Phytoremediation using typha angustifolia l. for mine water effluence treatment: case study of ex-mamut copper mine, Ranau, Sabah

Abstract

This research was carried out to determine the capability of Typha angustifolia L. for accumulation of seven heavy metals (Cd, Cr, Cu, Fe, Ni, Pb and Zn). Typha angustifolia were planted in-situ in the tanks filled with mine water effluence (MWE) from the abandoned copper mine pit. The concentration of heavy metals in three replicates of plant root, stem and leaves were determined at Day 0 and Day 60. Samples of plant tissue were digested using hot concentrated nitric acid and the amounts of heavy metals were determined using Atomic Absorption Spectrometer (AAS). The results showed that at Day 60, the concentrations of heavy metals were decreased in all plant part, except Fe and Cu were increased and Cr was increased in root and stem part.The results obtained from this research can be used as a fundamental data in maximizing the potential usage of T. angustifolia for mine water effluence (MWE) treatment at the ex-Mamut copper mine.