

Production of Biodiesel Using Tannery Fleshing as a Feedstock via Solid-State Fermentation

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Abstract : This study was initiated to evaluate and optimize the conversion of animal fat from tannery wastes into methyl ester. In the pre-treatment stage, animal fats feedstock was hydrolysed and esterified through solid state fermentation (SSF) using *Microbacterium* species immobilized onto sand silica matrix. After 72 hours of fermentation, predominant esters in the animal fats were found to be with 83.9% conversion rate. Later, esterified animal fats were transesterified at 3 hour reaction time with 1% NaOH (w/v %), 6% methanol to oil ratio (w/v %) to produce 89% conversion rate. C^{13} NMR revealed long carbon chain in fatty acid methyl esters at 22.2817-31.9727 ppm. Methyl esters of palmitic, stearic, oleic represented the major components in biodiesel.

Keywords : tannery wastes, fatty animal fleshing, trans-esterification, immobilization, solid state fermentation

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