

ABSTRAK

Boy kurniawan, 2022, Pengaruh Pakan Cacing terhadap Kualitas Air Limbah Tempe dan Vermibed Pada Pengolahan Air Limbah Tempe Dengan Vermifilter. Program Studi: Teknik Lingkungan Universitas PGRI Adi Buana Surabaya, Dosen Pembimbing: Dra. Indah Nurhayati, S.T., M.T

Pada umumnya pengusaha tempe langsung membuang air limbah ke badan air, sehingga dikhawatirkan mengganggu kehidupan organisme perairan. Penelitian ini bertujuan mengkaji pengaruh variasi pakan cacing terhadap konsentrasi $\text{NH}_3\text{-N}$, Total fosfat, dan kekeruhan pada air limbah industry tempe serta kualitas vermibed untuk parameter fosfor, kalium dan pH. Reactor vermifilter (R) terbuat dari drum plastik dengan diameter 38 cm tinggi 29 cm. Media filter menggunakan kerikil, bioball dan pasir silika. Vermibed dari tanah kebun dan menggunakan cacing *L. rubellus* sebanyak 100 gr. Reaktor R1 dengan pakan cacing feses sapi, R2 ampas tahu dan R3 feses sapi dan ampas tahu. Hasil penelitian menunjukkan bahwa jenis pakan cacing berpengaruh terhadap konsentrasi amonia, fosfat dan kekeruhan. Konsentrasi ammonia, dan kekeruhan terendah terjadi pada R3 dengan konsentrasi 116.83, mg/l, kekeruhan 380 NTU dan total fosfat pada R2 dengan konsentrasi 142.33 mg/l. Kadar fosfor vermibed tertinggi pada R1 sebesar 1,64%, kadar kalium tertinggi pada R1 dengan konsentrasi 0,373 % dan pH untuk semua reaktor berada direntang 6,5-6,9.

Kata kunci: air limbah tempe, vermifilter, Feses sapi, ampas tahu

ABSTRACT

Boy Kurniawan, 2022, Effect of Worm Feed on Tempe and Vermibed Wastewater Quality in Tempe Wastewater Treatment with Vermifilter. Study Program: Environmental Engineering PGRI Adi Buana University Surabaya, Supervisor: Dra. Indah Nurhayati, S.T., M.T

In general, tempe entrepreneurs immediately dispose of waste water into water bodies, so it is feared to disturb the life of aquatic organisms. This study aims to examine the effect of variations in worm feed on the concentration of NH₃-N, total phosphate, and turbidity in tempe industrial wastewater and the quality of vermibed for phosphorus, potassium and pH parameters. The vermifilter reactor (R) is made of a plastic drum with a diameter of 38 cm and a height of 29 cm. The filter media uses gravel, bioball and silica sand. Vermibed from garden soil and using *L. rubellus* worm as much as 100 gr. Reactor R1 with cow feces worm feed, R2 tofu dregs and R3 cow feces and tofu dregs. The results showed that the type of worm feed affected the concentration of ammonia, phosphate and turbidity. The lowest concentration of ammonia and turbidity occurred at R3 with a concentration of 116.83, mg/l, turbidity 380 NTU and total phosphate at R2 with a concentration of 142.33 mg/l. The highest vermibed phosphorus content was at R1 of 1.64%, the highest potassium content was at R1 with a concentration of 0.373 % and the pH for all reactors was in the range of 6.5-6.9.

Keywords: tempe wastewater, vermifilter, cow feces, tofu dregs