

**THE EFFECT OF PHYTOREMEDIATION OF WATERMATIC
(*ECHINODORUS PALAEFOLIUS*) PLANTS ON PHOSPHORIC
LEVELING REDUCTION IN LAUNDRY WASTE**

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ABSTRACT

The rapid population growth and development was followed by increased business activity and activities to meet the necessities of life. The emergence of laundry services provides benefits and generates considerable waste. The resulting liquid waste has several heavy metal compounds, one of which is phosphate. Water pollution can be reduced by one of the levels of pollution by using phytoremediation techniques. The purpose of this study was to analyze the ability of phytoremediation of water jasmine plants to reduce laundry wastewater phosphate levels.

This research is an Quasi Experimental study with a One Group Pretest-Post Test Design approach on laundry wastewater. The data obtained were then processed analytically using normality test and anova test. Variable condition of water jasmine plants include age 1 month (A), 1-2 months (B), and 2 months (C).

The results of this study show a decrease in laundry waste phosphate. Before being treated with phosphate levels of 83.82 mg / l, so it can be seen if the concentration still exceeds the quality standards of Governor Regulation No. 52 of 2014. Phosphate levels after being treated have decreased. Decrease in the highest phosphate levels is in jasmine plants 2 months old replication C2. On the 7th day decreased 79.76 mg / l (95.15%), on the 11th day 82.37 mg / l (98.27%), and on the 14th day 82.9 mg / l (98.9%).

The conclusion of this research is the higher age of water jasmine plants, the greater the ability to reduce levels of laundry waste phosphate. The longer the phytoremediation time, the greater the decrease in phosphate levels. Further studies are expected to examine the handling of residual solid waste generated from the phytoremediation process such as the recovery of compost fertilizer in water jasmine plants.

Keywords: Laundry liquid waste, Jasmine Water, Phytoremediation

**PENGARUH FITOREMEDIASI TANAMAN MELATI AIR
(*ECHINODORUS PALAEFOLIUS*) TERHADAP PENURUNAN KADAR
FOSFAT PADA LIMBAH LAUNDRY**

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ABSTRAK

Pesatnya pertumbuhan penduduk dan pembangunan diikuti oleh meningkatnya aktivitas usaha dan kegiatan untuk memenuhi kebutuhan hidup. Munculnya jasa *laundry* memberikan keuntungan dan menghasilkan limbah cukup besar. Limbah cair yang dihasilkan memiliki beberapa senyawa logam berat, salah satunya yaitu fosfat. Pencemaran air dapat dikurangi kadar pencemarnya salah satunya dengan menggunakan teknik fitoremediasi. Tujuan penelitian ini menganalisa kemampuan fitoremediasi tanaman melati air dalam menurunkan kadar fosfat limbah *laundry*.

Penelitian ini merupakan penelitian *Quasi eksperimental* dengan pendekatan *One group Pretest-postest design* terhadap limbah cair *laundry*. Data yang diperoleh selanjutnya diolah secara analitik menggunakan uji normalitas dan uji anova. Kondisi variabel tanaman melati air meliputi umur 1 bulan (A), umur 1-2 bulan (B), dan umur 2 bulan (C).

Hasil dari penelitian ini menunjukkan adanya penurunan terhadap kadar fosfat limbah *laundry*. Sebelum diberi perlakuan kadar fosfat sebesar 83,82 mg/l, sehingga dapat diketahui jika konsentrasi tersebut masih melebihi baku mutu Peraturan Gubernur No. 52 Tahun 2014. Kadar fosfat sesudah diberi perlakuan mengalami penurunan. Penurunan kadar fosfat tertinggi yaitu pada tanaman melati air berumur 2 bulan replikasi C2. Pada hari ke 7 mengalami penurunan sebesar 79,76 mg/l (95,15%), pada hari ke 11 sebesar 82,37 mg/l (98,27%), dan pada hari ke 14 sebesar 82,9 mg/l (98,9%).

Kesimpulan penelitian ini adalah semakin tinggi umur tanaman melati air maka semakin besar kemampuan dalam menurunkan kadar fosfat limbah *laundry*. Semakin lama waktu fitoremediasi, semakin besar pula penurunan kadar fosfat. Penelitian selanjutnya diharapkan meneliti tentang penanganan sisa limbah padat yang dihasilkan dari proses fitoremediasi seperti *recovery* pupuk kompos pada tanaman melati air.

Kata Kunci : Limbah cair *laundry*, Melati Air, Fitoremediasi