Equation

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Abstract

This study discusses the solution to the nonlinear partial differential equation, namely the Burgers equation. Solving these equations is done using the Lax Friedrichs method which is a numerical method developed from the Forward Time Centered Space (FTCS) method which can be used to solve linear and nonlinear partial differential equations. In this study, a linear initial value and two boundary conditions were used, namely the left and right limits of the given Burgers equation. The numerical solution was calculated using three different variations of Δx and Δt and the error in calculating the numerical solution and the minimum exact solution was obtained at $\varepsilon=0{,}065$ when $\Delta x=0{,}2$ and $\Delta t=0{,}2$. Then simulated using MATLAB software. It is concluded that the lax friedrichs method can be used to calculate the numerical solution to the Burgers equation.

Keywords*:* Burgers equation, Lax Friedrichs method, numerical solution, MATLAB

ID ABSTRACT: 369

Agglomerative Hierarchical Clustering Analysis Based on Partially-ordered Hasse Graph of Poverty Indicators in East Java

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Abstract

Poverty is a central issue in many countries, so one of the main goals of a country is to eradicate poverty. One of the efforts is to identify indicators that affect poverty using cluster analysis. In this research, we discuss cluster analysis using the agglomerative hierarchical clustering method based on the partially- ordered Hasse graph. Meanwhile, one form of facilitating cluster analysis is the Hasse graph. Therefore, this study was conducted to find out which areas have close or similar poverty indicators based on the partially-ordered Hasse graph and reduce the incidence of poverty in East Java. Before conducting cluster analysis, a multicollinearity test was carried out between poverty indicators, then the proximity between objects was determined using the Euclidean distance. Afterward, cluster analysis was performed using agglomerative methods (single linkage and complete linkage) to obtain the best cluster solution. The single linkage method provides the best solution consisting of five clusters. The results of the partially-ordered Hasse graph show that the fifth cluster becomes the top layer based on the Gini indicator. The fourth cluster becomes the top layer based on the depth index indicator. Last, the first cluster becomes the top layer based on the open unemployment rate indicator and life expectancy.

Keywords*:* Agglomerative Hierarchical Clustering, Hasse Graph, Poverty, Cluster Validity Test, Partial Ordering

Thursday, October 27th, 2022 (Online)

Room 3

12.45 – 15.00

ID ABSTRACT: 329

Synthesis of CaO/SiO_2 from Limestone and Pumice Silica Pumice as Catalyst for Transesterification of Rubber Seed Oil

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Abstract

In this study, a series of CaO/SiO_2 with different mass ratios of CaO to SiO_2 of 1:1; 1:2; 1:3; 1:5; and 1:10 were synthesized using silica extracted from pumice and CaO from limestone. The catalysts were synthesized using sol-gel method, followed by calcination at 800°C for 6 hours. The catalysts were characterized using XRD and SEM. The catalysts were then applied in transesterification reactions of rubber seed oil to investigate the effect of methanol to oil ratio, catalyst loads, and reaction times on conversion of the oil into methyl esters. All experiments were conducted at constant temperature of 70°C. The existence of amorphous and crystalline phase was evidently displayed by the XRD pattern obtained, and SEM characterization indicates that the surface of the samples is characterized by the presence of amorphous particles as well as crystalline particles. From transesterification experiments, it was obtained that the highest conversion (92%) was achieved with methanol to oil ratio of 1:10, catalyst load of 10%, and reaction time of 6 hours.

Keywords*:* Heterogeneous catalyst, CaO/SiO_2, pumice, limestone, transesterification, rubber seed oil

ID ABSTRACT: 335

The Study on Corrosion Inhibition Activities of Nitrogen Compounds Derived from Coconut Oil Methyl Ester Using Autoclave Method

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Abstract

In this study, nitrogen compounds was obtained from two steps reaction, transesterification of coconut oil and amidation reaction of coconut oil methyl ester. Zeolite-A catalyst was used for both transesterification of coconut oil and amidation reaction of methyl ester. Amidation reaction was conducted using autoclave by reacting coconut oil methyl ester and diethanolamine in an oven with various temperature (80 and 100 °C) and reaction time (24 and 48 hours). The formation of nitrogen compounds was proven based on the results of analysis GC-MS and FTIR which showed amidation product with temperature 100 °C and reaction time 48 hours (AMD 100:48) resulting the highest amount of nitrogen compounds 53,31% with specific wavenumber 3285 cm-1 (O-H and N-H), 1625 cm-1 (C=O), and 1043 cm-1 (C-N). Corrosion inhibition activities of nitrogen compound obtained was tested by wheel test method and showed a good performance in mild steel with protection 97.9%. The activity of nitrogen compounds as corrosion inhibitor also displayed by SEM micrograph and showed that mild steel treated in corrosive medium with addition of nitrogen compounds is well protected.

Keywords*:* coconut oil methyl ester, zeolite-A, nitrogen compounds, autoclave, corrosion inhibitor.

ID ABSTRACT: 327

Optimization of Zeolite-X Catalyzed Palm Oil Transesterification Using Response Surface Methodology

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Abstract

In this study, response surface methodology was applied to optimize transesterification of palm oil using zeolite-X prepared from rice husk silica and aluminum foil as catalyst. For this purpose, response surface methodology (RSM) with 3-level-3 factor central composite design was applied to investigate the effect of experimental factors on the percentage of conversion of the oil into methyl esters. A quadratic model was derived from the RSM with the aid of analysis of variance (ANOVA) and Design Expert 6.0.8 software to predict oil conversion, and reveals that 68% of the observed variation is explained by the model. Based on the RSM applied, the optimum conditions obtained are 10 wt% relative to the mass of the oil, oil to methanol ratio of 6, and reaction time of 5 h.

Keywords*:* palm oil, transesterification, zeolite-X, Response Surface Methodology (RSM)

ID ABSTRACT: 256

Quantitative Structure-Activity Relationship (QSAR) of N-Benzoyl-N'-Naphtylthiourea Derivative Compounds by In Silico as Anticancer Through Inhibition of VEGFR2 Receptors

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Abstract

Vascular endothelial growth factor receptor (VEGFR) tyrosine kinases (TKs) are clinically validated drug targets for anticancer therapy because they play an important role in the process of angiogenesis, tumour growth, and metastasis. Thiourea-derived compounds are known to have potential VEGFR2 inhibitors. The purpose of this study was to obtain a quantitative relationship between the structure and activity (HKSA) of the compound *N*-benzoyl-*N'*-naphthyl thiourea (BNTU) and its derivatives as anticancer through inhibition of the VEGFR2 receptor. The best QSAR equation model obtained can be used as a guide in designing new BNTU derivative compounds that have the best VEGFR2 inhibitory activity. The results of the analysis provide the best equation model as follows:

RS = 5.175 (± 0.395) E_{LUMO} – 76.061 (±1.648) (one physicochemical parameter)
(n = 14; r = 0.967; SE = 4.403; F = 171.634; sig. = 0.000)

RS = -0.405 (±1.020) $ClogP^2$ + 1.174 (±8.709) ClogP + 5.227 (±3.273) E_{LUMO} - 72.983 (±7.625) (two physicochemical parameter)
(n = 14; r = 0.971; SE = 4.519; F = 54.777; sig. = 0.000)

Keywords*:* VEGFR2, BNTU, QSAR, anticancer activity

ID ABSTRACT: 295

Photodegradation Activity Test of Congo Red and Methylene Orange Dyes Using TiO_2/Activated Carbon as Photocatalyst Synthesized by Sonication Method

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Abstract

Research has been carried out to determine the characterization and photocatalytic activity of TiO_2/activated carbon on the degradation of congo red and methylene orange dyes. TiO_2/activated carbon with composition 90:10 was synthesized by the sonication method. Then characterization was carried out using FTIR, XRD, and UV-Vis DRS. The characterization of the FTIR result shows that there is a stretching C=C absorption which is assumed to come from activated carbon. The crystalline phase formed is identified as anatase phase with a peak shift due to activated carbon dopants based on XRD results. Furthermore, UV-Vis DRS data shows that decreased in the band gap energy value from 3.21 to 3.16 eV. The photodegradation results show that radiation under UV for 100 minutes has the optimum state of degradation of congo red is 81.76% and methylene orange is 77.79%, as well as by adding 30 mg photocatalyst has the optimum state of degradation of congo red is 88.45% and methylene orange is 52.97%. This proves that the TiO_2/activated carbon composite is able to increase the degradation activity of congo red and methylene orange.

Keywords*:* Photodegradation, TiO_2, Activated Carbon, Congo Red, Methylene Orange

ID ABSTRACT: 287

Antibacterial Activity Acorus calamus L. Rhizome and Determination of Total Flavonoid Content of Isolates from Column Chromatography

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Abstract

Acorus calamus L. is one of the herbal plants whose rhizomes are often used as traditional medicine. Acorus calamus rhizome contains several active compounds, one of which is flavonoid compounds. This study was conducted to determine the total flavonoid content of isolates, toxicity, and antibacterial activity of ethanol extract and ethyl acetate fraction of Acorus calamus rhizome. Isolation of flavonoid compounds was carried out by sonication extraction using 70% ethanol as solvent and partitioned using ethyl acetate. The extraction and partitioning resulted in yields of 18.73% and 10.80%, respectively. Furthermore, phytochemical tests were carried out on the ethanol extract and ethyl acetate fraction. Phytochemical test showed that ethanol extract and ethyl acetate fraction positively contained flavonoid compounds. After that, the ethyl acetate fraction was separated using column chromatography and a purple stain was produced with values of 0.663 and 0.250. The results of FTIR analysis showed the presence of functional groups O-H, C=O ketones, C=C aromatics, C-OH phenols, C-O-C, C-O secondary alcohols, and =C-H alkenes with UV-Vis analysis results showing absorption in the 257 nm region (band I) and 374-377 nm (band II). Determination of total flavonoid levels in Acorus calamus L. rhizome isolates was carried out using AlCl3 reagent and obtained results of 32.9468 mg QE/g.. After that, the antibacterial activity test was carried out on the ethanol extract and ethyl acetate fraction with the results of the inhibition zone values being 2.3-4.54 mm and 2.63-5.92 mm, respectively.

Keywords*:* Acorus calamus L., Rhizome, Flavonoid, Antibacterial

Thursday, October 27th, 2022 (Online)

Room 4

12.45 – 15.00

ID ABSTRACT: 202

Machine Learning To Predict Optimized Lattice Parameter Of Green Catalyst Material-Doped Boron Nitride 2D Materials

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Abstract

In the last year, study of 2D materials has been a subject for both theoretical and experimental studies in material science field. One of the 2D materials that is often to be taken as a subject for those studies is boron nitride 2D material, since this material has been used as a green catalyst material especially. In this work, machine learning was developed to predict optimized lattice parameter of doped boron nitride 2D materials, since the lattice parameter of the material determines the general properties of the materials significantly. Machine learning was developed by using Quantum Espresso and MATLAB. Interestingly, small number of the generated data of the lattice parameter have been used successfully for developing the machine learning.

Keywords*:* Machine Learning, Doped Boron Nitide, Lattice Parameter

ID ABSTRACT: 229

Cloud ERP System for Private Universities in Indonesia

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Abstract

This literature study aims to examine the advantages and challenges for private universities that will migrate to implement a cloud-based ERP system. ERP Cloud systems have various advantages, especially data integration in all internal departments, banks, students and lecturers quickly and in real time. ERP systems have undergone many evolutions into a Cloud ERP system. The presence of this Cloud ERP system provides a lot of optimization of business process integration in both business and educational entities. Cloud ERP/ EERP system provides many more benefits that will be obtained by universities, including: Lower upfront costs, Lower operating costs, Rapid implementation, Scalability, Using advanced technology, Rapid updates and upgrades, Improved accessibility, Easier integration with cloud services, Improved system availability and disaster recovery, Cost transparency, Using security standards, and Free trials. This Cloud ERP system can answer and provide solutions to data disintegration problems with external parties (Banks) which are common in private universities in Indonesia, especially in Medan/ Nort Sumatera. Universities that choose to immediately implement this Cloud ERP/EERP system will get increase the value of the university

Keywords*:* Cloud ERP, advantages Cloud ERP, private universities

ID ABSTRACT: 230

Blockchain and Its Application to Public Sector Accounting In Indonesia

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Abstract
The main purpose of this research is to analyze the existing literature on the importance of Blockchain and its possible impact on the Public Sector Accounting In Indonesia. This research design applies literature study approach on blockchain and its application to Public Sector Accounting in Indonesia. The data analysis technique is done by clarifying some of the terminological confusion that exists with regards to blockchain, and what challenges could be the future of this technology. The results of this study find that Blockchain as a public sector accounting application in Indonesia involves an important transformation of the traditional accounting system, with modification consequences that result in high levels of performance. One of the main contributions of this research is the importance of understanding information technology, being one of the first to analyze the impact of Blockchain in public sector accounting in Indonesia. Data and information used in the preparation of blockchain planning documents must be data that has been inputted into the Regional Development Information System (RDIS/SIPD)

Keywords*:* Blockchain, Accounting System, Public Sector

ID ABSTRACT: 231

Machine Learning and Artificial Intelligence : Implementation to Banking Financial Services in Indonesia

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Abstract

This article aims to investigates the arrangements related to the use of artificial intelligence in bank services in Indonesia through market conduct. Analysis is conducted by using examining library materials or also called library research. Research findings that opportunities are explored with Machine Learning (ML) are numerous today, and one of them is the ability to set up evolving security systems learning from past cyber fraud experiences and developing more stringent fraud detection mechanisms. The types of fraud are: evident in modern banking, and how ML has become an innovative, timely, and efficient fraud prevention technology. The contract law contained in OJK regulations provides a basis for banks to use artificial intelligence in their services as a basis for conducting operations.. The precautionary principle and protection for consumers should be a top priority in the use of artificial intelligence. Transaction activities in banking services must still pay attention to funds and personal data, prevention of money laundering and terrorism crimes, as well as financial system stability

Keywords*:* Machine Learning, Artificial Intelligence, Fintech, Fraud Transaction and Cyber Attacks

ID ABSTRACT: 232

Digital Innovation of Financial Management in The Development of Creative Industry in Indonesia

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Abstract
This study aims to analyze the existing literature on the importance of digital innovation and its possible impact on the development of creative industries in Indonesia. The research method uses a literature review approach to digital innovation and its application to the creative industry in Indonesia. Data analysis techniques are carried out by clarifying several terminologies related to digital innovation, and the future challenges of the creative industry. The results of this study indicate that digital innovation as a Financial Information Recording Application System (Si Apik) can make it easier to record financial transactions and prepare financial reports for business people easily and simply to improve financial performance and business development as well as increase financial access for creative industries in Indonesia.

Keywords*:* Digital, Innovation, Financial Management, Creative Industry

ID ABSTRACT: 322

Design and Construction of Automatic Solar Tracking System as "Smart Garden University" Electricity Supplier

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Abstract

Solar panels are one of the tools used to generate electrical energy by utilizing energy from sunlight. The problem that arises in the utilization of solar energy using solar panels is that its stationary or static position causes the solar panels to be unable to follow the direction of the sun's rays so that the output power of the solar panels is not optimal. This research focuses on how to design a tool or solar tracking system that will be useful for directing solar panels to be in the direction of the sun's rays so as to increase the output power of solar panels. In this automatic solar tracking system, 4 LDR sensors are used as light sensors that will detect the direction of the sun's rays with a drive system in the form of 2 servo motors which will move the solar panel module on the vertical and horizontal axes, then also equipped with a data storage system using a microSD card module which will facilitate the process of retrieving current, voltage and output power data from solar panels. The designed automatic solar tracking system requires approximately 8.4 watts of power to operate, or consumes approximately 58.8 watthours of energy during the 7 hours of testing. From the results of tests carried out for 2 days, solar panels without a tracking system produce an average output power of 43.10 watts and 47.17 watts. Meanwhile, solar panels equipped with a tracking system that have been designed in this study are able to produce an average output power of 53.79 watts and 57.27 watts, this shows that the use of an automatic solar tracking system in this study, statistically can increase the average output power by 19.87% and 17.64%.

Keywords*:* Sun tracking system, Solar panel, Arduino

ID ABSTRACT: 321

Identification of Subsurface Rock Structures in Banyu Biru Hot Springs Using Gravity Method

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Abstract

One of the geothermal manifestations in Nganjuk is the Banyu Biru hot spring in Gondangwetan Village, Jatikalen District, Nganjuk regency. This hot spring was discovered by accident when drilling a well to be used as a rice field flow, but the water that came out was hot water with a temperature of 37 oC at a depth of 250-300 m. This study aims to determine local anomaly patterns and lithological structures of subsurface rocks in the Jatikalen hot spring area. The research method used is the gravity method based on GGMPlus satellite data obtained as many as 100 data with a distance of 200 m between points. Based on the qualitative analysis of the local anomaly contours, the low anomaly was -2.6 mGal to -0.8 mGal, the moderate anomaly was -0.6 mGal to 2.2 mGal, and the high anomaly was 0.6 mGal – 2.2 mGal. Quantitative interpretation with the results of the cross-sectional model resulted in 5 layers of topsoil with a density value of 1.2 grams/cm3. In the second layer is alluvium in the form of gravel, gravel, sand with a density of 1.7 grams/cm3. The third layer is tuffaceous clay with a density of 2 grams/cm3 and the fourth layer is calcareous tuff with a density value of 2.67 grams/cm3. While the last in the fifth layer is breccia rock with a density value of 3 grams/cm3.

Keywords*:* Geothermal, Gravity method, Lithology

Thursday, October 27th, 2022 (Online)

Room 5

12.45 – 15.00

ID ABSTRACT: 318

SMEs Participation in Green Public Procurement: An Academic Literature Review

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Abstract

Responsibility for the environment began by large companies and the following by SMEs to jointly reduce the negative impacts caused by economic activities. However, the involvement of SMEs in green public procurement is still a relatively new process, especially for developing countries compared to developed countries. The preparation of this article aims to find out the extent of SME participation in green public procurement. This article was compiled using a systematic literature review approach by searching for articles discussing SMEs participation in green public procurement in international journals indexed by Scopus and Google Scholars. The stages in the SLR are carried out using keywords and evaluating in more detail about SMEs partiicipation in GPP. The use of the keyword "SMEs participation in Green Public Procurement is carried out by the compiler to filter the required articles. The results of the literature review were successfully compiled by selecting and reviewing as many as 28 indexed international journals that were in accordance with the research objectives. This research still has limitations in terms of the number of articles reviewed. Therefore, further research is needed to add to the strengthening of theories and the formulation of appropriate policies, especially the participation of SMEs in maintaining environmental sustainability.

Keywords*:* SMEs, Participation, Green Public Procurement, Academic Literature Review

ID ABSTRACT: 361

Environmental Sanitation at Traditional Markets in Air Bangis, West Sumatra

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Abstract

Environmental sanitation in markets is important because that is where buying and selling take place and often in the form of direct consumption of goods and services. Pro-environmental behavior refers to the involvement of citizens in the provision, use, and maintenance of environmental sanitation facilities and services. This study aims to assess the availability of environmental sanitation facilities and the environmental sanitation behavior of market traders. The dependent variable in this study is access to environmental sanitation facilities and environmental sanitation behavior. Access to environmental sanitation facilities consists of clean water sources, access to toilets, types of toilets, and types of sewers.

Meanwhile, environmental sanitation behavior consists of types of clean water storage facilities, garbage disposal methods, distance to the nearest drinking water source, distance to the nearest toilet, and factors that reduce interest in using toilets. The results showed that 23% of traders had trash storage containers without lids, and 30% used plastic bags. 20% use the basket. 27% used sacks. The waste disposal method for traders at Air Bangis Market is 80% collected by garbage collectors, 5% is burned, 2% is thrown into the bushes, and 5% is thrown into the sea. The majority of the distance from clean water sources for traders is close and affordable; 83% of respondents have a distance from clean water sources of less than 50 meters. Most market toilets are close and affordable; as many as 66% of respondents have a distance of fewer than 50 meters from market toilets. In the findings on factors that influence the interest in using the toilet, 66% of respondents answered that it was due to poor sanitation conditions, and 28% of respondents answered that it was because of the long distance. As many as 8% of respondents answered that they used the toilet at home because their house was closed.

Keywords*:* sanitation, environmental, behavior, trader, traditional market

ID ABSTRACT: 362

Green Building Concept Application to the Pet Care Center Design in Sidoarjo Indonesia

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Abstract

The increased population of pets generates a problem like pet overpopulation, pet abandonment, and increased cases of pet abuse which disturbs the community also pets feel insecure. Most developmental pet centers do not pay attention to the natural tendency of pets themselves that causes pets to feel far from their habits and their natural origin. Because of that, the Pet Center needs one place that has a big building area and special facilities to improve the health and the activities quality. So, the objective of this study is to suggest a design concept of a pet center in Sidoarjo that can answer all of the pet's problems. The green building design principle is chosen to be the design approach to fix the problems. The method of the study is descriptive qualitative method. Existing conditions by the facts are explained and analyzed with sketches to get a design picture both taking the existing issues and providing design goals with appropriate ideas on the site. This study also uses a literature review to obtain design principles based on a design approach. The result of the study is the six principles of the green building design approach can be applied in the Pet Center design, including the site, the room, and the shape design concept. The finding of the study is the new design for a Pet Center that is suitable with the need of pets to increase their health and happines.

Keywords*:* pet center design, green building, pet shelter design

ID ABSTRACT: 268

Analysis of Comfort and Safety for School Design in Disaster-prone Area

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Abstract

This research is a literature review research based on the comfort and safety of schools in disaster-prone areas in Indonesia. The number of disasters that occur throughout the year makes Indonesia included in the category of a disaster-prone country. However, many schools only prioritize functional interests without being given comfort and mitigation standards. This makes teaching and learning activities not optimal. In addition, when a disaster occurs, buildings that are not equipped with a mitigation system will endanger students and school staffs. For this reason, it is necessary to design schools according to standards to improve the safety and comfort of students in teaching and learning activities. Therefore, this paper results guidelines on how to design a safety and comfortable school, especially those located on disaster-prone area.

Keywords*:* safety, thermal comfort, mitigation, school design

ID ABSTRACT: 297

Analysis of the Quality of Public Space at the Comboran Flea Market Corridor, Malang City

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Abstract

This research is a literature study based on the survey results. Analysis of the quality of public space in the corridor of Comboran Flea Market Malang. Based on the survey results at the location, Comboran Flea Market is an informal trading area located in the middle of public transportation routes and residential areas. As a result, this area has a high level of mobility and is dense. The Comboran Flea Market is considered less user-friendly in terms of the irregular arrangement of road user activities and public transportation. Based on the existing problems, this study aims to identify the quality of public space in the Malang Comboran market and produce recommendations to improve the comfort of the space in the Malang Comboran market. This study uses qualitative research methods that focus on the interpretation of the object of research through direct observation and data obtained. This study includes the results of the analysis of user activities and space comfort in the corridor area. So it can be concluded that this study produces a recommendation for the accuracy of the spatial corridor area based on the criteria of good public space. Recommendations for regional spatial planning aim to improve the quality of public space in the Comboran Flea Market Area as a support for street vendors' activities.

Keywords*:* Llivable street, Streetscape, Public space quality,Comfort

ID ABSTRACT: 310

Study of Bioclimatic Approach in the Beach Tourism Area. Case Study: Watu Ulo Beach, Jember

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Abstract

This study aims to examine the bioclimatic architectural approach in the beach tourism area, with a case study of Watu Ulo Beach tourism. The method used is descriptive qualitative, namely research methods that will describe, explain and answer in more detail the problems about an incident. With the first step, conducting a literature study from understanding what a beach is to related to coastal characteristics and bioclimatic architecture approaches. At this step, a comparison of the theories of several figures is also carried out, then several principles are taken that are in accordance with the object of study, namely the beach. In the second stage, an analysis of the Watu Ulo Beach area was carried out. This analysis is not only analyzing the existing conditions at the site but also analyzing site data such as annual climate which requires annual data. In the third stage, it provides the application of the principles of the coastal bioclimatic approach, namely Effective Solar Exposure, Minimize Heat Gain, Minimize Heat Transfer, Natural Ventilation and Passive Cooling, Minimize The Risk of Tropical Climate, Protected From Insects, Semi Outdoor Room. The results of the research are the principles of the bioclimatic architectural approach in the coastal tourist attraction area and the application of these principles in the Watu Ulo Beach tourist attraction area. It is hoped that by applying the principles of bioclimatic architecture in the Watu Ulo beach tourist attraction area, it will have an impact on sustainability and sustainability, especially on tourism supporting building facilities.

Keywords*:* bioclimatic architecture, principles, beach tourism, continuity

ID ABSTRACT: 353

Rainwater Harvesting System in Flood Prone Areas in Kali Ulu Village, North Cikarang, Bekasi Regency

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Abstract

Settlements in Kali Ulu Village, North Cirakang, which are crossed by two small rivers, are prone to flooding in the rainy season and drought in the dry season. There is a need for rainwater management and conservation of groundwater in the form of mapping the potential areas for the choice of rainwater harvesting systems based on the pattern of settlement ground figures from building density, building orientation, and roof shape. The mapping of the Kali Ulu Village area related to the planning of rainwater harvesting models is divided into three types of land, namely closed land, open land, and water land. Using biopori and other rainwater infiltration systems, rainwater can be soaked up by the soil and used to keep the groundwater supply going during dry times.

Keywords: rainwater harvesting system, Kali Ulu Village, flood prone areas