

The 4th International Conference on Water Resource and Environment (WRE 2018)

July 17th-21st, 2018, Kaohsiung City, Taiwan
www.wreconf.org

WRE 2018 Abstract Proceeding



Department of Civil and Ecological Engineering
I-Shou University, Kaohsiung, Taiwan

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The 4th International Conference on Water Resource and Environment (WRE 2018)

Oral Session_9 Water Quality and Environment Science (III)

Time: 14:00-17:00, July 19, 2018

Location: Room 60403, 4th Floor, International College

Session Chair: Prof. Hsing-Cheng His, National Taiwan University, Taiwan

| Time | Paper ID | Paper Title | Author |
|-------------|----------|--|------------------------------|
| 14:00-14:20 | WRE2625 | Spatial and temporal variations of heavy metal concentration in water and sediment of Houjing River, Taiwan | Chitsan Lin (Invited) |
| 14:20-14:40 | WRE2853 | Synthesis of algal-silica-magnetite hybrids from red algae biomass as methylene blue adsorbent in aqueous solution | Buhani (Invited) |
| 14:40-15:00 | WRE2619 | Removal of liquid-phase hg from actual seawater flue gas desulfurization wastewater of a coal-burning power plant by using sulfurized activated carbon | Hsing-Cheng His (Invited) |
| 15:00-15:15 | WRE2549 | Temporal and spatial water quality assessment of Thay Cai – An Ha Canal System, Vietnam | Pham Anh Duc |
| 15:15-15:30 | WRE2580 | Water quality assessment of main rivers and canals in Ben Tre Province, Mekong Delta Vietnam | Nguyen Thuy Lan Chi |
| 15:30-15:45 | | Coffee Break | |
| 15:45-16:00 | WRE2910 | Polymer-zeolite composite fiber absorbents for decontamination of water environment | Takaomi Kobayashi |
| 16:00-16:15 | WRE2921 | As, Cd, Pb concentrations in organs of <i>Loligo edulis</i> from East China Sea | Yoshitaka Yamaguchi |
| 16:15-16:30 | WRE2916 | Subdivision treatment of mint aroma compounds with subcritical water | Shiori Nomura |
| 16:30-16:45 | WRE2940 | Simultaneous phytoremediation of Ni ²⁺ and bioelectricity generation in a Plant-Microbial Fuel Cell assembly using water hyacinth (<i>Eichhornia crassipes</i>) | Kristopher Ray Pamintuan |
| 16:45-17:00 | WRE2925 | New method to estimate total elements of Chromium (VI), Nickel and Iron to analyze their mobility and spatial distribution from an open dump | María José Merizalde Mora |

Oral Session_9 Water Quality and Environment Science (III)

WRE2853: Synthesis of algal-silica-magnetite hybrids from red algae biomass as methylene blue adsorbent in aqueous solution

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Abstract. The synthesis of algae-silica-magnetite hybrid materials from *Porphyridium* sp. red algae biomass (AS) has been done through a sol-gel process using tetraethyl orthosilicate (TEOS) as a precursor to produce an algae-silica-magnetite material (AS-MPs). The identification of functional groups performed by infrared spectrophotometers (IR) shows that in AS-MPs there are organic active groups derived from red algae biomass, silanol and siloxane from the silica matrix, and Fe-O from magnetite particles (MPs). The diffraction pattern of AS-MPs material analyzed by X-ray diffraction

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(XRD) shows that the material has a large intensity peak at $2\theta = 30.04$ and 35.52 while the analysis using Scanning Electron Microscopy (SEM) shows the material surface is heterogeneous. Methylene blue (MB) dye adsorption patterns by AS and AS-MPs tend to follow the second order pseudo kinetics model and Freundlich adsorption isotherm. Adsorption of MB solution by AS-MPs at an initial concentration of adsorbent 2.5 mg/L , interaction pH of 6, contact time of 60 min, and temperature of 27°C yield rate constants (k_2) and adsorption capacity (q_m) each of $0.003 \text{ g/mg}\cdot\text{min}$ and 96.927 mg/g . AS-MPs material is an effective adsorbent for removal of the dye of MB in solution, chemically stable against acid and neutral media and can be used repeatedly.

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This certificate is awarded to

Buhani

for delivering an excellent

INVITED SPEECH

titled

*Synthesis of algal-silica-magnetite hybrids
from red algae biomass as methylene blue
adsorbent in aqueous solution*



General Chair



Session Chair

