PENGGUNAAN TANAMAN PURUN TIKUS *(Eleocharis dulcis)* SEBAGAI AGEN FITOREMEDIASI PADA TEKNIK *FLOATING TREATMENT WETLAND* DI PERAIRAN LENTIK

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ABSTRAK

Pembuangan limbah domestik, industri dan pertanian yang dilakukan langsung ke badan air akan berpotensi pada penurunan kualitas air (degradasi) sehingga perlu adanya upaya dalam pengolahan limbah tersebut, salah satunya yaitu dengan *Floating Treatment Wetland (FTW).* FTW merupakan salah satu inovasi lahan basah teknik pengolahan secara biologi dengan memanfaatkan kemampuan tanaman sebagai agen fitoremediasi dalam menurunkan bahan pencemar dalam air. Purun tikus *(Eleocharis dulcis*) termasuk dalam tanaman *emergent plant* yang dapat berperan sebagai tanaman *hyperakumulator* karena memiliki sifat toleran yang sangat tinggi. Penelitian ini dilakukan untuk mengetahui pengaruh serapan beban pencemar terhadap pertumbuhan tanaman pada Teknik *Floating Treatment Wetland* (FTW) di perairan lentik. Penelitian ini bersifat ekperimental yang disusun dalam Rangkaian Acak Kelompok (RAK) dengan 3 perlakuan meliputi FTW dengan sumbu, FTW tanpa sumbu dan Kontrol. Data hasil penelitian di analisis statistik dengan software SPPS dan disajikan secara deskriptif. Hasil penelitian ini menunjukan bahwa tikus Tanaman purun tikus menunjukan kebertahanan hidup dengan pertumbuhan tunas pada minggu kedua hingga keenam terutama pada perlakuan dengan penambahan sumbu, meskipun pertumbuhan tinggi tanaman dan daun menunjukan penurunan. Efektivitas Perlakuan FTW menunjukan adanya kenaikan kadar DO FTW sumbu 6 – 10 % dan turun FTW non sumbu 11-18 %, Kadar BOD naik pada FTW sumbu dan non sumbu 75% -110%, COD pada FTW non sumbu naik 6% dan Kadar Nitrat Naik FTW sumbu dan non sumbu 28-29%. serta mampu menurunkan kandungan Total dissolved solid (TDS) pada FTW sumbu 16% dan Non sumbu 11%. kandungan total fosfat pada FTW sumbu 53%, FTW non sumbu 58%.

Kata Kunci: *Eleocharis dulcis, Emergent plant,* Fitoremediasi, *Floating Treatment Wetland*, Perairan Lentik

APPLICATION OF PURUN RATPLANT *(Eleocharis dulcis)* AS A PHYTOREMEDIATION AGENT IN LENTIC WATERS FLOATING TREATMENT WETLAND TECHNIQUES

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ABSTRACT

Direct disposal of residential, industrial, and agricultural waste into water bodies has the potential to reduce water quality (degradation), necessitating waste treatment initiatives, one of which is the Floating Treatment Wetland (FTW). By leveraging the capabilities of plants as phytoremediation agents in decreasing contaminants in water, FTW is one of the wetland inventions of biological processing methods. Purun rat (Eleocharis dulcis) is an emergent plant with a high tolerance that can function as a hyperaccumulator. The purpose of the study will be how pollution load absorption affected plant development in lentic waters using the Floating Treatment Wetland (FTW) technology. This is an experimental study with three treatments: FTW with axis, FTW without axis, and control, which is set up in a Randomized Block Series (RAK). The research data were statistically analyzed and presented descriptively using the spps program. Purun mice survived with shoot development in the second to sixth weeks, notably in the treatment with the addition of axes, albeit plant height and leaf growth decreased. The effectiveness of FTW treatment showed that there was an increase in DO levels in FTW axis 6-10% and a decrease in non-axis FTW from 11-18%, BOD levels increased in axis and non-axis FTW 75% -110%, COD in non-axis FTW increased 6% and nitrate levels Up FTW axis and non axis 28-29%. On the FTW axis, TDS content is low with 16%, whereas on the Non-axis, TDS content was reduced by 11 %. FTW axis has a total phosphate level of 53%, whereas FTW non-axis has a total phosphate content of 58%.

Keywords*: Eleocharis dulcis, Emergent plant,* PH*ytoremediation, Floating Treatment Wetland, Lentik Waters*