

ABSTRAK

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EFEKTIVITAS SISTEM *ANAEROBIC AEROBIC BIOFILTER* DALAM MENURUNKAN BOD, COD, AMONIA, DAN PHOSPAT DI RS PKU MUHAMMADIYAH SURABAYA TAHUN 2024

xv + 62 Halaman + 4 Tabel + 6 Gambar + 7 Lampiran

Air limbah Rumah Sakit PKU Muhammadiyah Surabaya yang sudah diolah masih mengandung Phospat dan Amonia yang belum memenuhi baku mutu Peraturan Gubernur Jawa Timur Nomor 72 Tahun 2013. Kandungan phospat dan amonia dengan kadar tinggi tidak boleh dibuang langsung ke badan air, karena dapat menimbulkan berbagai masalah lingkungan. Tujuan penelitian ini adalah mengetahui efektivitas sistem *anaerobic aerobic biofilter* IPAL dalam menurunkan BOD, COD, Amonia, dan Phospat di Rumah Sakit PKU Muhammadiyah Surabaya.

Penelitian ini rancang dengan metode penelitian Deskriptif. Variabel penelitian yaitu IPAL sistem *Anaerobic Aerobic Biofilter* di Rumah Sakit PKU Muhammadiyah Surabaya dengan mengamati penurunan kadar BOD, COD, Amonia, dan Phospat. Hasil Laboratorium kadar BOD, COD, Amonia, dan Phospat dianalisis secara Deskriptif yang mengacu pada Peraturan Gubernur Jawa Timur Nomor 72 Tahun 2013 Tentang Baku Mutu Air Limbah Bagi Industri dan/atau Kegiatan Usaha Lainnya.

Berdasarkan hasil analisa uji laboratorium menunjukkan IPAL sudah efektif dengan menurunkan BOD (65,51%) dan COD (70,65%), namun kurang efektif dalam menurunkan Amonia dan Phospat (28,66%). Kualitas buangan air limbah Rumah Sakit PKU Muhammadiyah Surabaya masih melebihi baku mutu pada parameter Amonia yaitu sebesar 0,144 mg/L dan Phospat sebesar 3,917 mg/L sesuai dengan Peraturan Gubernur Jawa Timur Nomor 72 Tahun 2013.

Saran bagi pihak rumah sakit sebaiknya melakukan pemantauan dan evaluasi terhadap Biofilter Anaerobik Aerobik. Mengidentifikasi bakteri yang efektif untuk seeding pada bak ekualisasi agar buangan outlet sesuai dengan standar baku mutu. Perlu dilakukan penelitian lanjutan terkait kinerja tiap proses pada IPAL agar diketahui secara mendalam efektivitas kinerja IPAL Rumah sakit PKU Muhammadiyah Surabaya.

Kata Kunci : Efektivitas, IPAL Anaerobik-Aerobik

Daftar bacaan : 41 (2017-2023)

ABSTRACT

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EFFECTIVENESS OF THE ANAEROBIC AEROBIC BIOFILTER SYSTEM IN REDUCING BOD, COD, AMMONIA AND PHOSPHATE AT PKU MUHAMMADIYAH HOSPITAL SURABAYA IN 2024

xv + 62 Pages + 4 Tables + 6 Figures + 7 Attachment

The treated wastewater of PKU Muhammadiyah Hospital Surabaya still contains phosphate and ammonia which are not in accordance with the quality standards of East Java Governor Regulation Number 72 of 2013. The high content of phosphate and ammonia can be discharged directly into water bodies, because it can cause various environmental problems. The purpose of this study is to determine the effectiveness of the anaerobic aerobic biofilter system of WWTP in reducing BOD, COD, Ammonia, and Phosphate at PKU Muhammadiyah Hospital Surabaya.

This study use a type of Descriptive research. The research variable was the wastewater treatment plant of the Aerobic Anaerobic system at PKU Muhammadiyah Hospital Surabaya by observing the decrease in BOD, COD, Ammonia, and Phosphate levels. The results of the BOD, COD, Ammonia, and Phosphate levels Laboratory were analyzed descriptively referring to the Governor of East Java Regulation Number 72 of 2013 concerning Wastewater Quality Standards for Industry and/or Other Business Activities.

Based on the results of laboratory test analysis, it was shown that WWTP was effective in reducing BOD (65.51%) and COD (70.65%), but less effective in reducing Ammonia and Phosphate (28.66%). The quality of wastewater discharge at PKU Muhammadiyah Hospital Surabaya has not met the quality standards in the parameters of Ammonia which is 0.144 mg/L and Phosphate is 3.917 mg/L in accordance with the Governor of East Java Regulation Number 72 of 2013.

Suggestions for hospitals should be to monitor and evaluate the Aerobic Anaerobic Biofilter. Identify bacteria that are effective for seeding in the equalization basin so that the outlet discharge is in accordance with quality standards. For the next researcher, it is recommended to conduct further research on the performance of each process on WWTP so that the effectiveness of the performance of WWTP PKU Muhammadiyah Surabaya Hospital is known in depth.

Keywords : Effectiveness, WWTP Anaerobic-Aerobic
Reference : 41 (2017-2023)