heavy metal contents and ecological risk assessments along the vertical profile reveal the interaction processes and anthropogenic influences from the areas around the Pearl River Estuary and the catchments.

D01. The screening of fluorescence rhizosphere bacteria for their potential use as biosensor receptors to detect heavy metals contaminants

Ongoing research is done to improve existing biosensor especially regarding its biological components. In this research project, fluorescence bacteria isolated from roots of homegrown plants were screened for their potential use as biosensor receptors in detecting heavy metals contaminants. Analytical analysis using spectrofluorometer was conducted by observing the responses showed by the bacteria in gradual addition of copper nitrate, Cu(NO₃)₂ and cobalt nitrate, Co(NO₃)₂. The spectrums generated clearly indicate that the bacteria were influenced by the presence of both Cu⁺ and Co³⁺ as the fluorescent intensity drop with increasing concentration of respective heavy metals analytes. The decrease in fluorescent intensity was significantly larger when the bacterial samples were tested with Cu(NO₃)₂ compared to Co(NO₃)₂. Microbact Kit which was used for identification of the bacterial species, revealed that the isolated fluorescence bacteria were common root colonizing bacteria Xanthomonas malhophilia and Escherichia dissolvens. This result however, differs from the result obtained from BLAST search of one of the samples which displayed 100% query coverage to many strains of Aeromonas spp. For further analytical analysis, Stern-Volmer plots were constructed by plotting the ratio of intensity F₀/F against concentration of respective analytes and the gradient of the slopes were used to calculate the limit of detection (LOD) for all samples. The LOD values for the samples were as low as 0.002336 mM and 0.04094 mM in the presence of Cu⁺³ and Co³⁺, respectively.

D02. Concentration of heavy metals at selected mangrove area (East and West Coast of Malaysia)

Mangrove area is one important habitat for animal, plant and microorganism to survive and ensure ecosystem sustainability in the environment. Due to factors such as oil spillage, fishing, tourism and industrial activity done by human, level of heavy metal trapped by the surface mangrove sediment increases. 1 to 5 cm mangrove surface sediment taken for analysis from each six sites of both East and West Coast. Atomic Absorption Spectrophotometer used to detect concentration of heavy metal from digested sediment samples. Pollution Load Index, PLI and Enrichment factor, EF were estimated to understand pollution level in the study sites. In this study, average concentration of Pb, Zn, Ni, Cr and Cu in West Coast area were 0.888ppm, 0.484ppm, 0.471ppm, 4.202ppm and 0.316ppm respectively. While average concentration of Pb, Zn, Ni, Cr and Cu were 0.407ppm, 1.437ppm, 0.176ppm, 0.342ppm, 1.269ppm respectively. In general, concentration of some metals (Pb, Ni, Zn, Cr, and Cu) at West Coast are higher than East Coast area. This indicate that many anthropogenic activities act as factors that lead to the increasing metal concentrations in the mangrove sediment at West Coast area compared to East Coast area and this will give serious affect to human health and aquatic life there.

D03. Water quality of Batang Lupar Estuary, Sarawak

This study was conducted to determine the water quality status in Batang Lupar estuary of Sarawak. A sampling was carried out at Batang Lupar estuary on 17th

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