

**Distribution of Selected Heavy Metals Bioaccumulation in Various Parts of  
Indigenous Rice (Bokilong, Ponsulak and Taragang) in North Borneo**

**ABSTRACT**

The prospect of three native upland paddy landraces known as Bokilong, Ponsulak and Taragang as heavy metals accumulator for phytoremediation was determined. Bioaccumulation of heavy metals (As, Cd, Cr, Cu, Fe, Pb, and Zn) in various parts of paddy plants collected from Kiulu valley, North Borneo in the natural conditions during the vegetative phase and harvest season were analysed by Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES). All selected heavy metals were traced in soil samples of all three paddy landraces rhizosphere where the most available heavy metals were Fe followed by Zn. Heavy metals bioavailability in soil seemed to be influenced by the local climate of the cultivation field. Bokilong landrace is an accumulator of As, Cd, Cu, Pb and Zn. Ponsulak paddy can help clean up the soil by phytoextraction of As, Cr, Cu, Fe and Zn. Taragang paddy has a prospect in phytoextraction of Cd and Pb to remediate excess amount of this element in the soil. Different heavy metals concentration trends were accumulated in these three paddy landraces in grain indicated different nutritional values. Heavy metal uptake characteristic differs between upland paddy landraces and there was also environmental influence affecting the mobility rate of these elements in paddy plant depending on the element type and paddy genotype.