INTISARI

POTENSI TANAMAN MELATI AIR (*Echinodorus palaefolius)* SEBAGAI FITOREMEDIATOR ALTERNATIF PENGOLAHAN AIR TERKONTAMINASI LOGAM TIMBAL (Pb) DAN TEMBAGA (Cu)

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Peningkatan urbanisasi, industri dan populasi merupakan salah satu penyebab kerusakan lingkungan. Timbal dan tembaga merupakan logam berat yang berbahaya bagi lingkungan. Fitoremediasi adalah sebuah metode yang bisa digunakan untuk menyerap atau membersihkan polutan organik dan anorganik di udara, tanah, maupun air. Metoda ini lebih mudah, murah, efisien dan ramah lingkungan. Pada penelitian ini, melati air yang telah berumur 3 bulan dimasukan ke dalam 1 L larutan terkontaminasi Pb dan Cu dengan variasi konsentrasi 0, 20, 40, 60, 80 mg/L selama 7 hari. Konsentrasi Pb dan Cu pada larutan sebelum dan sesudah fitoremediasi, serta yang terakumulasi pada akar dan batang dan daun ditentukan dengan metoda Spektrofotometri Serapan Atom (SSA). Penurunan konsentrasi Pb tertinggi di dalam larutan yaitu 94,12% pada konsentrasi perlakuan 80 mg/L dan Cu 81.82% pada konsentrasi 20 mg/L. Akumulasi Pb pada melati air yaitu 1358,67 mg/kg dan Cu 1036,61 mg/kg pada konsentrasi 80 mg/L. Nilai ini besar dari nilai standar hiperakumulator Pb dan Cu yang ditetapkan (1000 mg/kg berat kering), dengan demikian tanaman melati air berpotensi untuk digunakan sebagai fitoremidiator logam Pb dan Cu.

Kata kunci: Fitoremediasi, Melati air, Pb(II), Cu(II)

ABSTRACT

Potential of Mexican Sword Plant *(Echinodorus palaefolius*) as an Alternative Phytoremediator of Water Contaminated by Lead and Copper

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Increasing urbanization, industrization, and over population is one of the leading causes of enviromental degradation and pollution. Heavy metal such as Pb and Cu are one of the heavy metal which show hazardous effects on all living live. Phytoremediation is a method that can be used to absorb or to clean organic and inorganic pollutans in air, soil or water. This method is easy, costeffective, efficient and environmental friendly. In this research, the 3 months old of mexican sword plant ware placed into 1 L of water contaminated by Pb and Cu with varying concentrations of 0, 20, 40, 60, 80 mg/L for 7 days. Concentration of Pb and Cu in the solution before and after phytoremidiation, as well as metals accumulation in the roots and the top of the plant were determined by atomic absorption spectrophotometry (AAS). The highest concentration of Pb decreased in the solution was 94,12% at concentration 80 mg/L and Cu was 81,82% at concentration 20 mg/L. The highest accumulation of Pb and Cu in the plant respectively ware 1358,67 mg/kg and 1036,61 mg/kg for Cu at concentration 80 mg/L. This concentration was higher than hyperaccumulator standar concentration for Pb and Cu (1000 mg/kg dry weight), it can be concluded that mexican sword plant is potential as phytoremidiator of Pb and Cu.

Keywords: Phytoremediation, *Enchinodorus palaefolius*, Pb (II), Cu (II)