

Heavy metal uptake by *Nepenthes gracilis* and *N. Hooxeriana* in ex-iron and tin mine soil, Pelepah Kanan, Kota Tinggi, Johor : [Pengambilan logam berat oleh *Nepenthes gracilis* dan *N. Hookeriana* dalam tanah bekas lombong besi dan timah, Pelepah Kanan, Kota Tinggi, Johor]

Abstract

Heavy metals which are Pb, Co, Ni, Zn and Cd content in four *Nepenthes gracilis* and *N. Hookeriana* plant components (root, stem, leaf and pot) and in soil substrates from former iron and tin mining land at Pelepah Kanan, Kota Tinggi, Johor were determined. The composition of heavy metals in soil was extracted using a mixture of concentrated nitric acid and perchloric acid. Meanwhile, heavy metals in plant samples were extracted using wet digestion method. Heavy metal contents in solution extract of soil and plant were determined by Flame Atomic Absorption Spectrophotometer (FAAS - Perkin Elmer 3300 model). Biological Absorption Coefficient (BAC) which is a ratio of heavy metal content in plant to that of heavy metal in soil was obtained by calculation. The result of analyses showed that the former mining area has low organic matter contents and low values of soil electrical conductivity, whereas the soil pH showed an acidic value. Concentration of heavy metal in soil substrates in decreasing sequence starts with Zn at 698.5 mg/kg followed by Co (182.9 mg/kg), Pb (58.2 mg/kg), Ni (12.2 mg/kg) and Cd (2.09 mg/kg). Heavy metal concentration in plant in decreasing sequence was Ni>Co>Cd>Pb>Zn. Concentration in different parts of the plant did not show any significant difference for all of the metals. *Nepenthes* sp. was found to accumulate high concentration of Ni as indicated by its high BAC value. This plant may be useful as bio-indicator for high concentration of Ni in soil.