**INTISARI**

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**Betiandriyan**

**Pengaruh Penambahan Barbagai Dosis Tawas Dan Fitoremediasi Enceng Gondok Terhadap Penurunan Kadar Fosfat Limbah Cair RSUD Wates**

 Setiap bidang usaha umunya rumah sakit selalu memiliki limbah cair sebagai asil sampingan kegiatannya, dengan kadar fosfat tinggi sebagai masalah utama. Pembuangan limbah cair harus memenuhi persyaratan Kep.Gub. Daerah Istimewa Yogyakarta No.65 tahun 1999. Output air limbah di RSUD Wates, kadar fosfat IPAL belum memenuhi persyaratan yaitu sebesar 4,706 mg/L,

Penelitian ini bertujuan untuk membuktikan dosis tawas optimum dan penambahan tanaman enceng gondok sehingga dapat menurunkan kadar tawas hingga memenuhi baku mutu

Metode penelitian menggunakan rancangan *pre-test – post-test with control group design*. Penelitian ini dilakukan di IPAL RSUD Wates dan hasil penelitiannya diujikan ke BLK (Balai Laboratorium Kesehatan), dengan variasi tawas adalah 20 mg/L, 30 mg/L dan 40 mg/L, yang setelah itu dipaparkan dengan enceng gondok selama 24 jam, dengan jumlah enceng gondok sebanyak 0,50 kg/ 20 L air. Obyek penelitian ini adalah limbah cair RSUD Wates. Hasilnya dianalisis pada tingkat convidence level α =0,05 dengan uji statistik t-test terikat dan anava satu jalan.

Penambahan tawas 40 mg/L dan enceng gondok 0,50 kg/ 20 L air dilakukan pada sistem pengolahan air limbah di RSUD Wates mampu menurunkan rata-rata kadar fosfat 79,65%. Tawas dosis 20 mg/L dan 30 mg/L kemudian penambahan enceng gondok sebanyak 0,50 kg/ 20 L air hanya mampu menurunkan 76,15% dan 77,54%

Pemberian tawas 40 mg/L dan enceng gondok 0,50 kg/ 20 L air dapat menurunkan fosfat hingga memenuhi baku mutu. Hasil analisis data menyatakan bahwa data penuruan kadar fosfat dengan penambahan tawas dan enceng gondok bermakna dengan p value 0,07 (<0,05).

Pihak rumah sakit disarankan agar menggunakan dosis tawas 40 mg/L dan enceng gondok sebagai sarana alternatif penurun fosfat dan peneliti lain agar memperhatikan kadar pH.

**Kata Kunci:** Fosfat, Tawas, Fitoremediasi Enceng Gondok, Limbah Cair Rumah Sakit

**ABSTRACT**

**Ministry of Health of the Republic of Indonesia**

**Health Polytechnic Yogyakarta**

**Environmental Health Programs**

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**Betiandriyan**

**Effect of Dose Tawas And Phytoremediation series of very young water hyacinth on Phosphate Concentration Reduction Waste Wates Hospital.**

Hospital waste water is used water that is not used anymore, covering all the dirty water from a variety of hospital activities such as bathrooms, toilets, kitchens, laboratories and others. Wastewater will be discharged into water bodies must meet the requirements of Yogyakarta Special Region Governor Decree No. 65 of 1999 on wastewater quality standards for health services in the area of Yogyakarta Special Region. Results of waste water treatment in hospitals Wates for phosphate parameters which do not meet the requirements of 4.706 mg / L, so we need further treatment to reduce phosphate levels, namely by adding alum and application of phytoremediation water hyacinth on the stage of waste water treatment.

This research was done to demonstrate the optimum alum dose and the addition of water hyacinth plants that can reduce levels of alum to meet existing quality standards.

An experimental study design used was a pre-test - post-test design with control group. This research was conducted at Hospital WWTP Wates and findings were tested to the BLK (Central Health Laboratory), with various additional alum taken is 20mg / L, 30mg / L and 40mg / L, which after that will be presented with the water hyacinth for 24 hours, with the number of water hyacinth as much as 0.50 kg / 20 L water. Object of this study is hospital wastewater Wates. The results were analyzed at the level α = 0.05 level convidence. From the test statistic t-test and anova one way bound and then note that there is a significant influence on the addition of alum dose and phytoremediation water hyacinth, with level of probability value less than 0.05.

The results showed the addition of alum 40 mg / L and 0.50 kg of water hyacinth / 20 L water at the wastewater treatment systems in hospitals Wates been able to reduce the average phosphate content of 66.18. Variations affixing alum dose of 20 mg / L and 30 mg / L and the addition of water hyacinth were 0.50 kg / 20 L water is only able to decrease 61.52% and 54.07% respectively.

The conclusion of research that has been done is given alum dose of 40 mg / L and 0.50 kg of water hyacinth / 20 L water can reduce phosphorus to meet the quality standards with values below 2 mg / L.

**Keywords:** Phosphate, Tawas, Phytoremediation water hyacinth, Hospital Waste