

Summaries of Sessions

Human health and biodiversity of natural resources in the Kuroshio region

Chiu-Chin Lu, Hin-Kiu Mok, Hurng-Wern Huang, Chao-Neng Tseng, Awang Ahmad Sallehin Awang Husaini, Soo Hui Yin, Ngieng Nguoi Sing, Azham Zulkharnain, Hairul Azman Roslan, Lesley Maurice Bilung, Velnetti Linang, Micky Vincent, Kasing Apun, Mohd Tajuddin Abdullah, Farah Diba, Ferry Hadary, Seno Darmawan Panjaitan, Tsuyoshi Yoshimura, Madinah, A., Mariana, A., M.T. Abdullah

This session consists of eight topics. Since the following three papers are separately presented, we do not summarize them: “*Spirulina* Complex Polysaccharides Suppress the Growth of Glioma in T Lymphocytes- and Macrophage-dependent Manner” by Akira Tominaga *et al.*, “Rapid Screening for Cytotoxicity and Group Identification of Secondary Metabolites in Methanol Extracts from Four Sponge Species Found in Kapoposang Island, Spermonde Archipelago, Indonesia” by Ajuk Sapar, and “Inventory of Medicinal Plants for Fever Used by Four Dayak Sub Ethnic in West Kalimantan Province, Indonesia” by Fathul Yusro *et al.*

“Antimicrobial Peptides Extract from the Marine Benthic Diatoms” by Chiu-Chin Lu, Hin-Kiu Mok, Hurng-Wern Huang, and Chao-Neng Tseng, from National Sun Yat-Sen University and Kaohsiung Medical University. Chiu-Chin Lu *et al.* reported that they found an antimicrobial peptide from the diatoms in Kaohsiung harbor and named it HKMOK1. In general, it is reported that marine benthic diatoms were able to exclude bacteria which covered the surface of substrates. The extracellular polymeric substances (EPS) secreted by diatoms were global structures that were attaching to each other. A major fraction from EPS was less than 6.5 kDa and 341 peptides were identified by the LC-MS-MS. Antimicrobial peptides consisted of 5 to 40 amino acid residues containing about 30% or more hydrophobic residues and they were amphipathic. They focused on 22 peptides consisting of 10 to 15 amino acid residues in which about 50% or more were hydrophobic. HKMOK1 is one of these peptides. It is a peptide of 12 amino acid residues derived from the extracellular polymeric substances. This peptide killed the *Escherichia coli* by

destroying the membrane by working as a detergent at a concentration of 100 µg/mL. This paper suggests the importance of the antimicrobial peptides secreted from diatoms to maintain the environment in relation to bacteria.

“Isolation, Screening and Characterization of Lignocellulolytic Fungi Tropical Mangrove Environment in Kota Samarahan, Sarawak Borneo” by Awang Ahmad Sallehin Awang Husaini, Soo Hui Yin, Ngieng Nguoi Sing, Azham Zulkharnain, Hairul Azman Roslan from University Malaysia Sarawak. They reported lignocellulolytic fungi play an important role in bioremediation of many environmentally persistent organopollutants such as aromatic xenobiotics, heterocyclic aromatic hydrocarbons, chlorinated aromatic compounds and various dyes which are used in textile industries and pulping industries. Since most of the fungi of the mangrove ecosystem are not explored, authors suggest that these fungi in the mangrove ecosystem are suitable candidates as bioremediation agents for the development of green technology in the bioremediation of organopollutants. They isolated 55 fungal strains from the mangrove soils in Asajaya, Kota Samarahan, among which 7 fungi were lignocellulolytic. The best lignocellulolytic isolate SHY43C was *Penicillium* sp., showing 92.6% decolourisation of Remazol Brilliant Blue R, which indicates the presence of lignocellulolytic activities. Their study suggests that lignocellulolytic fungi from the mangrove wetlands of the east coast Sarawak Borneo could be used as potential bioremediation agents.

“A Study of Bacterial Species from Wild Animals and Environmental Samples from National Parks in

Sarawak, Malaysia” by Lesley Maurice Bilung, Velnetti Linang, Micky Vincent, Kasing Apun, and Mohd Tajuddin Abdullah from University Malaysia Sarawak reported the presence of *Listeria* spp., *Salmonella* spp., and *Escherichia* spp. in animals and environment (soil and water) samples from three national parks in Sarawak using polymerase chain reaction targeting species virulence genes (*L. monocytogenes-hlyA* gene, *S. typhimurium-fliC* gene, *S. enteritidis-sefA* gene, and *E. coli-4 shiga toxin* genes). However, there were little or almost none of *L. monocytogenes*, *S. typhimurium*, *S. enteritidis*, *E. coli* O157: H7, and *E. coli* O157. Results from the antibiotic susceptibility studies showed that some isolates were resistant to multiple antibiotics, suggesting the diversity of the bacterial flora in the three National Parks. This study provides the baseline data for future epidemiological surveillance and preventive medicine studies.

“Application of Termites Control Apparatus Based on Electromagnetic Waves and its Effect on Biological Performance of Subterranean Termites *Coptotermes formosanus*” by Farah Diba, Ferry Hadary, Seno Darmawan, Panjaitan, Tsuyoshi Yoshimura from Tanjungpura University. They examined the effects of electromagnetic waves to control termites *Coptotermes formosanus* Shiraki that cause high economic losses in relation to building infestations. Although insecticides

have been widely used to kill termites, they have adverse effects on humans. The use of the radiation of electromagnetic waves has the advantage over insecticides, because it is odorless, noiseless, friendly to environment, and easy to apply. The irradiation of 600 kHz waves for 120 minutes showed higher mortality of termites compared with that for 60 minutes or 90 minutes. This is important information of the electromagnetic-based technology for environment friendly termites control.

“Fauna of Faecal Parasite of Proboscis Monkeys (*Narsalis lavartus*)” by Madinah, A, Mariana, A., and M.T. Abdullah from University Malaysia Sarawak. They reported the fauna of fecal parasites of proboscis monkeys, *Narsalis lavartus* living in the mangrove forest of Bako National Park. A survey was carried out from October 2011 until February 2013 with a total of fecal samples. A total of 13 parasites, including seven genera of nematodes (*Ascaris lumbricoides*, *Enterobius vermicularis*, *Oesophagostomum* sp., *Strongyloides stercoralis*, *Strongyloides* sp., *Trichuris trichiura*, *Trichuris* sp., *Trichostrongylus* sp., and *Toxocara* sp.), two species of cestodes (*Hymenolepis nana* and *Diphyllobothrium latum*), and two trematodes (*Schistosoma* sp. and unidentified fluke) were collected. This is the first report providing the baseline data for the proboscis monkeys living in forests of Bako National Park.