Optimasi ekstraksi spent bleaching earth dalam recovery minyak sawit = Optimation of extraction spent bleaching earth to recovery residual crude palm oil

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Abstrak

Pada proses pemucatan CPO(crude palm oil) menggunakan bleaching earth dilakukan dengan kadar 0,5% hingga 2% dari massa CPO. Pada tahun 2010 diperlukan bleaching earth sebesar 124.000 ton/tahun. Pada penelitian kali ini spent bleaching earth akan di ekstraksi menggunakan variasi waktu, dan perbandingan volume pelarut terhadap berat sampel, dan juga variasi pelarut (acetone, petroleum eter, N-hexane and petroleum benzene). Hasil optimasi menggunakan pelarut acetone dengan waktu 24 jam dan perbandingan pelarut 4:1 ml/mg spent bleaching earth didapat POE (percentage of oil extraction) 82,95% dan FFA (free fatty acids) 16%. Hasil terbaik di produksi menjadi biodiesel dengan reaksi esterifikasitransesterifikasi menggunakan katalis asam H2SO4 1% dan basa KOH 0,25%. Hasil yield metil ester sebesar 87% selanjutnya dianalisa dengan GC-MS.

.....In the bleaching process CPO (crude palm oil) using bleaching earth are conducted between 0.5% to 2% of the mass of CPO. In 2010, bleaching earth used are 124.000 tonnes/year. This work was study spent bleaching earth extraction using solvent extraction with a variation time, solvent to clay ratio, and the variation of solvent itself (acetone, petroleum eter, N-hexane and petroleum benzene). The best optimization results using acetone solvent with the 24 hours times of extraction and the solvent ratio to spent bleaching earth 4:1 ml/mg, the result is POE (percentage of oil extraction) 82,95% and FFA (free fatty acids) 16%. This residual oil converted to biodiesel by esterification-transesterification reactions, using a acid catalyst H2SO4 and base catalyst KOH 0,25% of residual oil. The results obtained with a yield of 87% metil ester and then analyzed using GC-MS.