Pusat Penyelidikan, Inovasi dan Enterprise
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UNIVERSITI MALAYSIA SARAWAK
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MEMORANDUM

Rujukan : UNIMAS/TNC(PI)-04.01/09-08/FRGS/2003 (29)

Kepada : Timbalan Ketua Pustakawan
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Daripada : Timbalan Pengarah
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Perkara : **Bahan-Bahan Rujukan**
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Kod Pemberi Dana: FRGS/1/2020/STG04/UNIMAS/02/1

Dengan segala hormatnya perkara di atas dirujuk

Bersama ini dimajukan *Book of Abstracts* menghadiri persidangan untuk simpanan pihak puan.

1. Dr Melody Anak Kimi – *7th International Conference on Recent Advances in Materials, Minerals & Envirenment (RAMM 2022) pada 19-20 Julai 2022*
   Tajuk : *Direct Extraction of Chitosan from Snails Shells by Natural Deep Eutectic Solvent*

Sekian, terima kasih.

Dr Abang Azlan Mohamad
b.p Pengarah Kanan

AAM/zmr

ABSTRACT BOOK

'ADVANCES IN MATERIALS, MINERALS & ENVIRONMENT RESEARCH:
PROVIDING THE PATH FOR SUSTAINABLE DEVELOPMENT'

7TH INTERNATIONAL CONFERENCE ON
RECENT ADVANCES IN MATERIALS, MINERALS & ENVIRONMENT
2022

RAMM
2022

19 - 20
JULY
2022

ONLINE CONFERENCE

3.15-3.45 pm	**Vendor 1: Dr. Tadashi Arii (RGS)** Title of the talk: Introduction to the Latest Thermal Analyzers and Software Chairperson: Prof. Ir. Dr. Zuhailawati Hussain **http://tiny.cc/Keynote2**					
Break Out Session	**Parallel Session: Properties of Advanced Materials Chairperson: Dr. Shah Rizal Kassim** **http://tiny.cc/Parallel4**		**Parallel Session: Polymer and Composites Chairperson: Ir. Dr. Muhammad Khalil Abdullah** **http://tiny.cc/Parallel5**		**Parallel Session: Mining Environments Chairperson: Assoc. Prof. Dr. Hareyani Zabidi** **http://tiny.cc/Parallel06**	
	Time	**Presenter**	**Time**	**Presenter**	**Time**	**Presenter**
3.45 - 5.15 pm	3.45-4.15	Invited 4: AP Dr. Abdul Rahim Othman Universiti Teknologi Petronas	3.45-4.15	Invited 5: Prof. Dr. Hazleen Anuar Deputy Director (Grant Initiative Unit) Research Management Centre, IIUM	3.45-4.15	Invited 6: Ts. Dr. Emee Marina Salleh, Research Officer, Mineral Research Centre, Department of Mineral and Geoscience Malaysia
	4.00-4.15	Oral 12: RAMM 2022-0011 Ku Nooryasmin Binti Ku Wadzer, Universiti Sains Malaysia	4.00-4.15	Oral 17: RAMM 2022-0083 Mariz Gebrielle Domingo University of Philippines	4.00-4.15	Oral 21: RAMM 2022-0017 Abdul Bin Saleman Universiti Teknikal Malaysia Melaka
	4.15-4.30	Oral 13: RAMM 2022-0060 Melody Kimi, Unimas	4.15-4.30	Oral 18: RAMM 2022-0058 Qi-Hua Chan Universiti Sains Malaysia	4.15-4.30	Oral 22: RAMM 2022-0050 Kushai Caleb Aluwong University of Jos, Plateau, Nigeria
	4.30-4.45	Oral 14: RAMM 2022-0086 Christine Ann Macababbad University of Philippines	4.30-4.45	Oral 19: RAMM 2022-0082 Mrs. Nurul Nazmin binti Zulkarnain Universiti Teknologi Petronas	4.30-4.45	Oral 23: RAMM 2022-0034 Allene Albania Linus Universiti Malaysia Sarawak
	4.45-5.00	Oral 15: RAMM 2022-0066 Dr. Nurul Affiqah Arzaee			4.45-5.00	Oral 24: RAMM 2022-0055 Rezvan Rahimi

RAMM-2022-0060

Direct Extraction of Chitosan from Snail Shells by Natural Deep Eutectic Solvent

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Keywords: *Chitosan, natural deep eutectic solvent, acetogenin*

Chitosan are biopolymers that have diverse biocompatibility to be used in medicine, agriculture, food and cosmetics applications. However, the processes involved to extract chitosan from natural resources often employs hazardous chemicals and long processing time. This work provides sustainable direct extraction method of chitosan from snail shells. Previous attempt had proven that acetogenin in graviola extracts succeeded in the extraction of chitosan from solid marine shells. However, the slow reaction has prompt the improvement of graviola extract by adding another solution which can act as hydrogen bond acceptor into the graviola extract. Choline chloride is an excellent hydrogen bond acceptor (HBA) is mixed with acetogenin as hydrogen bond donor (HBD). This mixture at 2:1 ratio and 80°C forms a natural deep eutectic solvent (NADES) for the direct extraction of chitosan. Chitosan obtained from this method has a degree of deacetylation (DDA) of 91%, crystallinity index (CI) of 13% and a molecular weight of 236 Da. From the Scanning Electron Microscope images, the chitosan has fiber-like morphology. The direct extraction of chitosan from the combination of choline chloride and acetogenin NADES has proven to extract chitosan with comparable properties to commercial chitosan.

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