



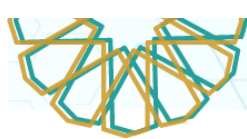
**PROGRAMME AND ABSTRACT BOOK**  
**IRID 2022**  
**ORGANISED BY RESEARCH MANAGENT CENTRE**  
**INTERNATIONAL ISLAMIC UNIVERSITY**  
**MALAYSIA**

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Asst. Prof. Dr. Azlini Ismail  
Asst. Prof. Dr. Nuraniza Azahari  
Asst. Prof. Dr. Mohd Nor Hafizi Mohd AliP





## IRID 2022 | PROGRAM BOOK I

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## WELCOMING REMARKS

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ  
السَّلَامُ عَلَيْكُمْ وَرَحْمَةُ اللَّهِ وَبَرَكَاتُهُ



Prof. Dr. Nazri Mohd. Yusof  
Chairman of IRID2022

Alhamdulillah, it gives me great pleasure to welcome you to IIUM Research and Innovation Day IRID 2022: An exhibition for health sciences research. This annual programme aims to showcase innovative research findings and encourage research collaboration.

This will be a face-to-face event to allow better interaction and discussion among researchers. We also invite researchers who have creative innovations to show their products at this event.

I hope this event will serve as a good platform for you to receive constructive feedback, share ideas and spark friendships with other researchers.

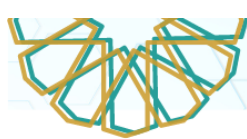
All submitted abstracts will be published in IIUM Journals of Allied Health Science (JAHS), and awards will be given for best research and innovation among the students and staff categories.

I hope everyone benefits greatly from this event; I am looking forward to knowing you, sharing our experiences and building a lasting relationship together.

Thank you.







# ORGANIZING COMMITTEE

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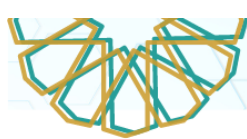
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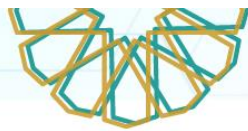


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FARAHIDAH MOHAMED

## INNOVATION COMMITTEE





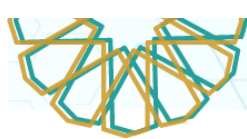


## IRID 2022- List of Judges

Grand Hall, Office of the Campus Director, IIUM Kuantan  
Thursday 15th September 2022 @ 18 Sfar 1444 H  
8:15am - 4:30pm

	<b>PROF. DR. SUZANAH ABDUL RAHMAN</b> Kulliyah of Allied Health Sciences, IIUM [Head of Judges]		<b>ASST. PROF. DR. MOHAMED HASSAN ABDELAZIZ ELNAEM</b> Kulliyah of Pharmacy, IIUM		<b>ASST. PROF. DR. FIRDAUS ISMAIL</b> Kulliyah of Nursing, IIUM
<b>ASSOC. PROF. DR. ZUNARIAH BUYONG</b> Kulliyah of Medicine, IIUM		<b>ASST. PROF. DR. ISKANDAR BAHARI</b> Kulliyah of Sciences, IIUM		<b>ASSOC. PROF. DR. ADLINA HJ ARIFFIN</b> Research Management Centre, IIUM	
	<b>ASSOC. PROF. DR. AHMAD FAISAL ISMAIL</b> Kulliyah of Dentistry, IIUM		<b>ASST. PROF. DR. AWIS SUKARNI MOHMAD SABERE</b> Kulliyah of Pharmacy, IIUM		<b>ASST. PROF. DR. NURANIZA AZAHARI</b> Kulliyah of Allied Health Sciences, IIUM
<b>PROF. DR. SIRAJUDEEN KUTTULEBBAI NAINA MOHAMED SALAM</b> Kulliyah of Medicine, IIUM		<b>ASSOC. PROF. DR. NIZA SAMSUDDIN</b> Kulliyah of Allied Health Sciences, IIUM		 <p>“STRIVING TOGETHER TOWARDS IMPACTFUL RESEARCH AND INNOVATION”</p>	





International Islamic University Malaysia  
IIUM Research and Innovation Day (IRID) 2022  
Agenda and Program

*"Striving Together Towards Impactful Research"*

**14<sup>th</sup> September 2022 | Wednesday**

09.00 a.m. – 05:00 p.m. | Registration and putting up poster

**Note to participant:** *Please put up your poster directly after registration and please take it down at the end of the program to guarantee most interactive discussion on your results. Please come to our registration table if you need assistance with putting up your poster.*

**15<sup>th</sup> September 2022 | Thursday**

08:15 a.m. – 08:45 a.m.	Registration of all participants and breakfast Arrival of VIPs and Invited Guests
08:45 a.m. – 09:00 a.m.	National Anthem "Negaraku" Do'a Recitation Welcoming Remarks by Prof. Dr. Nazri Mohd Yusof, Deputy Director Research Management Centre Kuantan Cum Chairman of IRID 2022
09:00 a.m. – 09:30 a.m.	Opening Ceremony and Speech By Prof. Dr. Amir Akramin Shafie, Director of Research Management Centre IIUM Cum Advisor of IRID 2022 Token of Appreciation to VIP Performance of Traditional Dance: The Overture and Zapin Beradat by Gong Mas Production
09:30 a.m. – 09:45 a.m.	Visit to the poster exhibition area Refreshment for VIPs and Invited Guests
09:45 a.m. – 10:00 a.m.	Briefing Session with Judges
10:00 a.m. – 12:30 noon	Poster Presentation and Evaluation
12.30 noon. – 02.15 p.m.	Luncheon/Break/Dhuhr Prayer
02.15 p.m. – 03:15 p.m.	Poster Presentation and Evaluation (continued)
03:15 p.m. – 04:00 p.m.	Judges Meeting Endorsement of Results Video Presentation
04:00 p.m. – 04:30 p.m.	Prize Giving Ceremony and Closing Remarks Photo session with the Award Winners IIUM song "Leading The Way"
04:30 p.m.	Evening Tea and Disperse







## List of participants

*Abstract ID*

*Research title*


243 | CORRELATION BETWEEN  
SALIVARY LEPTIN LEVELS AND FACIAL  
SKELETAL PATTERN: A POSSIBLE  
FUTURE CLINICAL INDICATOR

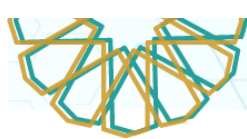
Bakar<sup>2</sup>, Basma Ezzat Mustafa<sup>3</sup>, Khair  
Idan Mokhtar<sup>4</sup>

*Authors' name*

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Dentistry, International Islamic University Malaysia



## LIST OF PARTICIPANTS

### BASIC HEALTH SCIENCES

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Department of Biomedical Science, Kulliyah of Allied Health Sciences, IIUM, 25200 Kuantan, Pahang

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<sup>3</sup>Institute of Health Sciences, University Brunei Darussalam, Brunei

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**M. Fairuz Zakaria<sup>1</sup>**, M. Norsyukron Jamil<sup>1</sup>, U. A. Husni<sup>2</sup>

<sup>1</sup>Hospital Tuanku Jaafar, Orthopedic Department, Negeri Sembilan, Malaysia

<sup>2</sup>Hospital Port Dickson, Orthopedic Department, Negeri Sembilan, Malaysia

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<sup>4</sup>Clinical Pharmacology Department, Menoufia Medical School, Menoufia University, Menoufia, Egypt

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<sup>3</sup>Department of Radiology, Kulliyah of Medicine, IIUM Kuantan, Malaysia

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**Sindhu Sinnasamy<sup>1</sup>, Mohd Hafiz Arzmi<sup>2,3</sup>, Azrul Safuan Mohd Ali<sup>1\*</sup>**

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<sup>1,2,3</sup>Hospital Port Dickson, Malaysia

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**Salma Shakirah Said<sup>1</sup>, Cheong Joo Ming<sup>2</sup>**

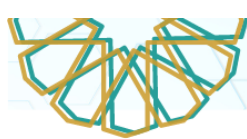
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**253 | CORRELATION OF ANTEROPOSTERIOR SKELETAL AND SOFT TISSUE CEPHALOMETRIC**







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**Mangaiyarkarasi Sivagnanam<sup>1</sup>**, Cheong  
Joo Ming<sup>2</sup>

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<sup>2</sup>Kuliyah of Dentistry, International Islamic  
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## 255 | AN UNFORTUNATE CASE OF SQUAMOUS CELL CARCINOMA IN CHRONIC TIBIA OSTEOMYELITIS.

**M Firdaus<sup>1</sup>**, Nazri Mohd Yusof<sup>1</sup>, Ahmad  
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<sup>1</sup>Dept. of Orthopaedic Surgery and  
Rehabilitation, Sultan Ahmad Shah Medical  
Centre, Kuantan, Pahang, Malaysia

## 258 | AWARENESS OF GENERAL DENTAL PRACTITIONERS TOWARDS ORAL BIOPSY PROCEDURE.

**Nurul Ruziantee Ibrahim<sup>1</sup>**, Mohd Nor  
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Shamsuddin<sup>3</sup>

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Kuantan, Pahang, Malaysia

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25200 Kuantan, Pahang, Malaysia

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## LIST OF PARTICIPANTS APPLIED HEALTH SCIENCES

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Nur Imanina Abdullah Thaidi<sup>1</sup>, **Ahmad Badruddin Ghazali**<sup>2</sup>, Murni Halim<sup>1</sup>

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235 | A REVIEW OF DEPRESSION IN PREGNANCY AND ITS ASSOCIATED FACTORS.

**Nurul Husna Azmi**<sup>1</sup>, Mohammad Che' Man<sup>1</sup>, Wan Muhammad Hasif Wan Hassan<sup>1</sup>, Mohamad Azhan Awang<sup>1</sup>, Mohamed Mustapha Samba Zawawi Samba<sup>1</sup>

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236 | CAREER SATISFACTION AND BARRIERS PERCEIVED AMONG MALAYSIAN DENTISTS WITH EXPANDED ROLES AT SPECIALIST CLINIC.

**Azizi Ab Malek**<sup>1,3</sup>, Nawwal Alwani Mohd Radzi<sup>1</sup>, Muhd Firdaus Che Musa<sup>2</sup>

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239 | A FINANCIAL NETWORK FOR ENERGY SECTOR OF BURSA MALAYSIA DURING COVID-19 BY USING TRIANGULAR MAXIMALLY FILTERED GRAPH APPROACH.

**Hafizah Bahaludin**<sup>1</sup>, Fatin Nur Amirah Mahamood<sup>2</sup>, Mimi Hafizah Abdullah<sup>3</sup>, Muhammad Ashraf Fauzi<sup>4</sup>, Mawardi Omar<sup>5</sup>

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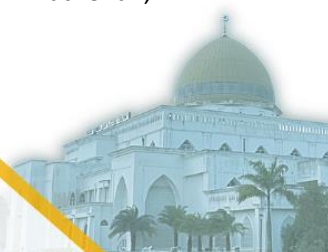
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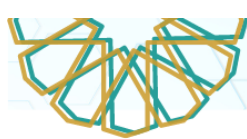
<sup>5</sup>Faculty of Computer & Mathematical Sciences, Universiti Teknologi MARA Pulau Pinang, 13500 Permatang Pau, Pulau Pinang, Malaysia

240 | A SCOPING STUDY OF SEA CUCUMBER AS A NEW THERAPEUTIC AGENT IN WOUNDS HEALING TREATMENT.

**Nurshazwani Azmi**<sup>1</sup>, Widya Lestari<sup>2</sup>, Khazlan Afiq Khazan<sup>1</sup>, Muhammad Salahuddin Haris<sup>1,3</sup>, Nurzafirah Mazlan<sup>4</sup>

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**243 | CORRELATION BETWEEN SALIVARY LEPTIN LEVELS AND FACIAL SKELETAL PATTERN: A POSSIBLE FUTURE CLINICAL INDICATOR.**

**Danusha Siva Dharma<sup>1</sup>, Noraini Abu Bakar<sup>2</sup>, Basma Ezzat Mustafa<sup>3</sup>, Khairani Idah Mokhtar<sup>4</sup>**

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<sup>2</sup>Department of Orthodontics, Kulliyah of Dentistry, International Islamic University Malaysia

<sup>3,4</sup> Department of Fundamental Dental and Medical Sciences, Kulliyah of Dentistry, International Islamic University Malaysia

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**Siti Nadiah Mohd Ali<sup>1</sup>, Salbiah Mokhtar<sup>2</sup>, Abdul Halim Mohd Noor<sup>3</sup>, Huraizah Arshad<sup>4</sup> and Nor Nazihah Chuweni<sup>5</sup>**

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<sup>3</sup>Faculty of Business and Management, Universiti Teknologi MARA Melaka Branch, KM 26 Jalan Lendu, 78000 Alor Gajah, Melaka, Malaysia

**249 | THE EFFECTS OF STRUCTURED TELEPHONE CALL, WHATSAPP TEXT MESSAGING AND CHEWING GUM ON ORTHODONTIC ANXIETY.**

**Cheong Joo Ming<sup>1</sup>, Mohamad Shafiq Mohd Ibrahim<sup>2</sup>**

<sup>1</sup>Department of Orthodontics, Kulliyah of Dentistry (KOD), International Islamic University Malaysia (IIUM), Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang, Malaysia

<sup>2</sup>Department of Paediatric Dentistry & Dental Public Health, KOD, IIUM, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang, Malaysia

**254 | POTENTIAL COLLAGEN-CHITOSAN MEMBRANE LOADED WITH METRONIDAZOLE NANOPARTICLE FOR PERIODONTAL DISEASE TREATMENT.**

**Nora Azirah Mohd Zayi<sup>1</sup>, Muhammad Lutfi Mohamed Halim<sup>1</sup>, Mohd Yusof Mohamad<sup>1,2</sup>, Ahmad Fahmi Harun<sup>1,2</sup>**

<sup>1</sup>Department of Physical Rehabilitation Sciences, Kulliyah of Allied Health Science, International Islamic University Malaysia, Kuantan Campus, 25200 Kuantan, Pahang, Malaysia.

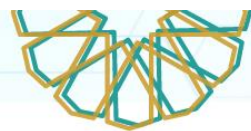
<sup>2</sup>Cluster of Cancer Research Initiative IIUM (COCRII), International Islamic University Malaysia, Kuantan Campus, 25200, Kuantan, Pahang, Malaysia.

**257 | EXPLORING AN R PACKAGE TO ANALYSE THE STRUCTURE OF ECOLOGICAL NETWORKS: *econullnet*.**

**Muhammad Zulhakimi<sup>1</sup>, Hafizah Bahaludin<sup>2</sup>**







<sup>1</sup>Department of Mathematics, Faculty of Science, Universiti Teknologi Malaysia, Johor Bahru

<sup>2</sup>International Islamic University Malaysia, Department of Computational and Theoretical Sciences Kulliyah of Science, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia

**260 | REVISIT OF ROOT AMPUTATION PROCEDURES IN PERIODONTICS: A LITERATURE REVIEW.**

**Juzaily Husain<sup>1</sup>, Muhammad Afiq Ahmad<sup>2</sup>, Mohamad Adib Jaafar<sup>3</sup>, Wan Nor Hayati Wan Abd. Manan<sup>4</sup>**

<sup>1</sup>Department of Restorative Dentistry, Kulliyah of Dentistry, International Islamic University Malaysia, Malaysia.

<sup>2</sup>Kulliyah of Dentistry, International Islamic University Malaysia, Malaysia.

<sup>3</sup>Ministry of Health, Malaysia.

<sup>4</sup>Department of Prosthodontics, Kulliyah of Dentistry, International Islamic University Malaysia, Malaysia.

**262 | BONE GRAFTING MATERIALS IN PERIODONTAL REGENERATION: A NARRATIVE REVIEW.**

**Wan Nor Hayati Wan Abd. Manan<sup>1</sup>, Nor Amirah Mohd Naim<sup>2</sup>, Juzaily Husain<sup>3</sup>**

<sup>1</sup>Department of Prosthodontics, Kulliyah of Dentistry, International Islamic University Malaysia, Malaysia.

<sup>2</sup> Kulliyah of Dentistry, International Islamic University Malaysia, Malaysia.

<sup>3</sup> Department of Restorative Dentistry, Kulliyah of Dentistry, International Islamic University Malaysia, Malaysia.

**263 | THE STUDY ON PATIENT CLINICAL AND FUNCTIONAL OUTCOME AND QUALITY OF LIFE AFTER NEUROTISATION SURGERY FOR BRACHIAL PLEXUS INJURY.**

**Lim Wei Khang**

Kulliyah of Medicine, International Islamic University Malaysia, Malaysia

**265 | ASSESSMENT OF FASTING GALLBLADDER VOLUME USING ULTRASOUND IMAGING IN RELATION TO WEIGHT AND BODY MASS INDEX AMONG FEMALE STUDENTS FOR DETECTION OF ASYMPTOMATIC GALLSTONES.**

**Inayatullah Shah Sayed<sup>1</sup>, Najihah Binti Shaik Nurudin<sup>1</sup>**

<sup>1</sup>Department of Diagnostic Imaging and Radiotherapy, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Kuantan Campus, 25200 Kuantan, Pahang, Malaysia

**267 | IMPACT OF THE RADIOLOGY STAFF'S ATTITUDE TOWARDS UNDERGRADUATE MEDICAL IMAGING STUDENTS: STUDENTS' PERSPECTIVE.**

**Inayatullah Shah Sayed<sup>1</sup>, Nur Hanisah Binti Hamdan<sup>1</sup>, Najihah Binti Shaik Nurudin<sup>1</sup>**

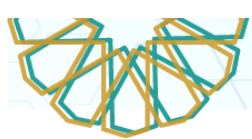
<sup>1</sup>Department of Diagnostic Imaging and Radiotherapy, Kulliyah of Allied Sciences, International Islamic University Malaysia, Kuantan Campus, 25200 Kuantan, Pahang, Malaysia

**269 | OUTCOME OF CROSS AND LATERAL PINNING DIVERGENT PINNING FOR THE TREATMENT OF THE SUPRACONDYLAR HUMERUS FRACTURE GARTLAND TYPE-III (SCHF III) FRACTURE.**

**Ahmad Hud Mahfoodz<sup>1</sup>**

<sup>1</sup>Department of Orthopedics, Traumatology and Rehabilitation, Sultan Ahmad Shah Medical Centre, IIUM





270 | OSTEOMYELITIS IN GRADE I OPEN FRACTURE TIBIA TREATED WITH EXTERNAL FIXATOR.

**Ahmad Hud Mahfoodz<sup>1</sup>, Nazri Mohd Yusof<sup>1</sup>**

<sup>1</sup>Department of Orthopedics, Traumatology and Rehabilitation, Sultan Ahmad Shah Medical Centre, IIUM

271 | TOTAL FLAVONOID CONTENT, TOTAL PHENOLIC CONTENT AND THE ANTIOXIDANT ACTIVITY OF HURREM TITISEMAS LIQUID.

**Azlina Ismail<sup>1</sup>, Tuan Ashraf Faiz Tuan Anuar<sup>2</sup>, Basma Ezzat Mustafa Alahmad<sup>1</sup>, Widya Lestari<sup>1</sup>, Deny Susanti Darnis<sup>2</sup>**

<sup>1</sup>Department of Fundamental Dental and Medical Sciences, Kuliyah of Dentistry, International Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia

<sup>2</sup>Department of Chemistry, Kuliyah of Science, International Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia

273 | KNOWLEDGE, PERCEPTION AND PRACTICE OF PROPER COLLIMATION IN PAEDIATRIC CHEST X-RAY AMONG IIUM UNDERGRADUATE MEDICAL IMAGING STUDENTS.

**Inayatullah Shah Sayed, Amira Syazwani Binti Misri, Najihah Binti Shaik Nurudin**

Department of Diagnostic Imaging and Radiotherapy, Kuliyah of Allied Health Sciences, International Islamic University Malaysia, Kuantan Campus, 25200 Kuantan, Pahang, Malaysia

275 | HAND GESTURE RECOGNITION USING SOFT, ELECTRONIC, STRAIN SENSORS.

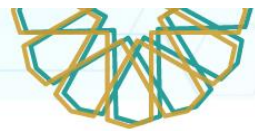
**Sajjad Hossen<sup>1</sup>, Anis Nurashikin Nordin<sup>1</sup>, Norsinnira Zainul Azlan<sup>2</sup>, Muhammad Irsyad Suhaimi<sup>3</sup>, Lim Lai Ming<sup>3</sup>, Rosminazuin Ab Rahim<sup>1</sup>, Mohd Saiful Riza<sup>1</sup>, Zambri Samsudin<sup>3</sup>**

<sup>1</sup>VLSI-MEMS Research Unit, Kuliyah of Engineering, International Islamic University Malaysia, Malaysia

<sup>2</sup>Department of Mechatronics, Kuliyah of Engineering, International Islamic University Malaysia, Malaysia

<sup>3</sup>Manufacturing Technology & Innovation (MTI), Jabil Circuit Sdn Bhd, Bayan Lepas Industrial Park, 11900 Bayan Lepas, Pulau Pinang





## LIST OF PARTICIPANTS INNOVATION

230 | THE SYNTHESIS OF HYDROPHOBIC MAGNETIC ADSORBENT FOR THE REMOVAL OF PLASTIC WASTE.

**Siti Nursyamsulbahria Che Nan<sup>1</sup>**, Mohd Fuad Miskon<sup>2,3</sup>, Wan Hazman Danial<sup>1</sup>, Shafida Abd Hamid<sup>1</sup>, Rosliza Mohd Salim<sup>1</sup>, Azaima Razali<sup>1</sup>

<sup>1</sup>Department of Chemistry, Kulliyah of Science, International Islamic University Malaysia.

<sup>2</sup>Department of Marine Science, Kulliyah of Science, International Islamic University Malaysia.

<sup>3</sup>Institute of Oceanography and Maritime Studies (INOCEM), Kulliyah of Science, International Islamic University Malaysia.

231 | NAM<sup>TM</sup>ChromPATCH: INNOVATIVE *Chromolaena odorata* LOADED HYBRID HYDROGEL WOUND DRESSING WITH ANTIBACTERIAL ACTION.

**Nur 'Ainun Mokhtar<sup>1,2</sup>**, Fatahiya Mohamed Tap<sup>3</sup>, Nurul Bahiyah Ahmad Khairudin<sup>2</sup>, Roshafima Rasit Ali<sup>2</sup>, Zatil Izzah Ahmad Tarmizi<sup>2</sup>, Siti Zalita Ab Talip<sup>2</sup> and Shahira Yusnina Yahya<sup>2</sup>

<sup>1</sup>Faculty of Pharmacy, Universiti Teknologi MARA Cawangan Pulau Pinang, Kampus Bertam, 13200 Kepala Batas, Pulau Pinang, Malaysia,

<sup>2</sup>Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia, International Campus, Jalan Sultan Yahaya Petra, 54100 Kuala Lumpur, Malaysia

<sup>3</sup>School of Chemical Engineering, Faculty of Engineering, Universiti Teknologi MARA Cawangan Terengganu, Kampus Bukit Besi, 23000 Dungun, Terengganu, Malaysia

238 | ANTIMICROBIAL POTENTIAL OF ACTIVE PHARMACEUTICAL

INGREDIENT HYDROPHOBIC DEEP EUTECTIC SOLVENTS (DESS).

**Engku Normi Engku Ismail<sup>1</sup>**, Elgharbawy Amal A.M.<sup>2\*</sup>,

<sup>1,2</sup> International Institute Halal Research and Training (INHART)

241 | DEVELOPMENT OF SICK BOAT SYNDROME (SBoS) QUESTIONNAIRE FOR THE ROYAL MALAYSIAN NAVY (RMN).

**Nur Alyaa Tasnim Mohammad Zin<sup>1</sup>**, Amirul Faiz Kamaruddin<sup>2 3</sup>, **Nur Sarah Fatihah Tamsi<sup>1</sup>**, Muhammad Firdaus Zamri<sup>1</sup>, Noor Artika Hassan<sup>4</sup>, Arman Ariffin<sup>5</sup>, Maryam Zahaba<sup>1</sup>

<sup>1</sup>Department of Chemistry, Kulliyah of Science, International Islamic University Malaysia, 25200 Kuantan, Malaysia

<sup>2</sup>Department of Biotechnology Engineering, Kulliyah of Engineering, International Islamic University Malaysia, 53100 Gombak, Malaysia

<sup>3</sup>KD LAKSAMANA MUHAMMAD AMIN, Royal Malaysian Navy Naval Base, 32000, Lumut, Malaysia

<sup>4</sup>Department of Community Medicine, Kulliyah of Medicine, International Islamic University Malaysia, 25200 Kuantan, Malaysia

<sup>5</sup>Eastern Maintenance Overseer Unit - Royal Malaysian Navy, RMN Naval Base, Tg Purun, 87000 W.P. Labuan, Malaysia

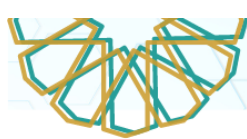
242 | ADVANCED VISUALIZATION USING GEPHI FOR FINANCIAL NETWORK.

**Muhammad Farhan Bin Mohd Nazir<sup>1</sup>**, Hafizah Binti Bahaludin<sup>1</sup>

<sup>1</sup>Department of Computational and Theoretical Sciences, Kulliyah of Science, International Islamic University Malaysia, Bandar Indera Mahkota Campus, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia.







**248 | BLACK SOLDIER FLY LARVAE AS POTENTIAL FEED, COSMETIC AND SKINCARE COMPONENTS.**

Aina Munirah Mohamad Asri<sup>1</sup>, Nur Saadah Zulkifli<sup>2</sup>, Mohamad Huzaiflyasir Kamal Bashah<sup>3</sup>, Siti Fairuz Othman<sup>4</sup>, Deny Susanti Darnis<sup>5</sup>, **Suhaila Mohd Omar<sup>6</sup>**

<sup>1,2,3,4,6</sup>Department of Biotechnology, Kulliyah of Science, IIUM Kuantan, Malaysia

<sup>5</sup>Department of Chemistry, Kulliyah of Science, IIUM Kuantan, Malaysia

<sup>6</sup>Environmental Biology & Biotechnology Research Unit (EBBRU), Kulliyah of Science, International Islamic University of Malaysia, Jln. Sultan Ahmad Shah, Bandar Indera Mahkota, 25200 Kuantan, Pahang

**266 | ORGANIZATIONAL CROSS-CULTURE ADJUSTMENT - MOULDING LEADERSHIP.**

**Rozina Muzaffar<sup>1</sup>**, Dr. Putri Rozita Tahir<sup>2</sup>

<sup>1</sup>DRB-HICOM University of Automotive Malaysia

**272 | TUFF : DISHWASHING SOAP FROM WASTE COOKING OIL.**

**Noor Artika Hassan<sup>1</sup>**, Norul Hernani Binti Abd Latif<sup>2</sup>, Hamizah Binti Zorkepele<sup>2</sup>, Muhammad Afif Bin Musa<sup>2</sup>, Puteri Amirah Adib Binti Kamaruzzaman<sup>3</sup>, Siti Rusianti Binti Tomin<sup>4</sup>

<sup>1</sup>Department of Community Medicine, Kulliyah of Medicine, International Islamic University Malaysia, Kuantan, Malaysia

<sup>2</sup>Department of Biomedical Science, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Kuantan, Malaysia

<sup>3</sup>Central Research and Animal Facility, International Islamic University Malaysia, Kuantan, Malaysia

<sup>4</sup>Department of Basic Medical Sciences, Kulliyah of Pharmacy, International Islamic University Malaysia, Kuantan, Malaysia

**274 | EFFECTS OF FERMENTATION PARAMETERS ON THE PRODUCTION OF MYCO-COAGULANT FROM LOCAL FUNGI FOR WATER TREATMENT.**

M. Fellah<sup>1</sup>, **Abdullah. Al. Mamun<sup>2</sup>**, M. Z. Alam<sup>1</sup>, N. A. Kabbashi<sup>1</sup> and N. S. B. Engliman<sup>1</sup>

<sup>1</sup>Bioenvironmental Engineering Research Centre (BERC), Department of Biotechnology Engineering, Kulliyah of Engineering, International Islamic University Malaysia, Gombak, 53100 Kuala Lumpur, Malaysia

<sup>2</sup>Cataclysmic Management and Sustainable Development Research Group (CAMSDE), Department of Civil Engineering, Kulliyah of Engineering, International Islamic University Malaysia, Gombak, 53100 Kuala Lumpur, Malaysia

**275 | TWO-SOLITON MOLECULE SCATTERING BY EXTERNAL DELTA POTENTIAL.**

**Nor Amirah Busul Aklan<sup>1</sup>**, Nur Fatin Ikhwan Muhammad Husairi<sup>2</sup>, Bakhram Umarov<sup>3</sup>

<sup>1,2</sup>Department of Computational & Theoretical Sciences, Kulliyah of Science, International Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia.

<sup>3</sup>Department of Physics, Kulliyah of Science, International Islamic University Malaysia, 25200 Kuantan, Pahang, Malaysia.





## Presentation Time Slot

## BASIC HEALTH SCIENCES CATEGORY

### Poster Judging Time:

10.00 a.m. – 12.00 p.m

### Poster Judging Time:

12.00 p.m. – 3.15 p.m.

### Judges:

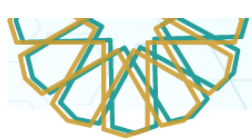
Assoc. Prof. Dr. Zunariah Buyong (KOM)  
Asst. Prof. Dr. Nuraniza Azahari (KAHS)

### Judges:

Prof. Dr. Sirajudeen Kuttulebbai Naina  
Mohamed Salam (KOM)  
Asst. Prof. Dr. Mohamed Hassan  
Abdelaziz Elnaem (KOP)

NO	SUGGESTED TIME	ID	TITLE	PRESENTER
1	10.00 a.m. - 10.15 a.m.	219	ASSOCIATION BETWEEN FITNESS LEVEL AND MENTAL HEALTH AMONG UNERGRADUATE FEMALE STUDENTS: A STUDY IN IIUM KUANTAN CAMPUS	SUHANA MAMAT
2	10.15 a.m. - 10.30 a.m.	220	70% ETHANOLIC FLAXSEED EXTRACT ENHANCES SAOS-2 CELL PROLIFERATION IN BONE WOUND-HEALING MODEL (IN-VITRO)	SAMA NAZIYAH SHABAN
3	10.30 a.m. - 10.45 a.m.	221	ANTIMICROBIAL EFFECTIVENESS OF FLAXSEED AND NIGELLA SATIVA EXTRACT AGAINST SELECTED ENDODONTIC PATHOGEN	NURUL FATIHAH BINTI MOHAMED YUSOFF
4	10.45 a.m. - 11.00 a.m.	223	REVIEW OF FEMORAL NECK SYSTEM, HOSPITAL PORT DICKSON EXPERIENCE IN STRESS FRACTURE NECK OF FEMUR: A CASE REPORT.	MUHAMMAD ESHAM BIN SAMSUDIN
5	11.00 a.m. - 11.15 a.m.	224	HEMATOMA MIMICKING SOFT TISSUE SARCOMA	MUHAMMAD FAIRUZ BIN ZAKARIA
6	11.15 a.m. - 11.30 a.m.	233	MPTP NEUROTOXIN INDUCES LOCOMOTOR IMPAIRMENTS AND UPREGULATES MITOCHONDRIAL DYSFUNCTION ASSOCIATED GENES IN ZEBRAFISH MODEL OF PARKINSON'S DISEASE	KHAIRIAH RAZALI

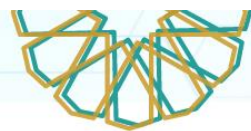




7	11.30 a.m. - 11.45 a.m.	237	BREAST CANCER AWARENESS AND MAMMOGRAM SCREENING UPTAKE AMONG FEMALE STAFF IN IIUM KUANTAN CAMPUS AND SASMEC @ IIUM	NUR SHAIRAH BINTI MOHD SHAARI
8	11.45 a.m. - 12.00 p.m.	244	VALIDITY EVIDENCE OF CAT-LC SCALE IN EVALUATING CLINICAL COMPETENCY ATTAINMENT AND TEACHING-LEARNING CHANGES DURING COVID-19 PANDEMIC	NOR FATIHAH AZHAR
9	12.00 p.m. - 12.15 p.m.	245	DETERMINATION ON THE SUSCEPTIBILITY OF STREPTOCOCCUS MUTANS TOWARDS CHLORHEXIDINE OR THEOBROMA CACAO COATED NICKEL-TITANIUM ORTHODONTIC ARCHWIRES	SINDHU SINNASAMY
10	12.15 p.m. - 12.30 p.m.	250	A CASE REPORT OF DELAYED RADIAL NERVE INJURY FOLLOWING MIDSHAFT HUMERUS FRACTURE	DHINESHKUMAR
11	12.30 p.m. - 12.45 p.m.	251	AN AUDIT OF QUALITY OF IN-HOUSE ORTHODONTIC STUDY MODELS IN IIUM DENTAL POSTGRADUATE CENTRE	SALMA SHAKIRAH SAID
12	2.15 p.m. -2.30 p.m.	253	CORRELATION OF ANTEROPOSTERIOR SKELETAL AND SOFT TISSUE CEPHALOMETRIC MEASUREMENTS IN KUANTAN MALAY POPULATION: A PILOT STUDY	MANGAIYARKARAS I A/P SIVAGNANAM
13	2.30 p.m. -2.45 p.m.	255	AN UNFORTUNATE CASE OF SQUAMOUS CELL CARCINOMA IN CHRONIC TIBIA OSTEOMYELITIS	FIRDAUS
14	2.45 p.m. -3.00 p.m.	258	AWARENESS OF GENERAL DENTAL PRACTITIONERS TOWARDS ORAL BIOPSY PROCEDURE	NURUL RUZIANTEE IBRAHIM
15	3.00 p.m. -3.15 p.m.	268	ORAL HEALTH ATTITUDES AND BEHAVIORS AMONG UNDERGRADUATE HEALTH SCIENCE STUDENTS IN IIUM KUANTAN CAMPUS	ZURAINIE ABLLAH







## Presentation Time Slot

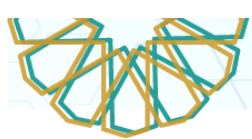
## APPLIED HEALTH SCIENCES I CATEGORY

**Poster Judging Time:** 10.00 a.m. – 3.00 p.m.

**Judges:** Asst. Prof. Dr. Firdaus Ismail (KON) | Assoc. Prof. Dr. Niza Samsuddin (KAHS)

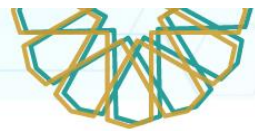
NO	SUGGESTED TIME	ID	TITLE	PRESENTER
1	10.00 a.m. - 10.15 a.m.	225	CLASSIFICATION OF QURANIC THEMES: HEALTH CASE OF STUDY	AKRAM M ZEKI
2	10.15 a.m. - 10.30 a.m.	257	EXPLORING AN R PACKAGE TO ANALYSE THE STRUCTURE OF ECOLOGICAL NETWORKS: ECONULLNETR.	MUHAMMAD ZULHAKIMI BIN INCHE MUHAMMAD ZULFIKRI
3	10.30 a.m. - 10.45 a.m.	235	A REVIEW OF DEPRESSION IN PREGNANCY AND ITS ASSOCIATED FACTORS	NURUL HUSNA BINTI AZMI
4	10.45 a.m. - 11.00 a.m.	236	CAREER SATISFACTION AND BARRIERS PERCEIVED AMONG MALAYSIAN DENTISTS WITH EXPANDED ROLES AT SPECIALIST CLINIC	AZIZI BINTI AB MALEK
5	11.00 a.m. - 11.15 a.m.	239	A FINANCIAL NETWORK FOR ENERGY SECTOR OF BURSA MALAYSIA DURING COVID-19 BY USING TRIANGULAR MAXIMALLY FILTERED GRAPH APPROACH	HAFIZAH BAHALUDIN
6	11.15 a.m. - 11.30 a.m.	240	A SCOPING STUDY OF SEA CUCUMBER AS A NEW THERAPEUTIC AGENT IN WOUNDS HEALING TREATMENT	NURSHAZWANI BINTI AZMI





7	11.30 a.m. - 11.45 a.m.	243	CORRELATION BETWEEN SALIVARY LEPTIN LEVELS AND FACIAL SKELETAL PATTERN: A POSSIBLE FUTURE CLINICAL INDICATOR	NORAINI BAKAR	ABU
8	11.45 a.m. - 12.00 p.m.	247	DIALYSIS MANAGEMENT OPERATIONAL FRAMEWORK USING PHILANTHROPY FUNDS WITH STATE ISLAMIC RELIGIOUS COUNCIL AND MINISTRY OF HEALTH COLLABORATION	SITI NADIAH MOHD ALI	
9	2.15 p.m. - 2.30 p.m.	249	THE EFFECTS OF STRUCTURED TELEPHONE CALL, WHATSAPP TEXT MESSAGING AND CHEWING GUM ON ORTHODONTIC ANXIETY	CHEONG JOO MING	
10	2.30 p.m. - 2.45 p.m.	254	POTENTIAL COLLAGEN-CHITOSAN MEMBRANE LOADED WITH METRONIDAZOLE NANOPARTICLE FOR PERIODONTAL DISEASE TREATMENT.	NORA AZIRAH BT MOHD ZAYI	
11	2.45 p.m. - 3.00 p.m.	226	ANIMAL STUDY OF APPLICATIONS OF HYALURONIC ACID FOR DENTAL IMPLANT: A SYSTEMATIC REVIEW	AHMAD BADRUDDIN GHAZALI	





## Presentation Time Slot

## APPLIED HEALTH SCIENCES II CATEGORY

**Poster Judging Time:** 10.00 a.m. – 3.00 p.m.

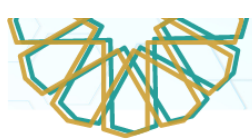
**Judges:** Assoc. Prof. Dr. Ahmad Faisal Ismail (KOD)

Asst. Prof. Dr. Awis Sukarni Mohmad Sabere (KOP)

NO	TIME	ID	TITLE	PRESENTER
12	10.00 a.m. - 10.15 a.m.	263	THE STUDY ON PATIENT CLINICAL AND FUNCTIONAL OUTCOME AND QUALITY OF LIFE AFTER NEUROTISATION SURGERY FOR BRACHIAL PLEXUS INJURY	LIM WEI KHANG
13	10.15 a.m. - 10.30 a.m.	265	ASSESSMENT OF FASTING GALLBLADDER VOLUME USING ULTRASOUND IMAGING IN RELATION TO WEIGHT AND BODY MASS INDEX AMONG FEMALE STUDENTS FOR DETECTION OF ASYMPTOMATIC GALLSTONES	INAYATULLAH SHAH SAYED
14	10.30 a.m. - 10.45 a.m.	267	IMPACT OF THE RADIOLOGY STAFF'S ATTITUDE TOWARDS UNDERGRADUATE MEDICAL IMAGING STUDENTS: STUDENTS' PERSPECTIVE	INAYATULLAH SHAH SAYED
15	10.45 a.m. - 11.00 a.m.	269	OUTCOME OF CROSS AND LATERAL PINNING DIVERGENT PINNING FOR THE TREATMENT OF THE SUPRACONDYLAR HUMERUS FRACTURE GARTLAND TYPE-III (SCHF III) FRACTURE	AHMAD HUD BIN MAHFOODZ
16	11.00 a.m. - 11.15 a.m.	270	OSTEOMYELITIS IN GRADE I OPEN FRACTURE TIBIA	AHMAD HUD BIN MAHFOODZ
17	11.15 a.m. - 11.30 a.m.	271	TOTAL FLAVONOID CONTENT, TOTAL PHENOLIC CONTENT AND THE	AZLINI ISMAIL







ANTIOXIDANT ACTIVITY OF HURREM  
TITISEMAS LIQUID

18	11.30 p.m. - 11.45 a.m.	276	HAND GESTURE RECOGNITION USING SOFT, ELECTRONIC, STRAIN SENSORS	SAJJAD HOSSEN
19	2.15 p.m. - 2.30 p.m.	273	KNOWLEDGE, PERCEPTION AND PRACTICE OF PROPER COLLIMATION IN PAEDIATRIC CHEST X-RAY AMONG IIUM UNDERGRADUATE MEDICAL IMAGING STUDENTS	INAYATULLAH SHAH SAYED
20	2.30 p.m. - 2.45 p.m.	260	REVISIT OF ROOT AMPUTATION PROCEDURES IN PERIODONTICS: A LITERATURE REVIEW.	JUZAILY BINTI HUSAIN
21	2.45 p.m. - 3.00 p.m.	262	BONE GRAFTING MATERIALS IN PERIODONTAL REGENERATION: A NARRATIVE REVIEW	WAN NOR HAYATI BINTI WAN ABD. MANAN



## Presentation Time Slot

## INNOVATION CATEGORY

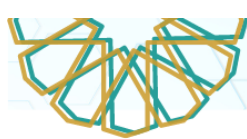
**Poster Judging Time:** 10.00 a.m. – 12.30 p.m

**Judges:** Assoc. Prof. Dr. Adlina Hj Ariffin (RMC) | Prof. Dr. Suzanah Abdul Rahman (KAHS)

Asst. Prof. Dr. Iskandar Bin Bahari (KOS)

TIME	ID	TITLE	PRESENTER
10.00 a.m. - 10.15 a.m.	230	THE SYNTHESIS OF HYDROPHOBIC MAGNETIC ADSORBENT FOR THE REMOVAL OF PLASTIC WASTE.	SITI NURSYAMSUL BAHRIA CHE NAN
10.15 a.m. - 10.30 a.m.	231	NAM <sup>TM</sup> CHROMPATCH: INNOVATIVE CHROMOLAENA ODORATA LOADED HYBRID HYDROGEL WOUND DRESSING WITH ANTIBACTERIAL ACTION.	NUR 'AINUN MOKHTAR
10.30 a.m. - 10.45 a.m.	238	ANTIMICROBIAL POTENTIAL OF ACTIVE PHARMACEUTICAL INGREDIENT HYDROPHOBIC DEEP EUTECTIC SOLVENTS (DESS)	ENGKU NORMI BINTI ENGKU ISMAIL
10.45 a.m. - 11.00 a.m.	241	DEVELOPMENT OF SICK BOAT SYNDROME (SBOS) QUESTIONNAIRE FOR THE ROYAL MALAYSIAN NAVY (RMN)	NUR SARAH FATIHAH TAMSIL
11.00 a.m. - 11.15 a.m.	242	ADVANCED VISUALIZATION USING GEPHI FOR FINANCIAL NETWORK	MUHAMMAD FARHAN BIN MOHD NAZIR
11.15 a.m. - 11.30 a.m.	248	BLACK SOLDIER FLY LARVAE AS POTENTIAL FEED, COSMETIC AND SKINCARE COMPONENTS	SUHAILA MOHD OMAR
11.30 a.m. - 11.45 a.m.	266	ORGANIZATIONAL CROSS-CULTURE ADJUSTMENT - MOULDING LEADERSHIP.	ROZINA MUZAFFAR
11.45 a.m. - 12.00 p.m.	272	TUFF: DISHWASHING SOAP FROM WASTE COOKING OIL	NOOR ARTIKA HASSAN
12.00 p.m. - 12.15 p.m.	274	EFFECTS OF FERMENTATION PARAMETERS ON THE PRODUCTION OF MYCO-COAGULANT FROM LOCAL FUNGI FOR WATER TREATMENT	ABDULLAH AL MAMUN
12.15 p.m. - 12.30 p.m.	275	TWO-SOLITON MOLECULE SCATTERING BY EXTERNAL DELTA POTENTIAL	NOR AMIRAH BUSUL AKLAN





## BASIC HEALTH SCIENCES

### 219 | ASSOCIATION BETWEEN FITNESS LEVEL AND MENTAL HEALTH AMONG UNDERGRADUATE FEMALE STUDENTS: A STUDY IN IIUM Kuantan CAMPUS

Muhammad Hazim<sup>1</sup>, Abdullah and **Suhana Mamat<sup>1\*</sup>**

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#### ABSTRACT

Mental health has become one of the main health issues in Malaysia nowadays with 4.2 million of Malaysian are experiencing mental health problems. Among the risks, group is the female young adults aged 16 years and above. One of the many prevention steps for mental health problems is exercising. Exercise helps to improve physical and mental health. Based on previous studies, physical exercise is strongly related to fitness whereas there was a positive correlation between physical activity levels with physical fitness levels. Thus, in order to study the association between fitness and mental health, a cross-sectional study was done. This study aimed to determine the association between the self-reported International Fitness Scale (IFIS) with level of mental health. A group of 116 female undergraduates was recruited using online survey among the International Islamic University Malaysia students. The level of mental health condition was measured using the DASS 21 questionnaire. Self-reported IFIS questionnaire was used to assess student's fitness levels for several fitness domains. Using the correlation analysis, the association between mental health level with self-reported IFIS were analysed. The results showed that there were weak negative correlations between self-reported IFIS with depression score for DASS 21 ( $r=-0.273$ ,  $p<0.05$ ). We concluded that, female students of IIUM Kuantan campus with higher fitness level showed higher mental health state.

**Keywords:** Mental health, fitness, IFIS, DASS 21, IIUM Kuantan.







## 220 | 70% ETHANOLIC FLAXSEED EXTRACT ENHANCES SAOS-2 CELL PROLIFERATION IN BONE WOUND-HEALING MODEL (IN-VITRO)

**Sama Naziyah Shaban**<sup>1\*</sup>, Khairani Idah binti Mokhtar<sup>2</sup>, Solachuddin Jauhari Arief Ichwan<sup>3</sup>, Mohd. Fadly bin Mohd. Noor<sup>1</sup>, Nazih Shaaban Mustafa<sup>2</sup> and Basma Ezzat Mustafa Alahmad<sup>2</sup>

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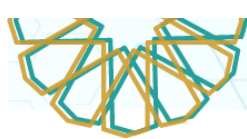
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### ABSTRACT

Flaxseed (*linum usitatissimum*) known as Biji Rami in Malay; is a plant with many health promoting properties such as anti-cancer, anti-fungal, and anti-microbial health promoting activities, hence, recognized as a "super food". As for wound healing properties, it has been confirmed that flaxseed promotes the healing of skin wounds in both in-vitro and in-vivo study models. Nonetheless, very limited studies are available looking into the effect of flaxseed on bone wound-healing. SaOS-2 is an osteoblast-like cell line which has been widely utilised in studies focussing on bone cell development including bone wound-healing. Thus, this study aims to demonstrate the ethanolic flaxseed extract wound healing activity on SaOS-2 representing the bone wound-healing model in-vitro. The process of obtaining 70% ethanolic extract was done through soxhlet extraction method, the extract in 25 µg/ml was then used to treat confluence SaOS-2 cell line which was cultured in DMEM in a 95% humidity 5% CO<sub>2</sub> incubator. Wound healing assay or scratch assay was used to determine the wound healing activity of 70% ethanolic flaxseed extract on SaOS-2 cell line in a qualitative and quantitative manner at 18, 24, 48, 72, and 96 hours. The results illustrated the effect of 70% ethanolic extract on SaOS-2 cells showing cell proliferation activity as fast as 18 hours after treatment, the cells fully covered the wound area by 72 hours. The mean and standard error were calculated for each triplicate set of data. In conclusion, flaxseed extracted using 70% ethanol as medium of extraction successfully enhanced the cell proliferation and managed to fully heal the made- up wound on SaOS-2 cell line. Our study demonstrated that ethanolic flaxseed extract has a great potential to heal deep wounds especially the ones effecting the bone. This positive effect might be contributed by the presence of phenolic compounds in the extract.

**Keywords:** Flaxseed, SaOS-2, cell line, DMEM, wound healing assay.





## 221 | ANTIMICROBIAL EFFECTIVENESS OF FLAXSEED AND NIGELLA SATIVA EXTRACT AGAINST SELECTED ENDODONTIC PATHOGEN

**Basma Ezzat Mustafa Alahmad**<sup>1\*</sup>, Nurul Fatimah Mohamed Yusoff<sup>2</sup>, Nazih shaban Mustafa<sup>3</sup>, Pram Kumar A/L Subramaniam<sup>3</sup>, Deny Susanti Darnis<sup>2</sup>, Khairani Idah Mokhtar<sup>1</sup> and Muhannad Ali Kashmoola<sup>3</sup>

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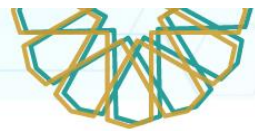
### ABSTRACT

Endodontic infections have a polymicrobial nature. The major reason for failure in endodontic treatment is bacterial contamination and the difficulty to remove pathogens. A non-vital dental intracanal space, virtually inaccessible to the host immune system thus making it a perfect breeding ground for the hostile micro bacterium. The currently available conventional method of root canal therapy involves the use of synthetic antibiotic-based root canal dressings that are costly and had to be repeated numerous times to achieve a pathogen-free canal. Flaxseed extract (*Linum usitatissimum*) has been cultivated for domestic use since prehistoric times. It is the source of antimicrobial compounds mainly due to the effectiveness of its presence constituent against Gram-positive and negative bacteria. *Nigella sativa* or

'Habbah Sawda' extract is claimed to have potent anti-inflammatory, anticancer, antidiabetic, antimicrobial, antihistaminic, and anti-hypotensive effects. We aimed in this study to determine the efficacy of this combined extract with the selected pathogen within the controlled environment of the intracanal model. The disc diffusion method tested the antimicrobial activity of a combination of *N.sativa* and flaxseed extract. The minimal inhibitory concentration (MIC) of flaxseed, *N.sativa* combination extract was determined using a resazurin-based 96-well plate microdilution method. The findings indicate that the extract of flaxseed and *N.sativa* had broad-spectrum antimicrobial effects against endodontic pathogens. The (MIC) of *P.aeruginosa* (50mg/ml), *S.mutans* (6.25mg/ml) and *S.pyogenes* (12.5mg/ml) which shows strong bacterial activity of the combined extract . The antimicrobial effectiveness of this combination will lay the fundamental groundwork for knowledge to expand into the application aspect of flaxseed and *Nigella sativa* extract used in the dental intracanal dressing. The present study justified the potential effectiveness of the combined extract as an antimicrobial agent. The potential use of herbal-based intracanal dressing will be cost-effective and provide better safety and fewer side effects.

**Keywords:** Antimicrobial, Flaxseed, *Nigella sativa*, Endodontic pathogen.





## 223 | REVIEW OF FEMORAL NECK SYSTEM, HOSPITAL PORT DICKSON EXPERIENCE IN STRESS FRACTURE NECK OF FEMUR: A CASE REPORT

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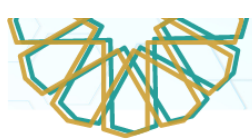
### ABSTRACT

This is a case report focusing on Port Dickson Hospital experience and review in using the femoral neck system as a successful and efficient surgical technique in treating displaced intracapsular stress fracture neck of the femur in an army cadet with Pauwell's angle 3. Patient was treated by using Femoral Neck System by Synthes that combines the benefit of traditional cannulated hip screws and the buttress effect of dynamic hip screw in the management of neck of the femur fracture into a single implant which makes it biomechanically superior. Post operatively, patient has been followed up every 3 months for 2 years. Clinical assessment of patient's symptoms was performed by using modified Harris Hip Scoring system and radiologically by using plain radiograph for bone union and development of femoral head avascular necrosis. Post operative assessment using the modified Harris Hip Scoring system revealed excellent score and plain radiograph showed good reunion and no avascular necrosis of the femoral head. Based on our experience, femoral neck system is a preferable implant of choice in treating neck of the femur fracture because of its accuracy. This is a simple procedure and less time consuming in addition to faster rehabilitation with fewer complications.

**Keywords:** Femur, Neck, System , Pauwell's angle.







## 224 | HEMATOMA MIMICKING SOFT TISSUE SARCOMA

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**ABSTRACT**

This is the case report of two patients with soft tissue sarcoma mimicking hematoma and both patients had no history of trauma or bleeding tendencies. This case report showed soft tissue sarcoma that mimics intramuscular hematomas in the extremities of two patients which presented with lower limb swelling. For both patients, MRI was performed which showed the soft tissue sarcoma, therefore further biopsy was performed. The biopsy result for both patients turned out to be hematoma. Chronic hematoma that has been expanded in soft tissue may have manifested as a space-occupying lesion that mimicked sarcoma. It may be difficult to distinguish soft tissue sarcoma from intramuscular hematoma due to similarities in clinical presentation and imaging characteristics. Diagnosis of this condition is very challenging, and the patient's history needs to be thoroughly reviewed, serial images of MRIs should be taken, despite of performing biopsy of the extremities for an accurate diagnosis.

**Keywords:** Hematoma, soft tissue sarcoma, sarcoma.





### 233 | MPTP NEUROTOXIN INDUCES LOCOMOTOR IMPAIRMENTS AND UPREGULATES MITOCHONDRIAL DYSFUNCTION ASSOCIATED GENES IN ZEBRAFISH MODEL OF PARKINSON'S DISEASE

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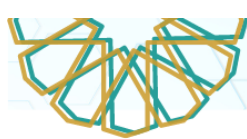
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#### ABSTRACT

Parkinson's disease (PD) is a chronic progressive neurodegenerative disorder afflicting around 10 million global population and is characterized by substantial degeneration of nigral dopaminergic neurons. Resting tremor and slow movement (bradykinesia) are among the main motor symptoms of PD. Reportedly, mitochondrial dysfunction, such as mitophagy, plays a major role in PD pathogenesis. 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) is a known neurotoxicant inducer of parkinsonism and is commonly used to induce PD in animal models. Using zebrafish (*Danio rerio*) as the PD model, this study aims to evaluate the effects of MPTP administration on locomotor activity and genes related to mitochondrial dysfunction. Methodologically, this was done through intraperitoneally injecting the zebrafish (200 µg/g body weight) and evaluating the swimming behaviour via a 5-minute open field test (OFT) as well as analysing the *prkn* and *pink1* gene expression in the zebrafish brain via RT-qPCR analysis. Swimming behavioural observations showed that MPTP induced locomotor impairment of the zebrafish. MPTP-treated zebrafish swam significantly slower (p-value = 0.0013), travelled shorter distance (p-value = 0.0012), and had longer immobility (p-value = 0.0010) throughout the OFT compared to the control fish. Furthermore, the gene expression analysis revealed that both genes of interest were differentially expressed in MPTP-treated zebrafish. The *pink1* gene was upregulated by 6-fold whereas the *prkn* gene was upregulated by 15-fold in the treated fish compared to the control fish. The results indicate that MPTP neurotoxin induces hypo-locomotion and triggers mitochondrial dysfunction in zebrafish, conceivably via the activation of *pink1/prkn*-mediated pathway of mitophagy. Taken together, these findings can contribute to a better understanding of MPTP effects on locomotion and mitophagy, as well as the use of MPTP neurotoxin in establishing zebrafish model of PD.

**Keywords:** Parkinson's disease, zebrafish, *Danio rerio*, MPTP, mitochondrial dysfunctions.

**237 | BREAST CANCER AWARENESS AND MAMMOGRAM SCREENING UPTAKE AMONG FEMALE STAFF IN IIUM Kuantan CAMPUS AND SASMEC @ IIUM.**

Nurjasmine Aida Jamani<sup>1</sup>, Karimah Hanim Abd. Aziz<sup>2</sup>, Radhiana Hassan<sup>3</sup> and **Nur Shairah Mohd Shaari<sup>1\*</sup>**

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**ABSTRACT**

Breast cancer is the most common cancer and cause of death in women. However, it is often detected late even though mammogram has been recommended as an effective screening test. Awareness of the importance of early detection and screening of breast cancer is vital to prevent morbidity and mortality. This study aimed to assess awareness of breast cancer and mammography screening uptake among female workers in IIUM Kuantan campus and SASMEC@IIUM. This was a cross-sectional study involving 200 respondents conducted using convenience sampling method. Participants were asked to complete a self-administered questionnaire that assessed demographics, screening uptake, awareness of breast cancer and barriers to mammogram. Duration of the study was from June 2021 to January 2022. Results showed that the prevalence of breast cancer awareness is 6% and the majority of the respondents never had a mammogram (65%). Poor health-seeking behaviour (73%) and fear of being diagnosed with breast cancer (83%) are the most frequent barriers to mammogram screening. The findings of this study highlighted that the breast cancer awareness and mammography screening uptake among respondents was low. There is a pressing need for an educational program targeting and emphasizing knowledge on breast cancer and removing barriers that prevent mammography screening. This will improve acceptance and compliance with screening programs.

**Keywords:** Breast Cancer, Awareness, Mammogram Screening, Barriers of Mammogram.







## 244 | VALIDITY EVIDENCE OF CAT-LC SCALE IN EVALUATING CLINICAL COMPETENCY ATTAINMENT AND TEACHING-LEARNING CHANGES DURING COVID-19 PANDEMIC

**Nor Fatihah Azhar<sup>1\*</sup>**, Noraini Abu Bakar<sup>1</sup>, Siti Hajjar Abd Nasir<sup>1</sup>, Maryati Md Dasor<sup>2</sup> and Mohd Saiful Bahri Yusoff<sup>3</sup>

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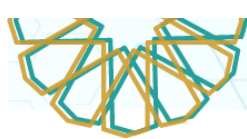
\*Corresponding author's email: [drfatihahazhar@gmail.com](mailto:drfatihahazhar@gmail.com)

### ABSTRACT

COVID-19 pandemic has created challenges and lead to disruptions in teaching-learning approach. In clinical teaching-learning, the disruptions effects on the competency attainment that was aimed to be observed with this study. An instrument CAT-LC (Competency Attainment Teaching-Learning Changes) Scale was developed to measure the perceived clinical competency attainment and changes in teaching-learning approach in postgraduate orthodontic training during COVID-19 pandemic. The goal of this validation study was to examine the relevancy of the CAT-LC Scale that was developed to assess the level of perceived clinical competency attainment and changes in teaching-learning in orthodontic postgraduate training during COVID-19 among residents of Orthodontic postgraduate programme. The CAT-LC Scale was designed with sixty-five (65) items to quantitatively measure the effects of COVID-19 pandemic to the changes of teaching-learning and how it affects the perceived clinical competency attainment level among the residents. It consists of seven (7) domains of (A: Demographic), (B: Practice), (C: Training), (D: Alternative clinical teaching method), (E-I: Self-perceived competency), (E-II: Self perceived competency in clinical skills), (F: Others perceived competency) and each item will be rated using a 4-scale relevancy score. For the validation study, CV (content validation) study was done with assessment by six (6) orthodontic experts. The items scored at least I-CVI = 0.83 which equivalent to the least value of CVI value which is 0.80. Following content validation stage, face validation was done among the non-orthodontic postgraduate students to assess the acceptance and understanding of future respondents. The I-FVI achieved were at least 0.80 for all the items that surpass the least value of FVI which is 0.80. With the two-validity index that was obtained from both studies, it can be concluded that CAT-LC Scale is relevant to be used as an instrument to assess the perceived clinical competency attainment level among the residents of the orthodontic programme that was affected by COVID-19 pandemic.

**Keywords:** Validation study, content validation, face validation, COVID-19 pandemic.





## 245 | DETERMINATION ON THE SUSCEPTIBILITY OF *STREPTOCOCCUS MUTANS* TOWARDS CHLORHEXIDINE OR *THEOBROMA CACAO* COATED NICKEL-TITANIUM ORTHODONTIC ARCHWIRES

Sindhu Sinnasamy<sup>1</sup>, Mohd Hafiz Arzmi<sup>2,3</sup> and **Azrul Safuan Mohd Ali<sup>1\*</sup>**

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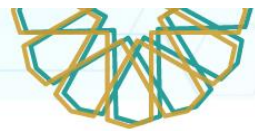
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### ABSTRACT

Bonding of fixed orthodontic appliance into the oral environment promotes adhesion of *Streptococcus mutans* and other oral flora into the crevices and undercuts on the appliance. *Theobroma cacao* is found to have antimicrobial effects in the oral cavity and is a potential ingredient for mouthwashes. The Nickel-Titanium (NiTi) archwire is a preformed flexible wire used to align teeth with fixed orthodontic appliances. The aim of this study was to investigate the susceptibility of *S. mutans* on orthodontic archwires to Chlorhexidine and *T. cacao* extract, and to determine the effects of *T. cacao* and Chlorhexidine on *S. mutans* growth on round and rectangular NiTi archwires. Sterile 10mm sections of NiTi orthodontic archwires were soaked in 200 mg/mL of *T. cacao* extract for 30 sec, 1 min and 2 min. The archwires were placed on a Mueller-Hinton agar that is pre-swabbed with *S. mutans*, OD<sub>620nm</sub> 0.5 and incubated at 37 °C for 24 hours and the inhibition zone measured. The method was repeated for 0.2% Chlorhexidine gluconate. Sterile saline served as the negative control. All experiments were conducted in three biological replicates (n=3). There was no inhibition zone for *T. cacao* extract and negative control. Only Chlorhexidine inhibited growth of *S. mutans*. The inhibition zone for NiTi archwires treated with Chlorhexidine were statistically significant between 0.014" and 0.018" round NiTi archwires ( $P < 0.05$ ), with the mean diameter of inhibition of  $11.22 \pm 5.17$  mm and  $28.55 \pm 12.7$ , respectively. There was no significant difference between 0.017x0.025" and 0.019x0.025" rectangular NiTi archwires ( $P > 0.05$ ). *S. mutans* was resistant towards NiTi archwires treated with *T. cacao* extract, however, the bacterium was susceptible towards chlorhexidine treated NiTi archwires.

**Keywords:** *Streptococcus mutans*, *Theobroma cacao*, Archwires.





## 250 | A CASE REPORT OF DELAYED RADIAL NERVE INJURY FOLLOWING MIDSHAFT HUMERUS FRACTUR

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Hospital Port Dickson, Malaysia

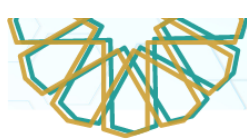
\*Corresponding author's email: [dx\\_dhinesh@live.com](mailto:dx_dhinesh@live.com)

### ABSTRACT

We report a case of delayed left radial nerve palsy occurring 3 weeks following simple midshaft of left humerus fracture in 43 years old and discuss the treatment rationale. A 43 years old lady with background history of diabetes mellitus, hypertension and obesity with BMI 36, involved in a motor vehicle accident and sustained a closed simple midshaft fracture of left humerus with intact neurovascular status. She was initially treated conservatively with U-slab however developed reduced sensation over radial nerve distribution and then subsequently wrist drop over a span of 3 weeks (complete radial nerve palsy). Radial nerve exploration and plating of the left humerus were done via the posterior approach. Intraoperatively, the radial nerve was found incarcerated in fracture callus and fibrous tissue. The radial nerve was freed from callus and fibrosis. The patient recovered from radial nerve palsy after 6 weeks post-surgery.

**Keywords:** Radial Nerve Palsy, Neuropraxia, Incarcerated.





## 251 | AN AUDIT OF QUALITY OF IN-HOUSE ORTHODONTIC STUDY MODELS IN IIUM DENTAL POSTGRADUATE CENTRE

**Salma Shakirah Said**<sup>1\*</sup> and Cheong Joo Ming<sup>2</sup>

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### ABSTRACT

With the establishment of Doctor in Orthodontics clinical specialist programme in KOD, IIUM, there has been an increasing laboratory work, especially in the fabrication of study models. A few issues with the quality of the in-house orthodontic study models were evident. The primary aim of this prospective audit was to assess the quality of constructed orthodontic study models in KOD, and to determine the compliance of their delivery time by the dental technicians. This audit was carried out at IIUM Dental Postgraduate Centre from June – July 2022 and included orthodontic study models fabricated by dental technicians. Agreed gold standards for the quality of orthodontic study models were formulated in-house following discussions at a departmental meeting prior to commencement of data collection; 100% of the study models should have good occlusion on mounting; 100% of the study models must be free of surface roughness/porosity; 100% of models must not contain fractured/accidentally trimmed teeth; 80% of study models must not have any early signs of base detachment. Meanwhile, 100% of study models must meet the two-week delivery time. All data were recorded in the data collection proforma. In total, 28 orthodontic study models were fabricated. All study models had good occlusion on mounting and absence of surface roughness/porosity. However, only 92.86% of study models were free of fractured/accidentally trimmed teeth, and only 71.4% of study models had no early signs of base detachment. 100% study models were delivered according to the expected two-week time frame. Whilst standards of 100% good mounted occlusion, absence of surface roughness/porosity and two-week delivery time of study models were achieved, the standards of 100% absence of fractured/accidentally trimmed teeth and 80% absence of base detachment were not met.

**Keywords:** Audit, Orthodontics, Laboratory, Occlusion, Porosity.







## 253 | CORRELATION BETWEEN SALIVARY LEPTIN LEVELS AND FACIAL SKELETAL PATTERN: A POSSIBLE FUTURE CLINICAL INDICATOR

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### ABSTRACT

**Introduction:** Leptin is an adipose-derived hormone secreted by adipocytes and is expressed in adipose tissue. It is identified as key regulator of several physiological pathways including bone metabolism. Identification of facial skeletal pattern is vital part of clinical diagnosis in area involving maxillo-facial including orthodontics. As treatment modalities varies according to different type of facial skeletal pattern, early indicator will be helpful for clinicians.

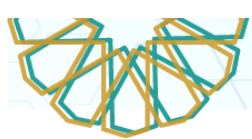
**Materials and Methods:** A sample of 62 patients were selected prior to the orthodontic treatment from a population that attended the International Islamic University Malaysia Specialist Orthodontic Clinic. Subjects were grouped into Class I, Class II, and Class III facial skeletal patterns, based on the lateral cephalometric analysis, according to Eastman and Wits appraisal. Subsequently, unstimulated saliva samples were taken and purified to undergo leptin enzyme-linked immunosorbent assay analysis to determine the levels of leptin hormone. Statistical analysis using the Kruskal-Wallis test was used to analyse the data obtained.

**Results:** There was a significant difference between the levels of leptin hormone between Class I and Class II skeletal patterns and between Class I and Class III facial skeletal patterns. No statistical difference was noted between the levels of leptin of Class II and Class III facial skeletal patterns.

**Conclusion:** Salivary leptin hormone levels are higher in patients with Class II and Class III facial skeletal patterns compared with Class I.

**Keywords:** salivary leptin hormone, facial skeletal pattern.





## 255 | AN UNFORTUNATE CASE OF SQUAMOUS CELL CARCINOMA IN CHRONIC TIBIA OSTEOMYELITIS

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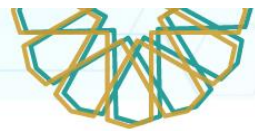
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### ABSTRACT

Malignant transformation in chronic osteomyelitis is uncommon and the diagnosis is often delayed. We present the case of a 60-year-old man who alleged a car accident in 1992, sustained an open comminuted fracture of the distal third left tibia, underwent wound debridement, and left tibia plating as initial treatment. After the operation, his wound was complicated with infection. Debridement and implant removal was done, and the fracture was treated with a cast. The fracture is well united and has been symptom-free ever since. After 20 years following the initial surgery, he started to have a non-healing ulcer in the left leg. Multiple debridement, sequestrectomy, and wound coverage with soleus flap were done. However, he still complained of instability over the fracture site. Blood investigations showed elevated inflammatory markers. On MRI, there is bone destruction along with cortical bone loss at the mid-tibia shaft which is highly suggestive of chronic osteomyelitis. He underwent another surgery; with findings of chronic ulcer over anterior mid shin with surrounding over granulation tissue raised edges, non-union of left tibia, fibrous tissue, the bone at fracture site are friable and fragile. The 8cm defect is supported with a ring external fixator followed by a transport procedure. Intraoperative sample sent and histopathological findings confirmed well-differentiated squamous cell carcinoma arising from the skin, ulcerative tissue, marrow, and tibia cortices. He was counselled for amputation of the left leg to prevent further metastasis, however undecided for another surgery.

**Keywords:** Chronic osteomyelitis, squamous cell carcinoma, non-healing ulcer.





## 258 | AWARENESS OF GENERAL DENTAL PRACTITIONERS TOWARDS ORAL BIOPSY PROCEDURE

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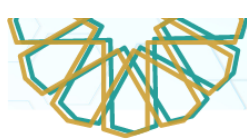
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### ABSTRACT

Oral biopsy is defined as removal of tissue sample from a living body in order to reach a definitive diagnosis through histopathological examination. It is among the procedures that can be undertaken under general dental practitioners (GDP) care, especially for the localised benign lesions. GDP are expected to have a broad knowledge in evaluating oral diseases, managing the common oral lesions and should be able to make a proper referral for cases which are for specialist care. The aims of this study are to assess the awareness of the GDP towards oral biopsy procedures and also to evaluate the demographic data and educational background of the involved GDP. Validated online questionnaire using google form were distributed among private GDP who were registered with Malaysian Dental Council *via* email and WhatsApp. The data were analysed using SPSS version 25. 63 out of 175 respondents answered the questionnaire. Among them, 40 (63%) were female and 23 (37%) were male participants. Majority of the respondents (65.1%) has been practicing dentistry within 1 to 5 years. Most of the respondents (79%) were aware of type of lesions requiring biopsy, however, only 24% of GDP performed biopsy by themselves while majority of them (76%) did not perform biopsy. The most common reasons quoted for not performing biopsy were due to lack of clinical training, lack of experience and having theoretical knowledge but no practical skill. In conclusion, the results of the study show that majority of GDP were aware regarding oral biopsy procedure, however only few who performed the biopsy by themselves. This is mainly due to lack of training, lack of experience and theoretical knowledge.

**Keywords:** Oral biopsy, dental practitioners, lesions, oral cancer, GDP.





## 268 | ORAL HEALTH ATTITUDES AND BEHAVIORS AMONG UNDERGRADUATE HEALTH SCIENCE STUDENTS IN IIUM Kuantan CAMPUS

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### ABSTRACT

Oral health is a part of general health that will affect the well-being of an individual's life. The HU-DBI questionnaire used to evaluate patients' perceptions of oral health care. The aims of this study were to investigate and compare the oral health attitudes and behaviors among undergraduate preclinical and clinical students at International Islamic University Malaysia (IIUM) Kuantan campus and to compare between preclinical and clinical students on their oral health awareness. 100 respondents were recruited from each course. A modified online questionnaire assessing attitudes and behaviors towards oral health was used. Results were analysed by descriptive statistics, Kruskal Wallis test, and Mann-Whitney test. Most respondents denied smoking habits involvement (95.8%). Half number of them have brushed their teeth and used dental floss in their daily life. Dental students depicted the highest mean score of HU-DBI (17.92). Clinical year students depicted higher scores ( $p=0.044$ ) compared to preclinical whilst there was no difference in HU-DBI scores for both males and females. In conclusion, the oral health attitudes and behavior score among clinical dental students was higher compared to other students.

**Keywords:** Oral health, attitude, behavior, undergraduate, health science.







## APPLIED HEALTH SCIENCES

### 226 | APPLICATIONS OF HYALURONIC ACID FOR DENTAL IMPLANT IN ANIMAL STUDY: A SYSTEMATIC REVIEW

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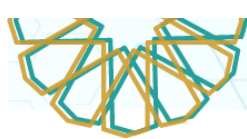
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#### ABSTRACT

Hyaluronic acid (HA) has a long history and is widely used in cosmetics, medicine, and dermatology. It is still relatively new for dental applications. This study aimed to review the current literatures about the application of HA in dental implant treatment with a focus on animal studies. A search in the PubMed, Science Direct and Cochrane databases was conducted in May 2022 using the keywords "hyaluronic acid", "hyaluronan," and "dental implant." The literature search identified 1,018 articles, and thirteen animal studies were selected in this study. Animals involved in the studies were pigs, rats, rabbits, and beagles. There were two main groups of studies involved, surface treatment of dental implant surface with HA and bone graft material with additional HA particles. Analysis conducted in the studies includes histology, histomorphometry, micro-CT, and immunohistochemistry. Overall, there were encouraging results regarding the use of HA in dental implant therapy from the animal study that can be progressed into human trials.

**Keywords:** Hyaluronic acid, dental implant, animal study, systematic review.





## 235 | A REVIEW OF DEPRESSION IN PREGNANCY AND ITS ASSOCIATED FACTORS

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### ABSTRACT

Depression is one of the most common complications during pregnancy. It affects about 1 in 10 pregnant women. There are several risk factors associated with depression in pregnancy. The prevalence of depression during the second and third trimesters has been shown to be twice that of the general female population. Articles were selected based on available keywords in the title and abstract, with publication limited to the period from January 2010 to November 2021. Articles generated from the databases must meet the inclusion and exclusion criteria for this systematic review. A total of 460 literature reviews were found during the initial search. After excluding articles with irrelevant topics, a total of 24 articles were selected for this current review. The prevalence of depression during pregnancy was measured very differently but still ranges from 9% to 24%. Risk factors examined during this period included self-history of depression, family history of depression, smoking, alcohol and drug abuse, unintended pregnancy, parenthood, socioeconomic status, social support, number of children, and history of domestic violence. In conclusion, it is important to implement routine screening for perinatal depression in various settings, from the health care system to medical personnel, to detect and prevent depression in pregnant women early during pregnancy. It is also important to increase awareness of this issue at all levels of society. Therefore, more studies need to be conducted in Malaysia as there is insufficient research on this topic.

**Keywords:** Depression, pregnancy, risk factors, perinatal depression, screening.





## 236 | CAREER SATISFACTION AND BARRIERS PERCEIVED AMONG MALAYSIAN DENTISTS WITH EXPANDED ROLES AT SPECIALIST CLINIC

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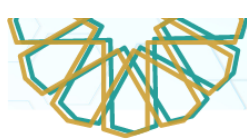
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### ABSTRACT

Public dentists interested in postgraduate studies were required to complete clinical attachments at the Ministry of Health (MOH) Dental Specialist Clinic (DSC). This cross-sectional quantitative study aimed to explore career satisfaction and barriers perceived by Malaysian dentists at MOH Malaysia's DSC. A total of 208 dentists from DSC nationwide completed an online questionnaire in June 2022. Demographic data and information on dentists' expanded roles were retrieved. Responses on dentists' satisfaction and barrier perceived were collected using a 5-point ordinal scale. The Mann-Whitney U and Kruskal Wallis Test were used to compare the mean rank differences for career satisfaction. Factors influencing career satisfaction were analysed using Multiple Logistic Regression (MLR) ( $p < 0.05$ ). The mean age of the respondents was  $32.68 \pm 2.48$ . Almost half (49%) of the respondents were attached to a non-hospital-based clinic. The majority (72%) of them were permanently attached to the DSC. Most dentists (50.96%) strongly agree they received no financial incentives for their expanded role at the MOH DSC. Dentists attached at a non-hospital-based clinic ( $p = 0.046$ ), working with more than 15 years of experience ( $p = 0.013$ ) and having 12 to 18 months duration of attachment ( $p = 0.014$ ), were more satisfied. MLR analysis revealed that non-Malay ( $OR = 1.54$ ;  $p = 0.035$ ) and those who applied for scholarships more than three times ( $OR = 1.85$ ;  $p = 0.050$ ) were more satisfied. In contrast, over 19 months at DSC decreased career satisfaction ( $OR = 0.44$ ;  $p = 0.029$ ). Despite a similar organisational structure, DSC dentists had different satisfaction levels. Dentists' ethnicity, duration of attachment, and frequency of applying for scholarships influenced their career satisfaction. Future career advancement plans in the MOH should consider these important influencing factors to ensure the delivery of quality healthcare from their personnel.

**Keywords:** expanded roles, barriers perceived, career satisfaction.





## 239 | A FINANCIAL NETWORK FOR ENERGY SECTOR OF BURSA MALAYSIA DURING COVID-19 BY USING TRIANGULAR MAXIMALLY FILTERED GRAPH APPROACH

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### ABSTRACT

The global COVID-19 outbreak has created disruptions across all economic sectors. Energy is one of the most severely affected industries. As the global economic outlook deteriorated, oil prices plunged, severely impacting energy industries in most nations. This unprecedented situation motivated us to study what happens to the interconnectedness among energy stock that listed in Bursa Malaysia. Filtering correlation matrices have been proven to be very useful for the study and describe of the underlying interconnectedness structure of complex datasets. The triangulated maximally filtered graph (TMFG) is one of the approaches that construct a network based on the correlation measure in which compatible with the big data. Therefore, the objective of this study was to examine the impact of COVID-19 on the shariah-compliant energy stock in Bursa Malaysia during COVID-19 by using TMFG approach. The data range is from 2019 - 2020. The network was formed for 2019 and 2020, and the centrality measure was computed to investigate the network further. The results indicate that ten out of twenty- six stocks experienced an increase in the number of links because of COVID-19. The energy, infrastructure, equipment, and services subsector dominate the networks and Hibiscus Petroleum Bhd (HIBI) was the most influential stock during COVID-19. The market participant can obtain a thorough overview of the energy market's condition in order to create the portfolio and implement the policy.

**Keywords:** Bursa Malaysia, Energy Sector, Financial Network, Triangulated Maximally Filtered Graph.







## 240 | A SCOPING STUDY OF SEA CUCUMBER AS A NEW THERAPEUTIC AGENT IN WOUNDS HEALING TREATMENT

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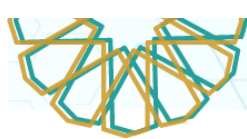
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### ABSTRACT

The ocean is a vast resource of natural compounds that give a number of medicinal advantages to the health functions of human beings. Sea cucumbers, also known as gamat, have long been used as an alternative medicine in Asian and Middle Eastern countries, especially in treating cuts and burns. Due to their pharmacological benefits, sea cucumbers have been explored for medical use, especially in dermatological formulas for wound healing. The therapeutic effects of sea cucumber, such as their anti-inflammatory, antibacterial, antioxidant, and anti-coagulant properties, due to the existence of biologically active compounds such as saponin, glycoprotein, chondroitin sulphate, phenol, and fatty acids, are imperatively facilitating wound healing management. However, there were still insufficient studies that systematically reviewed the existing literature regarding the evaluation of sea cucumbers as a wound healing treatment. This scoping review will encompass the wound healing potential of sea cucumber for in vivo and clinical studies where the searches were conducted using three main databases, which are PubMed, Science Direct, and Google Scholar, with papers released between 1970 and 2021. Twelve studies met the inclusion criteria in which these studies comprise in vivo and clinical studies that evaluate five different types of wounds, which are excision, incision, ulcer, diabetic, and burn wounds. Findings from in vivo and clinical studies provide consistent evidence through macroscopic and microscopic observation; most of the studies prove that sea cucumber can enhance tissue repair and wound healing through fibroblast proliferation, regulation of inflammatory response, and amplifying the angiogenesis process.

**Keywords:** sea cucumber, wound healing, tissue repair.





## 243 | CORRELATION OF ANTEROPOSTERIOR SKELETAL AND SOFT TISSUE CEPHALOMETRIC MEASUREMENTS IN KUANTAN MALAY POPULATION: A PILOT STUDY

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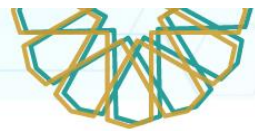
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### ABSTRACT

Lateral cephalometric radiograph is an important diagnostic tool used as an adjunct in orthodontic treatment planning. It aids in the determination of the patients' skeletal and soft tissue relationship in the anteroposterior and vertical direction. The aim of this study was to determine the correlation between anteroposterior skeletal and soft tissue cephalometric measurements of the Malay ethnics in Kuantan city of Pahang state, Malaysia. A retrospective study involving 60 pre-existing lateral cephalometric radiographs taken from October 2017 to October 2021 of skeletal Class I Malaysian (30 males and 30 females) of pure Malay ethnic group aged 20 - 40 were retrieved from two private dental clinics in Kuantan city of Pahang state. Following calibration with an experienced orthodontist, radiographs were hand traced using 0.3 mm leaded propelling pencil on an acetate paper and a light view box in a darkened room. The skeletal and soft tissue variables measured were A point-Nasion-B point (ANB) angle (sagittal skeletal pattern), angle between Frankfort Horizontal plane and Nasion-A point line (FH-NA) (maxillary depth angle), angle between Frankfort Horizontal plane and Nasion-Pogonion line (FH-NP<sub>g</sub>) (facial depth angle) and soft tissue glabella-subnasale-soft tissue pogonion (G'SnPg') angle (facial convexity), and were analysed to find their relationships using Pearson's correlation coefficient. The tracings of 10 radiographs were repeated two weeks apart to test for intra-examiner reliability using intraclass correlation coefficient (ICC). The ICC score for ANB, FH-NA, FH-NP<sub>g</sub> and G'SnPg' were 0.922, 0.966, 0.943 and 0.976 respectively with  $p < 0.001$ , indicating a high degree of reliability. Only FH-NA and FH-NP<sub>g</sub> showed statistically significant moderate and positive correlation ( $r = 0.67$ ,  $p = 0.01$ ). For skeletal Class I patients, both maxillary depth angle and facial depth angle measurements were moderately correlated and could be used as a guide in diagnosis and treatment planning of orthodontic patients in anteroposterior direction.

**Keywords:** Malay, Correlation, Lateral Cephalometric Radiographs, Skeletal, Soft tissue.





## 247 | DIALYSIS MANAGEMENT OPERATIONAL FRAMEWORK USING PHILANTHROPY FUNDS WITH STATE ISLAMIC RELIGIOUS COUNCIL AND MINISTRY OF HEALTH COLLABORATION

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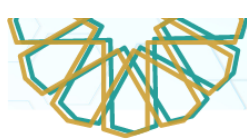
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### ABSTRACT

The innovation in this research paper attempts to develop a fund operational management system framework for dialysis patients using philanthropic funds provided by the State Islamic Religious Council (SIRC). The growing number of kidney patients each year demonstrate that the use of philanthropic funds to help patients offset the cost of dialysis treatment is critical to coordinate in various ways. To accomplish the goal, this study employs a qualitative approach, interviewing 12 SIRC across Peninsular Malaysia to learn about the operational management of philanthropic funds used to manage dialysis treatment. This study discovered that zakat and waqf funds were used to manage the cost of dialysis treatment among the asnaf (needy group). The framework proposed in this study is critical in increasing the target group, management costs, construction costs, and employee costs in managing the operations of this philanthropy fund's beneficiaries. The findings of this study may help policymakers gain a better understanding of philanthropic assets such as zakat and waqf. Furthermore, it will diversify the approach to managing this philanthropy fund in terms of collection and distribution, and it will become a sustainable Islamic economic tool.

**Keywords:** Zakat, Waqf, Philanthropic, Dialysis and SIRC.





## 249 | THE EFFECTS OF STRUCTURED TELEPHONE CALL, WHATSAPP TEXT MESSAGING AND CHEWING GUM ON ORTHODONTIC ANXIETY

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### ABSTRACT

Anxiety is a significant side effect during orthodontic treatment. Non-pharmacological methods may have an effect in decreasing anxiety level among patients undergoing orthodontic treatment. The aim of this study was to investigate whether there was a difference in self-reported state anxiety among patients with orthodontic separator placement between postprocedural telephone call, text messaging, chewing gum and control group. Eighty female orthodontic patients were randomly assigned to one of four groups (structured telephone call, WhatsApp text messages follow-up, sugar-free chewing gum and control). Subjects in the first three groups received the interventions after 24 hours of orthodontic separator placement, and completed the state component in state-trait anxiety inventory (STAI) questionnaire to assess their level of anxiety before separator placement, immediately after, at 24 hours and daily for seven days. One-way repeated measure ANOVA was conducted to compare the effects of non-pharmacological methods on the mean state anxiety level at different time points. There was significant difference in mean state anxiety level among the four groups at  $p < .001$ . Post hoc comparisons revealed significant difference between chewing gum and control groups at day-2 until day-7 ( $p < .001$ ), and significant difference between WhatsApp text messaging and control groups at day-3 until day-7 ( $p < .05$ ), as well as between telephone call and control groups at day-4 until day-7 ( $p < .05$ ). However, there were no differences in mean anxiety level between telephone call, WhatsApp text messaging and chewing gum groups in all time points. At day-7, chewing gum group had the lowest mean state anxiety level ( $28.00 \pm 10.81$ ), followed by telephone group ( $30.95 \pm 9.58$ ), WhatsApp text message group ( $33.15 \pm 11.41$ ) and lastly control group ( $41.90 \pm 13.23$ ). Structured telephone call, WhatsApp text messaging and chewing gum conferred better anxiety reducing effect in patients with separator placement during orthodontic treatment compared to no treatment.

**Keywords:** Anxiety, Orthodontics, Telephone, Text Messaging, Chewing Gum.







## 254 | POTENTIAL COLLAGEN-CHITOSAN MEMBRANE LOADED WITH METRONIDAZOLE NANOPARTICLE FOR PERIODONTAL DISEASE TREATMENT

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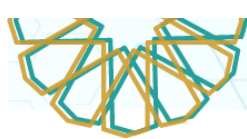
### ABSTRACT

Periodontal disease is one of the most prevalent oral diseases affecting about one billion adults globally. The disease occurred when bacteria trapped under the gum causing chronic inflammation and tooth loss. Guided tissue regeneration (GTR) therapy is being employed to restore periodontal tissue damage. The GTR therapy posed challenges in terms of controlling and preventing the recurrence of periodontal infections. Metronidazole (MET) is a promising antibiotic administered systemically to overcome these challenges. However, systemic MET increases the risk of adverse effects and antibiotic resistance. Therefore, extensive research is ongoing to create bio-resorbable membranes loaded with an antibacterial agent. Collagen is extensively used in membrane fabrication, but due to its high cost and rapid degradation limit its clinical application. In addition, smaller drug particles (i.e., nanoparticles) are associated with better drug release efficiency. This study aimed to fabricate a barrier membrane by crosslinking the chitosan and collagen (Ch:Co) loaded with metronidazole nanoparticles (MetNp). MetNp was prepared using ionic gelation and the METNp size was analyzed using Nano Zetasizer and Scanning Electron microscope (SEM). The optimal size of METNp at 10-40 mg was incorporated into the membrane formulation (Ch:Co;70:30) and a dehydrothermal treatment was applied to crosslink the membrane. The resulting membrane was analyzed for its physical properties and porosity. The optimal size of METNp with  $303.86 \pm 62.78$  nm (n=3) was obtained and METNp-loaded Ch:Co membranes had a three-dimensional, 3D porous shape similar to the empty membrane (control). The finding of this study suggested that the Ch:Co membrane can be loaded with METNp and can become a promising and novel biomaterial for bone regeneration. The membrane, however, is still in the early development stage and will be further studied *in vitro* and *in vivo*.

Keywords: Collagen-chitosan membrane, Metronidazole, Periodontal Disease

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## 257 | EXPLORING AN R PACKAGE TO ANALYSE THE STRUCTURE OF ECOLOGICAL NETWORKS: *ECONULLNETR*

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### ABSTRACT

An ecological network is a network that exhibits the ecological interaction between species. Ecological networks rely heavily on network analysis to determine which nodes (species) interact with each other and how strong those interactions are. Typically, the *R* package assists the researcher in analysing and visualizing the ecological network. However, the ecology network package known as *enaR* is incompatible with the current version of *R*. Thus, this study aims to explore the current package of *econullnetr* to construct the ecological network and demonstrate in detail how to utilize this package. Based on *econullnetr* package, the null model is computed before we construct the ecological network. The dataset from the food web in Broadstone Stream, United Kingdom, was used to illustrate how we utilize the package. This study presents the procedures, the functions of the package along with the results obtained. The usage of *econullnetr*, which includes functions for null modelling and interpretation of a variety of networks, will be advantageous to the researcher.

**Keywords:** Ecological network, Food webs, *econullnetr* package, Null model.





## 260 | REVISIT OF ROOT AMPUTATION PROCEDURES IN PERIODONTICS: A LITERATURE REVIEW.

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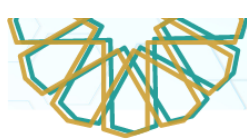
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### ABSTRACT

Furcation is one of the most serious sequelae of periodontitis in multirooted teeth. In more complex furcation involvement cases such as class II in maxillary molars and class III molars, it is believed that the root amputation procedure eliminates the furcation defects and increases tooth longevity. The aim of this study is to provide a concise historical perspective of this procedure, assess its efficacy and limitations, and current overview of root amputation in periodontics. Comprehensive searches in 4 different databases - PubMed, Scopus, Science Direct and Google Scholar were performed for publications that fit with the pre-determined inclusion and exclusion criteria. Out of 244 articles, 51 studies were included in this review. This review found out that root amputation was introduced in 1888 and it has involved several modifications at present. Survival and failure ranged from 38%–94.4% and 9%–60% accordingly. Vertical root fractures and endodontic failures were the most common complications. Recently, guided tissue regeneration has shown to be beneficial in the treatment and long-term maintenance of furcation defects. In conclusion, treating periodontally compromised molar through root amputation procedure is a viable alternative and are documented with reasonable long-term effectiveness. This procedure have some limitations, but, a proper case selection and appropriate treatment planning is essential for a long-term prognosis.

**Keywords:** Root amputation, Survival rate, Failure rate, Complications, Guided bone regeneration.





## 262 | BONE GRAFTING MATERIALS IN PERIODONTAL REGENERATION: A NARRATIVE REVIEW

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### ABSTRACT

Over the past few decades, periodontal regeneration has received a lot of interest in research because of the goal to improve the outcomes of therapy. The information regarding various bone grafting materials and advancing technologies in periodontal regeneration are abundant and can be quite overwhelming. This review aims to provide a contemporary overview of bone grafting materials that can be applied in periodontal regeneration, discuss their properties, summarise their application, enlighten the present tissue engineering technologies and the future perspectives of periodontal regeneration. Literature searches were done in three online databases (Scopus, PubMed and ScienceDirect) focusing on current 10 years of publication up to December 2021. Scale for Assessment of Narrative Review Articles (SANRA) was used to analyse the quality of narrative articles to be included in this study. Otherwise, this review follows the guidelines of the narrative review checklist. Bone grafting materials used for periodontal regeneration typically belong to synthetic materials such as ceramics, polymers, or combination of both. Ceramic-based materials include calcium phosphate, calcium sulphate and bioactive glass. Polymers include synthetic polymers, chitosan, pectin and alginate. Recent studies were mainly focusing on tissue engineering to create the ideal bone grafting materials *via* three-dimensional printing, controlled delivery systems and stem cell technologies. In conclusion, synthetic materials and other contemporary regenerative technologies are gradually replacing autografts. In terms of knowledge, additional research is required to create ideal material for periodontal regeneration since the ideal has not yet been identified.

**Keywords:** bone graft, periodontal regeneration, tissue engineering.







## 263 | THE STUDY ON PATIENT CLINICAL AND FUNCTIONAL OUTCOME AND QUALITY OF LIFE AFTER NEUROTISATION SURGERY FOR BRACHIAL PLEXUS INJURY

**Lim Wei Khang**

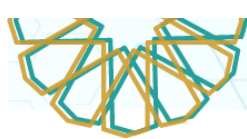
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### ABSTRACT

This study focuses on the quality of life experienced by patients who underwent neurotization surgery after suffering from brachial plexus injury. The injury is high velocity trauma related, many of which occur in young male motorists commuting to work. This was a retrospective cohort study on clinical features and functional outcome of patients. Functional outcome includes the shoulder abduction and elbow flexion power with range of motion, and disability level using Disabilities of Arm, Shoulder, and Hand (DASH) score. Quality of life were measured using the SF-36 questionnaire. The median age was 24 years. 60% of patients had pan-plexus injury, while 40% had upper plexus injury. 48% of patients returned to work, while the median (IQR) DASH score was 34.2 (19.5). Functional outcome correlates significantly with age ( $p = 0.035$ ,  $r = 0.422$ ), shoulder power ( $p = 0.016$ ,  $r = -0.476$ ), shoulder range of motion ( $p = 0.027$ ,  $r = -0.441$ ), elbow power ( $p = 0.019$ ,  $r = -0.476$ ). The DASH score has no significant relationship with Mental Health (MH) and Mental Component Summary (MCS) aspect of SF-36. In conclusion, this study shows that better functional outcome does not equate to better mental health.

**Keywords:** Brachial Plexus Injury, Functional Outcome, Quality of Life.





## 265 | ASSESSMENT OF FASTING GALLBLADDER VOLUME USING ULTRASOUND IMAGING IN RELATION TO WEIGHT AND BODY MASS INDEX AMONG FEMALE STUDENTS FOR DETECTION OF ASYMPTOMATIC GALLSTONES

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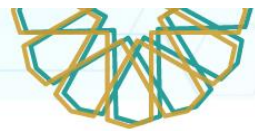
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### ABSTRACT

Gallstone disease is a common medical condition in Malaysia. Females are more prone to gallstones compared to males. Some studies have shown that weight and body mass index (BMI) impacts on the formation of gallstone. Thus, the purpose of this research was to assess the fasting gallbladder volume in relation with the weight and BMI using ultrasound imaging technique. Ultrasound imaging was selected as the modality of choice because it is the gold standard for detecting gallstones. The experimental research was conducted on undergraduate female students of International Islamic University Malaysia, Kuantan. There were a total of 45 female students involved in this research. Weight and BMI of subjects were recorded prior to the ultrasound examination. The gallbladder volume was calculated using the ellipsoid equation. Statistical analysis was performed by using the Statistical Package for Social Sciences (SPSS) version 12.0.1. Normality tests, correlation tests and one sample T-test were conducted for the analysis of the data. Research findings show that, there was significant correlation of weight and average fasting gallbladder volume ( $p < 0.001$ ). Besides that, there was significant correlation of BMI and average gallbladder volume ( $p < 0.01$ ). The result for reference value of average gallbladder volume in this study was found to be  $32.98 \pm 3.49 \text{ cm}^3$ . It is concluded that, in terms of gallstones prevalence, there is a possibility of one to have gallstones if the average gallbladder volume is greater than the reference value found in this study. Further research needs to be conducted in order to develop a guideline for asymptomatic gallstones patients in Malaysia.

**Keywords:** Gallstone, Ultrasound Imaging, BMI, Asymptomatic.





## 267 | IMPACT OF THE RADIOLOGY STAFF'S ATTITUDE TOWARDS UNDERGRADUATE MEDICAL IMAGING STUDENTS: STUDENTS' PERSPECTIVE

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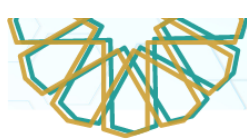
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### ABSTRACT

Behaviour of the clinical staff is one of the factors that can influence the students' learning quality. The students' contact with the radiology staff during the clinical practice can influence their process in learning new knowledge and skills. Hence, this research aims to determine the perception and attitude of radiology staff towards Medical Imaging students during clinical training from the students' perspective. This study also ascertain the impact of the attitude of radiology staff towards practical performance and learning motivation of these students. A total of 43 students participated in this study using non-probability purposive sampling technique. The findings from this study revealed that radiology staff generally have positive attitude towards Medical Imaging students undergoing practicum. The majority of participants (55.8%) claimed that negative attitude of radiology staff can affect their learning ability and practical performance during clinical training. Also, 48.8% participants acknowledged that the attitude of radiology staff can affect their motivation and self-esteem. The major factors or element that the participants claimed to have a strong relation with an improvement in the quality of clinical training were willingness to teach student radiographers (95.3%), followed by portrayal of good patient care (76.7%) and effective communication among radiology staff and student radiographers (67.4%). The study revealed that there is a significant association between attitude of radiology staff and practical performance ( $p < 0.05$ ). The findings of this study indicated that it is vital for radiology staff to portray a positive and professional attitude towards student radiographers as it can affect their practical performance, learning motivation and eventually the quality of clinical practice.

**Keywords:** Radiology, Medical Imaging, Learning Quality, Attitude, Perception.





## 269 | OUTCOME OF CROSS AND LATERAL PINNING DIVERGENT PINNING FOR THE TREATMENT OF THE SUPRACONDYLAR HUMERUS FRACTURE GARTLAND TYPE-III (SCHF III) FRACTURE

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### ABSTRACT

Gartland classification is used to grade the severity and it can be classified into three (3) grades based on the degree of displacement observed in the elbow x-rays. The Cross-pinning technique was first introduced, and it is believed to be more stable and technically less demanding for surgeons. However, it carries a minimal risk of iatrogenic ulnar nerve injury. The mini-open technique was developed for entry of medial wire to further reduce the risk of ulnar nerve injury. Thus, this made the crossed pinning technique more popular in the treatment of SCHF. The lateral pinning technique was later introduced as it is believed to have no risk related to iatrogenic ulnar nerve injury. Therefore, encouraging many biomechanical studies to compare these two techniques. Based on the systemic review on these issues, the functional and clinical outcomes for both techniques are comparable. With regards to the cross-pinning technique, it is suggested that the crossing point must be 1.2-2 cm above the supracondylar fossa. A recent mechanical study using the soft bones model in comparing four different crossing points and lateral divergent wire shows that the centre crossing point provides the stiffest construct in both linear and rotational force. The previous study inspired us to use some of their independent variables and to compare in terms of the radiological and clinical outcomes. Therefore, we choose to use the center and superior crossing and also divergent lateral construct as an independent variable in this study.

**Keywords:** gartland, kurschner wiring.







## 270 | OSTEOMYELITIS IN GRADE I OPEN FRACTURE TIBIA TREATED WITH HYBRID EXTERNAL FIXATOR

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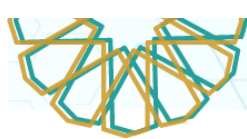
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### ABSTRACT

Soft tissue assessment is one of the important considerations in the treatment of open fractures. The open fracture usually sustained from a road traffic accident might be accompanied with swollen compartment, abrasion wounds and burn. Even the open wound which communicates with the fracture might be less than 1 cm with a simple fracture, the overall soft tissue assessment also worth to be considered before deciding to put an internal fixator during the first debridement of an open fracture. This is a case study of a 13-year-old patient who had a motor vehicle accident in May 2022. He was diagnosed with an open fracture of the right tibia. On clinical examination, there was swollen left leg with 1x1 cm of wound communicated to the fracture site at the anterior middle third of the right leg. The surrounding of the wound had huge abrasion of 10x10 cm exposing a healthy dermis. He was given an antibiotic and had his first debridement within 24 hours after the injury. Intraoperatively, he was diagnosed with Gustillo 1 open fracture of the proximal third of the right tibia. The fracture was stabilized with broad Dynamic Compression Plate (DCP) size 10-hole and the skin was able to be close primarily. However, the surgical wound appears to have the sign of infection on the third-day post first wound debridement. He then later had multiple surgery and latest treated with plastic flap coverage and hybrid external fixator. Latest follow up for four months after surgery, the infection was controlled, and the fracture shows signs of healing. This case showed that hybrid external fixator is an ideal fixation for the treatment of osteomyelitis at the proximal tibia.

**Keywords:** osteomyelitis, gustillo.





## 271 | TOTAL FLAVONOID CONTENT, TOTAL PHENOLIC CONTENT AND THE ANTIOXIDANT ACTIVITY OF HURREM TITISEMAS LIQUID

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### ABSTRACT

Antioxidants are widely present in a range of foods and medicinal plants, and they play a pertinent role in the prevention and treatment of chronic illnesses induced by oxidative stress such as cancer, cardiovascular diseases, diabetes, obesity, neurodegenerative diseases, as well as in the aging process. HURREM TITISEMAS LIQUID (HTL) is a product registered with Ministry of Health, Malaysia (MAL21106122TC) under natural product-traditional (general) category. This study aims to identify the Total Flavonoid Content (TFC), the Total Phenolic Content (TPC) and the antioxidant activity of HTL. The antioxidant activity of HTL was investigated in three replicates (n=3) using the following antioxidant assays: 1) 2,2-diphenyl-1-picrylhydrazyl (DPPH); 2) 2,20 -azinobis-(3-ethylbenzthiazoline-6-sulfonic acid) (ABTS); and 3) Ferric-Reducing Antioxidant Power (FRAP) assays. Trolox, ascorbic acid and quercetin were used as standards in these assays respectively. This study found that HTL has DPPH scavenging activity of  $62.18 \pm 0.96$  %. When tested using ABTS assay, HTL showed  $82.55 \pm 1.01$  % of antioxidant capacity and it has ferric reducing power of  $2,096.00 \pm 0.86$  mM  $\text{Fe}^{2+}$ /g dry mass when analysed using FRAP assay. HTL was also found to contain TFC of  $9,993.75 \pm 85.54$  mg quercetin equivalents/g and the TPC of  $486.50 \pm 12.48$  mg gallic acid equivalents/g. In summary, HTL has antioxidant activity which was presumably related to its phenolics and flavonoids contents.

**Keywords:** ABTS, Antioxidant, DPPH, FRAP, Natural product, Traditional supplement.





## 273 | KNOWLEDGE, PERCEPTION AND PRACTICE OF PROPER COLLIMATION IN PAEDIATRIC CHEST X-RAY AMONG IIUM UNDERGRADUATE MEDICAL IMAGING STUDENTS

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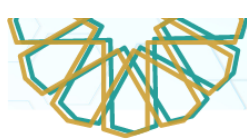
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### ABSTRACT

Chest X-ray examination is important in diagnosing medical illnesses associated with the lungs, heart, and chest wall. Chest X-ray also has been used as a baseline imaging in Medical Imaging. Thus, a large number of chest X-ray examinations are requested by the clinicians especially in infants. Given this situation, a radiographer plays a vital role in minimizing the patient dose while producing a diagnostically acceptable radiograph. Principle of as low as reasonably achievable (ALARA) and proper beam collimation can be implemented in reducing patient exposure. This is because collimation can control the size of the beam reaching the patient's body part of examination which will affect the amount of scatter radiation produced. Larger collimation will increase the production of scatter radiation, thus increasing the patient dose, and reducing the image quality. Therefore, this study aims to evaluate the knowledge, perception, and practice level of year 3 and year 4 undergraduate students of IIUM Medical Imaging on proper collimation in paediatric chest X-ray. A set of questionnaire was developed and distributed among the respondents via the Google Form. It was comprised of four sections which were respondents' demographic data, knowledge, perception, and practice. There were 9 male and 37 female respondents and all of them fulfilled the inclusion criteria. The level of knowledge related to collimation in Medical Imaging among the respondents obtained was significantly high with a percentage of 91.3%. This indicates that the respondents are well informed with the collimation techniques and terms. Besides, five Likert Scale questions were used in evaluating the perception level of the respondents on the effect of collimation in paediatric imaging. A positive perception of 82.6% was portrayed by the respondents. In addition, the level of practice on proper collimation observed was moderate. This might be due to the respondents' lack of skill and experience in the clinical setting. However, this study has revealed that there is no relationship between these three elements. Based on this data, further initiatives or programmes should be implemented to enhance the aforementioned level in producing a competent IIUM Medical Imaging fresh graduate.

**Keywords:** Chest X-ray, Collimation, Knowledge, Medical Imaging, Infants.





## 275 | HAND GESTURE RECOGNITION USING SOFT, ELECTRONIC, STRAIN SENSORS

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### ABSTRACT

Gesture recognition using wearable sensors is a useful method for humans to interact with intelligent machines such as robots and computers. These wearable devices can be coupled with exoskeletons to assist patient rehabilitation, especially for stroke patients. While electromyography can be used to measure accurate from muscles, the computation often requires more complex hardware. Strain sensors on the other hand provide a simpler method of detecting different hand gestures by measuring change in resistance. In this work, we describe the design and usage of soft, comfortable strain sensors which are placed on the fingers and wrist to detect different hand gestures. The sensors are in the form of serpentine, kirigami, carbon electrodes printed on a transparent bandage 'Tegaderm', which adheres and conforms to the skin. Five sensors were placed on the human hand, namely on the wrist, thumb and forefinger. The sensors were successful in detecting different hand gestures such as knob rotation, pressing a switch and turning on a tap.

**Keywords:** Wearable electronics, strain sensor, hand gesture recognition.







## INNOVATION

### 230 | THE SYNTHESIS OF HYDROPHOBIC MAGNETIC ADSORBENT FOR THE REMOVAL OF PLASTIC WASTE

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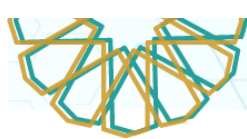
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#### ABSTRACT

Microplastics pollution has gained worldwide attention as it has appeared to be pervasive across the globe. Their widespread presence in the water bodies is recognised as an emerging threat in accessing safe and clean water. Therefore, it is crucial to develop the most practical solution to improve the water quality. Here, adsorption process was applied where magnetic adsorbent was used for microplastics removal via hydrophobic interaction. We fabricated reduced graphene oxide-functionalised iron oxide nanoparticles (labelled as rGO/MNP) as our magnetic adsorbent, using a one-step reaction method. Magnetic adsorbent offers high adsorption capacity, sustainability, ease of operation, and fast separation in large volumes of solution. The magnetic properties of iron oxide nanoparticles (MNP) with the hydrophobicity of reduced graphene oxide (rGO) was employed to extract the microplastics from water. Results showed that adding rGO to the surface of MNP led to a significant removal of microplastics (>60%), which is significantly greater than MNP without rGO (<30%). The reusability of rGO/MNP adsorbent was also examined and the removal efficiency was revealed to remain above the initial removal efficiency after three cycles. Overall, this study is dedicated to provide a green strategy for the application of magnetic adsorbent in water remediation. The performance of the magnetic adsorbent can be studied further by tuning the components for functionalisation to improve the removal efficiency of microplastics in water.

**Keywords:** Magnetic Adsorbent, Magnetic Nanoparticles, Iron Oxide, Reduced Graphene Oxide, Microplastics.





## 231 | NAM<sup>TM</sup>ChromPATCH: INNOVATIVE *Chromolaena odorata* LOADED HYBRID HYDROGEL WOUND DRESSING WITH ANTIBACTERIAL ACTION

Nur 'Ainun Mokhtar<sup>1,2\*</sup>, Fatahiya Mohamed Tap<sup>3</sup>, Nurul Bahiyah Ahmad Khairudin<sup>2</sup>, Roshafima Rasit Ali<sup>2</sup>, Zatil Izzah Ahmad Tarmizi<sup>2</sup>, Siti Zalita Ab Talip<sup>2</sup> and Shahira Yusnina Yahya<sup>2</sup>

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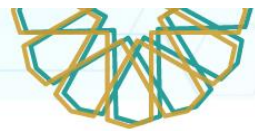
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### ABSTRACT

Management of wounds is still difficult on a global scale. It is indisputable that patients with issues such as difficulty in wound healing, metabolic imbalance of the wound microenvironment or severely infected wounds always experience excruciating pain that negatively impacts their quality of life. Selecting appropriate wound dressing is very important for the healing process. With the advancement of technology, hydrogel dressings have shown great promise for treating both acute wounds and chronic wounds. However, researchers are constantly in need of searching for innovative and advance wound dressing material. This include attempts of incorporation of various bioactive compounds such as antibiotics, growth factors and natural plant extracts. *Chromolaena odorata*, locally known as “Daun Kapal Terbang” is a perennial shrub which grows well in various soil type, often regards as invasive weeds in agricultural point of view. Interestingly, its medicinal properties are vastly reported in many literature having antioxidant, antibacterial, anti-inflammatory, hemostasis and wound healing activity. Moreover, harnessing invasive weeds for more beneficial application including pharmacological and bioenergy to keep it under control are much warranted. This current invention was motivated by the aforementioned rationale in designing an environmental friendly, safe and novel biopolymer hydrogel wound dressing incorporated with *Chromolaena odorata* extract to enhance wound healing. Cross-linked chitosan-based hydrogel dressing with polyvinyl alcohol (PVA) had shown good mechanical strength, high swelling properties and good antibacterial activity which are the characteristics to be considered in designing ideal wound dressings.

**Keywords:** Wound dressing, PVA/Chitosan Hydrogel, *Chromolaena odorata*, ethnopharmacological.





## 238 | ANTIMICROBIAL POTENTIAL OF ACTIVE PHARMACEUTICAL INGREDIENT HYDROPHOBIC DEEP EUTECTIC SOLVENTS (DESS)

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International Institute Halal Research and Training (INHART)

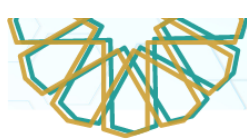
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### ABSTRACT

Deep eutectic solvents (DESs) consist of a mixture of two or more chemical compounds, which gives a dip in melting point compared to the starting materials. These novel 'green' solvents recently gained considerable interest from the scientific community in various sectors due to their versatile characteristics which are physiochemical tunability, biocompatibility, chemical stability, and biodegradability. Therefore, we explored the antibacterial properties of two types of menthol based DESs (menthol: acid and menthol: octanoic acid at 1:5 ratio), against 7 types of Gram-Positive bacteria and 7 types of Gram-Negative bacteria. Both of the DESs showed antibacterial activities, and decanoic acid-based DESs had a greater inhibition capability against all 14 tested bacteria isolates. The minimum inhibition concentration (MIC) of decanoic acid-based DESs against Gram-Positive and Gram-Negative bacteria ranged between 0.04 - 5.63 % and 0.04 - 45%, respectively, while for octanoic acid-based DESs the range was between 0.04 - 5.63 % and 0.09 - 45% respectively. Further tests of MIC showed that decanoic acid-based DES best inhibits the growth of *Staphylococcus aureus* and *Vibrio vulnificus*; and octanoic acid best inhibits *Clostridium perfringens* and *E. coli* with MIC value of 0.04% and 0.09% respectively; therefore, decanoic acid-based DES was selected as the most potent DES for antimicrobial activity. Longer hydrocarbon chain in decanoic acid might influence the higher potential of its biological activities. The result showed that both of the selected types of fatty acid-based DESs have a significant potential to inhibit the growth of various types of bacteria.

**Keywords:** antimicrobial agent; deep eutectic solvents; antibacterial; fatty acid; menthol.





## 241 | DEVELOPMENT OF SICK BOAT SYNDROME (SBoS) QUESTIONNAIRE FOR THE ROYAL MALAYSIAN NAVY (RMN)

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### ABSTRACT

Poor indoor air quality (IAQ) is often related to symptoms of sick building syndrome (SBS) such as eye irritation, nausea and dizziness. Additionally, ship compartments also can experience these symptoms, which is known as sick boat syndrome (SBoS). The SBoS symptoms has raised concerns about adverse health effects, discomfort and reduced work productivity among the ship crew. Complaints regarding the symptoms need to be heeded as the crew spend most of their time onboard. However, no specific questionnaire is available to determine the prevalence of SBoS symptoms among the ship crew. Therefore, this study aims to develop the SBoS questionnaire for the Royal Malaysian Navy (RMN) ships through the content construction, validity test, and reliability test. The content of the questionnaire was adapted from the MM040 and Industry Code of Practice on Indoor Air Quality (ICOP IAQ 2010), tailored to the RMN's work nature. The content validity index was calculated for the validity test, and the reliability of the questionnaire was determined by calculating the Cronbach's alpha value. The questionnaire consisted of general information, background factors, nature of occupation, environmental conditions, past diseases or symptoms, and SBoS symptoms. The domain content validity test for relevance, clarity, simplicity, and ambiguity criteria, done by five experts, was 1.00 for all domains. The reliability of internal consistency of the questionnaire through the pilot test of 57 crews indicated an acceptable Cronbach's alpha of 0.816. In conclusion, the developed and validated SBoS questionnaire from this study could be used by the IAQ assessors and the Navy People to measure the prevalence of SBoS symptoms among the crew onboard. This can be a stepping-stone towards the identification of IAQ-related issues and improvement of IAQ in all RMN ships.

**Keywords:** Indoor air quality (IAQ), Sick boat syndrome (SBoS), Naval ship, SBS questionnaire







## 242 | ADVANCED VISUALIZATION USING GEPHI FOR FINANCIAL NETWORK.

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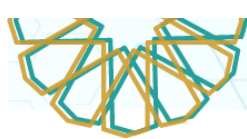
\*Corresponding author's email: [hafizahbahaludin@iium.edu.my](mailto:hafizahbahaludin@iium.edu.my)

### ABSTRACT

The financial network based on the correlation network is an essential idea for comprehending the network interaction and behaviour of the financial assets. One of the tools that can be used to create and generate this financial network is by using R. R is one of the most used programming languages for statistical computing and graphics. Nevertheless, generating appealing network visualisations using R for publication in academic papers or presentations can be challenging. Two common problems with R: 1) the difficulty to visualise the correlation that involves a large number of companies and 2) the lack of network creation customization in R. This issue however can be resolved using the Gephi software. The primary objective of this paper is to improve the visualisation of financial networks using Gephi software. A better visualization can assist the market participant with the portfolio selection strategy.

**Keywords:** Visualization, Network, R, Gephi, Financial Market.





## 248 | BLACK SOLDIER FLY LARVAE AS POTENTIAL FEED, COSMETIC AND SKINCARE COMPONENTS

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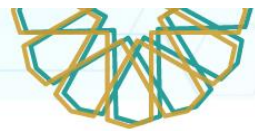
\*Corresponding author's email: [osuhaila@iium.edu.my](mailto:osuhaila@iium.edu.my)

### ABSTRACT

Black soldier fly (BSF; *Hermetia illucens* (L.), Diptera: Stratiomyidae) larvae has been utilized as an alternative in the production of animal feed, human food, and pharmaceutical products due to their ability to undergo bioconversion which transforms low-value organic waste into nutrient-rich biomass. The larvae of the BSF possess many exceptional features compared to other types of insect larvae, including polyphagous, susceptible to a broad range of environmental conditions, ability to suppress the growth of microbial pathogens in the organic waste feed and more importantly, the adult is not a pest as opposed to other insect species such as *Musca domestica* or *Locusta migratoria*. This study showed the nutritional content of BSFL reared on food waste from a commercial farm and a household cage. The value of the total protein, lipid, carbohydrate, moisture and ash were presented as a dry matter (DM) basis and statistically analysed using one-way ANOVA. Interestingly the highest protein and lipid content was  $35.83 \pm 2.94$  % and  $43.64 \pm 4.85$  % respectively. In general, there was no significant difference between the nutritional value of BSF larvae reared on food waste in a commercial farm and household cage. Further studies investigating the fatty acid composition of the BSFL lipid will highlight its value as feed as well as other potential applications such as a component in cosmetic and skincare products.

**Keywords:** Black soldier fly larvae, feed, organic waste, protein, lipid.





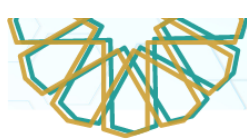
## 266 | ORGANIZATIONAL CROSS-CULTURE ADJUSTMENT - MOULDING LEADERSHIP

**Rozina Muzaffar<sup>1\*</sup>** and Putri Rozita Tahir<sup>1</sup><sup>1</sup>DRB-HICOM University of Automotive Malaysia\*Corresponding author's email: [rozina\\_muzaffar@outlook.my](mailto:rozina_muzaffar@outlook.my)**ABSTRACT**

Leadership proficiency in adapting leadership attitude befitting local expectations is relevant as leadership style is shaped by past experiences. The concept of cross-cultural leadership from pluralistic societies lack clarity in the Asian context i-e., Malaysia. Hence, cross-cultural leadership adjustment may promote an efficient organizational culture. This paper aims to explore the cultural dimensions (power distance, gender egalitarianism, and performance orientation) and cultural adaptability dimensions (personality, cross-cultural training, and cultural adaptability) of expatriate leaders holding managerial roles in international companies. The cross-cultural adjustment of expatriate leaders is also investigated through an association between expatriate leaders adjustment to that of high-performance work culture in an organization. This association is also observed through a mediating role of expatriate leader's cultural intelligence. The study is grounded through quantitative research method with quota sampling technique from eighteen different companies affiliated with DRB-HICOM Berhad. Based on the conceptual framework, research instrument was consulted with nine different expert to validate the authenticity of the tool. The universal agreement among the panel was observed to be 0.91 that is an acceptable value from nine experts in the field. The reliability was then tested statistically with Cronbach alpha for High-Performance Work Culture ( $\alpha=0.911$ ), Cross-Cultural Leadership Adjustment ( $\alpha=0.869$ ), and Cultural Intelligence ( $\alpha=0.945$ ). Hence, the tool was validated with higher precision and it will be further applied to the predictive & measurement models and the mediation effect will be assessed. This study will further infer the implications of the leader's inner struggles or difficulties in projecting their styles.

**Keywords:** Organizational Culture, Cross-Cultural Adjustment, Moulding Leadership, High-Performance Work Culture, Cultural Intelligence.





## 272 | TUFF: DISHWASHING SOAP FROM WASTE COOKING OIL

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### ABSTRACT

Cooking oil is a staple in many Malaysian food and is commonly used for deep frying, baking, roasting, and marinating. Improper disposal of waste cooking oil (WCO) can exacerbate water pollution and block drains or it usually ends up at landfill sites. This study aims to upcycle the waste cooking oil into dishwashing soap by using an experimental method. Several mixtures of Sodium Hydroxide (NaOH), aloe vera, extra virgin coconut oil (CO), and water were tested to produce 14 different samples of dishwash soaps. The triglycerides in waste cooking oil and coconut oil were saponified with NaOH by hydrolysis process. Activated charcoal and used coffee grounds were utilized to diminish the odor and food residues of the waste cooking oil. The vitamin E element was also added to reduce skin irritation and make the product suitable for sensitive skin. Several criteria were considered, such as the foaming effect, smell, texture, colour and effect on human skin. The results showed that the activated charcoal and used coffee grounds were able to eliminate the smell and foreign matter in the used cooking oil. Cold process soap indicated significant improvements in texture and properties at different triglyceride ratios. The optimum saponification is at the mass ratio of NaOH, WCO, and CO of 1:2:1.7, saponification temperature at 100°C, and the concentration of NaOH at 9.1 %. While additional 8.9 % aloe vera, and 21.9 % water produced the best foaming effect, texture, and effect on the skin. This study concluded that the discarded waste cooking oil has the potential to be utilized as dishwashing soap. It is an eco-friendly product and upholds the cradle-to-cradle concept for a sustainable environment.

**Keywords:** Waste cooking oil, upcycle waste, sensitive skin, environmentally friendly dishwashing soap, eco-friendly product.







## 274 | EFFECTS OF FERMENTATION PARAMETERS ON THE PRODUCTION OF MYCO-COAGULANT FROM LOCAL FUNGI FOR WATER TREATMENT

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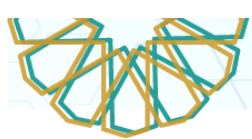
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### ABSTRACT

A local fungal strain was used to produce myco-coagulant via solid-state fermentation, which is able to reduce turbidity from water. The production of myco-coagulant was achieved by using several low-cost lignocellulolytic substrates, namely coco peat, sawdust, palm kernel cake, and rice bran as sources of carbon and nitrogen. This research involves the study of both the effect of lignocellulolytic substrates and fermentation process parameters on the production and efficiency of myco-coagulant on reducing turbidity from water. Coco peat was chosen as a suitable lignocellulolytic substrate to serve as a carbon source for producing myco-coagulant, which can potentially reduce the turbidity by 84.6% from the kaolin suspension. Furthermore, a statistical approach on the Plackett-Burman design was conducted to identify the significant parameters that affect the production of myco-coagulant. Eleven (11) fermentation process parameters were selected (amount of coco peat, incubation time, temperature, pH, glucose, malt extract, wheat flour, ammonium sulfate, inoculum size and Potassium dihydrogen phosphate) for the research. The selected variables were assessed through statistical analysis based on their significance. Three variables (glucose, malt extract, and pH) had more influence on the production of myco-coagulant compared to the remaining eight (8) parameters. A detail study is in progress to optimize the effects of the three best variables obtained from this study.

**Keywords:** Coco peat, Flocculation activity, Lignocellulolytic substrates, Solid-state fermentation, Turbidity removal.





## 275 | TWO-SOLITON MOLECULE SCATTERING BY EXTERNAL DELTA POTENTIAL

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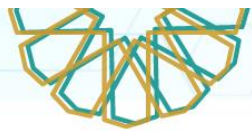
\*Corresponding author's email: [noramirah@iium.edu.my](mailto:noramirah@iium.edu.my)

### ABSTRACT

A soliton is the result of a delicate balance between dispersion-induced pulse self-broadening and nonlinearity-induced pulse self-narrowing, which brings in constant propagation of the wave form and velocity. Additionally, soliton molecules are stable bound states that develop from two anti-phase bright solitons in a dipolar Bose-Einstein condensate, which represents another significant advance in the field. The behaviour of the two-soliton molecule of the nonlinear Schrödinger equation (NLSE) in the context of delta potential has been studied in this paper. Interaction of the solitons with the external potential will affect not only the speed, as classical particles do, but also the soliton's properties and its physical locations. This work seeks to resolve the non-integrable perturbed NLSE of two-soliton molecule analytically using the variational approximation method (VAM). VAM gives dynamical equations for the parameters of the soliton in the form of ordinary differential equations, and it only creates approximation results. The accuracy of the results is checked numerically by direct numerical simulation. The split-step approach and the Fast Fourier Transform are two coding techniques used in the direct numerical simulation method to assist in issue solving. The results indicated that, the two-soliton molecule may be reflected, transmitted through, or trapped within the external potential depending on the different potential strength.

**Keywords:** Soliton, Two-soliton molecule, Nonlinear Schrödinger Equation, Nonlinear Equation, scattering, Variational Analysis, Bose-Einstein Condensates.



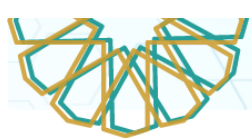


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Share the wisdom  
Through the spirit of Islam  
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Merging faith and knowledge  
We're the Khalīfah  
We'll fulfil the amānah*

**Chorus:**  
*Together,  
We make the world a better place  
Forever,  
Expand the culture of Iqra'  
IIUM,  
Is to realise, the meaning of...  
Raḥmatan lil-‘ālamīn  
Together,  
We make the world a better place  
Forever,  
Expand the culture of Iqra'  
IIUM,  
Is to realise, the meaning of...  
Mercy to all the worlds  
For all mankind*

Composer: Allahyarham Johan Nawawi  
Lyricist: Prof. Emeritus. Tan Sri Dr. Mohd. Kamal Hasan





