Studi Karakteristik Limbah Cair Pabrik Kelapa Sawit dan *Monitoring* Pergerakannya di Lahan Perkebunan Kelapa Sawit

Abstrak

Telah dilakukan penelitian untuk mengetahui karakteristik densitas, konduktivitas, BOD, COD dari limbah cair pabrik kelapa sawit (LCPKS) dan karakteristik densitas, kadar air, konduktivitas, pH dari sampel tanah dengan dilakukan uji laboratorium, serta melihat pergerakan kedalaman resapan LCPKS dengan metode geolistrik *time-lapse*. Pengambilan data geolistrik dengan 2 lintasan sepanjang 150 m dilakukan 3 kali yaitu sebelum diaplikasikan LCPKS, 6 jam setelah diaplikasikan LCPKS, dan 2 minggu setelah diaplikasikan LCPKS. Hasil geolistrik menunjukkan nilai resistivitas sebesar 2,00 – 440 Ωm dengan jenis tanah merupakan tanah pasir yang memiliki pH netral. Hasil uji BOD dan COD LCPKS sebesar 2265 mg/l dan 5552 mg/l hasil uji BOD memenuhi syarat baku mutu limbah cair yang terdapat pada peraturan KEPMEN LH No.29 Th 2003, densitas LCPKS 1.000 kg/cm^3, LCPKS bersifat *konduktif* dengan hasil uji konduktivitas LCPKS 7,31 mS/cm. Kedalaman pergerakan resapan LCPKS pada lintasan 1 sebelum diaplikasikan LCPKS yaitu 5,6 m, 6 jam setelah diaplikasikan LCPKS 7,97 m, dan 2 minggu setelah diaplikasikan LCPKS 6,2 m, sedangkan lintasan 2 sebelum diaplikasikan LCPKS yaitu 15,9 – 19,8 m, 6 jam setelah diaplikasikan LCPKS 12 m, dan 2 minggu setelah diaplikasikan LCPKS 8 m dengan nilai resistivitas area *konduktif* 2,00 – 43,6 Ωm dan area *resistif* sebesar 94,2 – 440 Ωm.

Kata Kunci: studi karakteristik, monitoring, metode geolistrik time-lapse, limbah cair pabrik kelapa sawit, resistivitas.

Study of Characteristics of Palm Oil Mill Liquid Waste and Monitoring of Its Movement in Oil Palm Plantation Land

Abstract

This research has been done to find out characteristics of density, conductivity, BOD, COD from palm oil mill effluent (LCPKS) and the characteristics of density, water content, conductivity, pH of soil samples by conducting laboratory tests, and observing the movement of LCPKS absorption depth with the time-geoelectric method. lapse. Geoelectrical data collection with 2 tracks along 150 m was carried out 3 times, namely before LCPKS was applied, 6 hours after LCPKS was applied, and 2 weeks after LCPKS was applied. The geoelectrical results show a resistivity value of 2.00 – 440 Ωm with the soil type being sandy soil which has a neutral pH. The LCPKS BOD and COD test results of 2265 mg/l and 5552 mg/l the result of BOD meet the requirements for liquid waste quality standards contained in KEPMEN LH regulations No.29 of 2003, the density of LCPKS is 1,000 kg/cm3, the LCPKS is conductive with the conductivity test results of LCPKS 7 .31mS/cm. The depth of movement of the LCPKS infiltration on line 1 before LCPKS was applied was 5.6 m, 6 hours after LCPKS was applied 7.97 m, and 2 weeks after LCPKS was applied 6.2 m, while on track 2 before LCPKS was applied it was 15.9 – 19. 8 m, 6 hours after application of 12 m LCPKS, and 2 weeks after application of 8 m LCPKS with a conductive area resistivity value of 2.00 – 43.6 Ωm and a resistive area of 94.2 – 440 Ωm.

Keywords: characteristic study, monitoring, geoelectric time-lapse method, palm oil mill effluent, resistivity.