

# TRANSACTIONS ON SCIENCE AND TECHNOLOGY

Volume 3 (1-2)

*Science and Natural Resources*



# Transactions on Science and Technology

ISSN: 2289-8786

## *Editors-in-chief*

**Jedol Dayou** (PhD)

*Energy, Vibration and Sound Research Group (e-VIBS),  
Faculty of Science and Natural Resources, Universiti  
Malaysia Sabah, Sabah, Malaysia.  
jed@ums.edu.my*

**Khim Phin Chong** (PhD)

*Sustainable Palm Oil Research Unit (SPOR), Faculty of  
Sustainable Agriculture, Universiti Malaysia Sabah, Locked  
Bag No 3, 90509, Sandakan, Sabah, Malaysia.  
chongkp@ums.edu.my*

## *Managing Editor*

**Fui Pien Chee** (PhD)

*Energy, Vibration and Sound Research Group (e-VIBS),  
Faculty of Science and Natural Resources, Universiti Malaysia Sabah, Sabah, Malaysia.  
fpchee06@ums.edu.my*

## *Editorial Board*

**Leong Wan Vun** (PhD)

*Environmental Science Programme, Faculty of Science and  
Natural Resources, Universiti Malaysia Sabah.*

**Noumie Surugau** (PhD)

*Industrial Chemistry Programme, Faculty of Science and  
Natural Resources, Universiti Malaysia Sabah.*

**Coswald Stephen Sipaut @ Mohd Nasri** (PhD)

*Chemical Engineering Programme, Faculty of Engineering,  
Universiti Malaysia Sabah.*

**Mohd Kamel Wan Ibrahim** (PhD)

*Mechanical Engineering Programme, Faculty of  
Engineering, Universiti Malaysia Sabah.*

**Aini Janteng** (PhD)

*Mathematics with Economics Programme, Faculty of  
Science and Natural Resources, Universiti Malaysia Sabah.*

**Chong Mun Ho** (PhD)

*Mathematics with Economics Programme, Faculty of  
Science and Natural Resources, Universiti Malaysia Sabah.*

**Ping ChinLee** (PhD)

*Biotechnology Programme, Faculty of Science and Natural  
Resources, Universiti Malaysia Sabah.*

**Rachel Fran Mansa** (PhD)

*Chemical Engineering Programme, Faculty of Engineering,  
Universiti Malaysia Sabah.*

**Jualang Azlan Gansau** (PhD)

*Biotechnology Programme, Faculty of Science and Natural  
Resources, Universiti Malaysia Sabah.*

## *National Editorial Board*

<b>Andy Russel Immit Mojiol</b> (PhD)	<b>Raseetha Vani Siva Manikam</b> (PhD)
<i>Malaysia</i>	<i>Malaysia</i>

**Yeong Sheng Tey** (PhD)

*Malaysia*

## *International Editorial Board*

<b>Patricia Anthony</b> (PhD)	<b>Mariam Gaidamashvili</b> (PhD)
<i>New Zealand</i>	<i>Georgia</i>

<b>Cesar G. Demayo</b> (PhD)	<b>Baba Musta</b> (PhD)
<i>Philippines</i>	<i>Malaysia</i>

<b>Francisco Nuñez De Caceres</b> (PhD)	<b>Sa-Ouk Kang</b> (PhD)
<i>Mexico</i>	<i>South Korea</i>

## *Associate Editor*

<b>Jackson Chang</b> (MSc)	
<i>Malaysia</i>	

## *Associate Editors (Special Issue)*

<b>Arnnyitte Alexander</b> (MSc)	<b>Syahriel Abdullah</b> (MSc)
<i>Malaysia</i>	<i>Malaysia</i>

## **e-VIBS**

**Faculty of Science and Natural Resources  
Universiti Malaysia Sabah, Kota Kinabalu, Sabah, MALAYSIA.  
<http://www.transectscience.org>**

**Volume 3 Issue 1-2(Science and Natural Resources)**

*Table of Contents*

**Full articles**

<i>Muhammad Khairul Anuar Mohamed, Norhafizah Mohd Sarif, Nor Aida Zuraimi Md Noar, Mohd Zuki Salleh &amp; Anuar Ishak</i>	59	<b>Viscous Dissipation Effect on the Mixed Convection Boundary Layer Flow towards Solid Sphere</b>
<i>Roland Yusri Batahong &amp; Jedol Dayou</i>	68	<b>Basic Relationship Formulation of the Sundatang Physical Characteristics</b>
<i>Florina Anthony, Luiza Majuakim &amp; Monica Suleiman</i>	77	<b>Fern Diversity in Primary and Secondary Forests of Danum Valley and Ulu Segama Forest Complex, Lahad Datu, Sabah</b>
<i>Andy R. Mojiol, Maureen J. Tapuong, Walter Lintangah, Ludi Apin &amp; Jephte Sompud</i>	85	<b>Conservation Awareness on Community Use Zone (CUZ) by Local Communities in Crocker Range Park, Sabah, Malaysia</b>
<i>Syazlina Saib, Mahadimenakbar Mohamed Dawood &amp; Fiffy Hanisdah Saikim</i>	93	<b>Evaluation of Tourists Satisfaction Towards Firefly Industry in Sabah Using Importance-performance Analysis Model</b>
<i>Laurencia Debbie Benard &amp; Piakong Mohd Tuah</i>	101	<b>Biodegradation of Sabah Light Crude Oil by Locally Isolated <i>Candida tropicalis</i> RETL-Cr1 and <i>Pseudomonas aeruginosa</i> BAS-Cr1</b>
<i>Shazryenna Dalang &amp; Piakong Mohd Tuah</i>	107	<b>Removal of Phenol by Zeolite</b>
<i>Wei Hsiang Tan, Rohana Tair, Siti Aishah Mohd Ali, Asdalifah Talibe, Fatin Sualin &amp; Carolyn Payus</i>	114	<b>Distribution of Heavy Metals in Seawater and Surface Sediment in Coastal Area of Tuaran, Sabah</b>
<i>Jephte Sompud, Su-Hui Lu, Daniel Pamin, Cynthia Boon Sompud &amp; Andy Russel Mojiol</i>	123	<b>Nocturnal Terrestrial Mammals Population in Sabah Forest Industries (SFI) Forest Plantation, Sipitang</b>
<i>Jephte Sompud, Woon-Jah Lee, Sze-Lue Kee &amp; Cynthia Boon Sompud</i>	130	<b>The Comparison of Birds Population in Two Years and Eight Years Old <i>Acacia mangium</i> Plantation at Sabah Forest Industries (SFI), Sipitang</b>
<i>Jephte Sompud, Sze Lue Kee, Cynthia Boon Sompud, Emily A. Gilbert &amp; Oswald @ Aisat Igau</i>	136	<b>The Correlations between Bird Relative Abundance with the Stem Density in Two Years Old <i>Acacia mangium</i> Plantation at Sabah Forest Industries, Sipitang</b>
<i>Milennie Vialantine Sumbing, Sujjat Al-Azad, Abentin Estim &amp; Saleem Mustafa</i>	143	<b>Growth performance of spiny lobster <i>Panulirus ornatus</i> in land-based Integrated Multi-Trophic Aquaculture (IMTA) system</b>
<i>Isaac Wayne Witus &amp; Leong Wan Vun</i>	150	<b>Aquaculture in Malaysia: A Short Review on Current Policy and Legislation</b>
<i>Bo Eng Cheong, Nur Aina Zakaria, Angelina Ying Fang Cheng &amp; Peik Lin Teoh</i>	155	<b>GC-MS Analysis of <i>Strobilanthes crispus</i> Plants and Callus</b>
<i>Devina David, Teoh Yan Ji &amp; Jualang Azlan Gansau</i>	162	<b>In Vitro Propagation of <i>Zingiber officinale</i> Rosc. 'Tambunan'</b>
<i>Daniel James, Mui-How Phua, Normah Awang Besar &amp; Mazlin Mokhtar</i>	168	<b>Aboveground Carbon Stock Potential of Teak (<i>Tectona grandis</i>) under Different Land Use System in Balung Plantation, Tawau Sabah</b>
<i>Rovina Kobun, Shafiquzzaman Siddiquee &amp; Sharifudin MD Shaarani</i>	176	<b>Sensitive Determination of Tartrazine (E 102) Based on Chitosan/Nanoparticles/MWCNTs Modified Gold Electrode in Food and Beverage Products</b>

<i>Hanirah Ramli, Piakong Mohd. Tuah &amp; Syaufi Lamjin</i>	181	<b>Screening of Isolated Rhizospheric Bacteria of <i>Pittosporum Resiniferum</i> Hemsl With Toluene</b>
<i>Anwar Samsidar, Shafiquzzaman Siddiquee &amp; Sharifudin MD Shaarani</i>	187	<b>Optimization Assay of Enzymatic Biosensors for Determination of Carbaryl Pesticides</b>
<i>Siva Raseetha &amp; Noor-Azlin Abdullah</i>	193	<b>Implications of Inappropriate Storage Temperatures in Harvested Green Coffee (<i>Robusta Sp.</i>) Beans to Antioxidant Properties and Polyphenol Oxidase Activity</b>
<i>Noorehan Rastaon &amp; Piakong Mohd Tuah</i>	203	<b>Quantitative Analysis of Quercetin in Various Parts of <i>Phaleria macrocarpa</i> (Scheff.) Boerl Extracts</b>
<i>Khairunnisa Effendy &amp; Patricia Natin</i>	209	<b>The Effect of Soil Particle Size on the Soil Organic Matter and the Abundance of Sand Bubbler Crab <i>Scopimera globosa</i> at Tanjung Aru Beach, Kota Kinabalu, Sabah</b>
<i>Siti Aishah Mohd Ali &amp; Yoke Mun Yep</i>	218	<b>Petroleum Hydrocarbon in Mud Clam (<i>Polymesoda erosa</i>) and its Ambient Medium in the Coastal Area of Putatan and Tuaran, Sabah</b>
<i>Flornica Alca Ahing &amp; Newati Wid</i>	227	<b>Extraction and Characterization of Chitosan from Shrimp Shell Waste in Sabah</b>
<i>Dora binti Basil Gungguk &amp; Kang Chiang Liew</i>	238	<b>Application of Industrial Cement in the Durability of Degradable Bioplastic Pot</b>
<i>Azlinah Matawali, Lee Ping Chin, How Siew Eng &amp; Jualang Azlan Gansau</i>	244	<b>Antibacterial and Phytochemical Investigations of <i>Mikania micrantha</i> H.B.K. (Asteraceae) From Sabah, Malaysia</b>
<i>Carolyn Payus, Chrystalyziana Venchin &amp; Norela Sulaiman</i>	251	<b>Indoor Coarse and Fine Particulates in Elementary Urban Schools</b>
<i>Rahmatiah Al Faruqy M Sujuthi &amp; Kang Chang Liew</i>	257	<b>Properties of Bioplastic Sheets Made from Different Types of Starch Incorporated With Recycled Newspaper Pulp</b>
<i>Rafidah Selaman &amp; Newati Wid</i>	265	<b>Anaerobic Co-Digestion of Food Waste and Palm Oil Mill Effluent for Phosphorus Recovery: Effect on Reduction of Total Solids, Volatile Solids and Cations</b>
<i>Janice Lynn Ayog, Salinah Dullah &amp; Rosdianah Ramli</i>	271	<b>Harvested Rainwater Quality Assessment on the Effects of Roof Materials to the First Flush Runoff</b>
<i>Nordiana Rajae, Azham Zulkharnain &amp; Awang Ahmad Sallehin Awang Hussaini</i>	277	<b>Basic Architecture and Applications of DNA Computing</b>
<i>Fadzilah Awang-Kanak, Makdi Masnoddin, Azlinah Matawali, Muhamad Azlan Daud &amp; Nur Ramziahrazanah Jumat</i>	283	<b>Difficulties Experience by Science Foundation Students on Basic Mendelian Genetics Topic: A Preliminary Study</b>
<i>Zurab Kochladze &amp; Lali Beselia</i>	291	<b>Cracking of the Merkle–Hellman Cryptosystem Using Genetic Algorithm</b>
<i>Suraya Abdul Sani, Christopher Wiart &amp; Teng Jin Khoo</i>	297	<b>Preliminary evaluation of CETP inhibition from selected <i>Garcinia</i> species</b>