

ABSTRAK**PEMANFAATAN TANAMAN
MELATI AIR (*Echinodorus palaefolius* Nees & Mart. JF Macbr)
SEBAGAI AGEN FITOREMEDIASI PADA AIR
DI DAERAH ALIRAN SUNGAI OPAK DESA BANYAKAN,
PIYUNGAN BANTUL**

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Air limbah industri di Sungai Opak banyak mengandung senyawa kimia beracun dan berbahaya serta mengandung logam. Logam berat dapat terakumulasi melalui rantai makanan bahkan pada konsentrasi rendah menjadi ancaman bagi hewan, tanaman dan kesehatan manusia. Pencemaran logam berat timbal (Pb) dan tembaga (Cu) dapat menurunkan kualitas perairan, sehingga perlu adanya upaya peningkatan kualitas perairan. Penelitian ini bertujuan mengetahui kemampuan tanaman melati air dalam menurunkan konsentrasi logam timbal (Pb) dan tembaga (Cu) dalam air limbah industri.

Jenis penelitian ini merupakan penelitian deskriptif kuantitatif, analisis sampel terdiri dari parameter fisika, kimia dan biologi. Penelitian ini meliputi penelitian yaitu uji karakteristik awal air limbah, penyiapan media tanam dan perlakuan penelitian. Penelitian selanjutnya dilaksanakan uji aklimatisasi tanaman dan analisis logam berat timbal (Pb) serta tembaga (Cu). Pengukuran parameter fisika meliputi kecerahan, suhu dan kekeruhan. Pengukuran parameter kimia meliputi pH, kesadahan (CaCO_3), DO, sulfida (Na_2SO_3), timbal (Pb) dan tembaga (Cu). Sedangkan pengukuran parameter biologi berupa analisis pertumbuhan tanaman yang meliputi tinggi dan biomassa tanaman.

Hasil penelitian menunjukkan, besarnya akumulasi logam Pb dan Cu pada melati air ditemukan pada perlakuan limbah (P 1) dengan menggunakan 2 individu, yakni akumulasi logam Pb sebesar 0.0068 Mg/L dan akumulasi logam Cu sebesar 0.0075 Mg/L. Biomassa tanaman terbesar pada reaktor kontrol sebesar 89,8%, sedangkan biomassa tanaman pada P 1 sebesar 89,2% ; biomassa tanaman pada P 2 sebesar 88% ; biomassa tanaman pada P 3 sebesar 87,5%.

Kata kunci : *Echinodorus palaefolius*, fitoremediasi, limbah industri, timbal (Pb), tembaga (Cu)

ABSTRACT

**UTILIZATION OF MELATI AIR (*Echinodorus palaefolius*) AS AGENT
PHYTOREMEDIATION ON WATER IN OPAK RIVER, BANYAKAN
PIYUNGAN BANTUL**

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The water waste that produced by industrial in Opak river has many compound toxic and also contain of metal. A strong metal can cause a big problem in food chain, even it is can give a bad impact to animal, plants and a human's health. The pollution of strong metal lead (Pb) and copper (Cu) can decrease a quality of water should be increasingly. The purpose of this research was to know the ability of melati air to decrease the composition of strong lead (Pb) and Copper (Cu) in water waste.

Type of this research was quantitative descriptive, analysis of the sampel was composed of parameters of the phycis, chemistry and biology. Physical parameter include brightness, temperature and turbidity. Chemical parameter include measurement of pH, hardness (CaCO_3), DO, sulfide (Na_2SO_3), lead (Pb) and copper (Cu). Where as the measuring of parameter in biology was to know the growth of the plant that includes the height of the plant dan biomass.

The result of this research showed that the accumulation of the metal Pb and Cu in melati air was found in melati air the waste reactor (P 1), where was use two individual that is the accumulation of metal Pb 0.0068 Mg/L and the accumulation of metal Cu 0.0075 Mg/L. The largest biomass of the plants found in the control reactor is 89.8%, plant biomass in the waste reactor P 1 is 89.2%, the biomass in the plant P 2 is 88%, the biomass in the plant P 3 is 87.5%.

Key words : *Ehinodorus palaefolius, fitoremediation, waster industrial, lead (Pb), copper (Cu)*