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# Sintesis Surfaktan Ester Sukrosa dengan Memanfaatkan Molase dan Limbah Minyak Jelantah = Synthesis of Sucrose Ester Surfactant by Utilizing Molasses and Waste Cooking Oil

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Abstrak

Surfaktan ester sukrosa telah berhasil disintesis dari molase dan limbah minyak jelantah. Sintesis surfaktan ester sukrosa telah dilakukan melalui reaksi transesterifikasi antara metil ester dan molase. Metil ester telah didapatkan dari minyak jelantah melalui reaksi transesterifikasi menggunakan katalis homogen basa NaOH dengan yield sebesar 78,67% dan kadar metil ester 99,59%. Reaksi transesterifikasi metil ester dan molase telah dilakukan menggunakan pelarut dimetil sulfoksida (DMSO) dan katalis Na<sub>2</sub>CO<sub>3</sub> sebanyak 13 mol% ester dengan variasi rasio mol molase terhadap metil ester 3:1, 5:1, dan 8:1 pada suhu 90<sup>o</sup>C selama 4 jam. Surfaktan ester sukrosa yang dihasilkan adalah sukrosa mono-linoleat dan sukrosa mono-oleat yang dikarakterisasi menggunakan instrument analisis LC-MS. Surfaktan ester sukrosa dihasilkan paling banyak pada rasio mol molase terhadap metil ester 8:1. <hr /> Sucrose ester surfactants have been successfully synthesized from molasses and waste cooking oil waste. Synthesis of sucrose ester surfactants was carried out through a transesterification reaction between methyl esters and molasses. Methyl ester has been obtained from waste cooking oil through a transesterification reaction using a homogeneous base catalyst NaOH with a yield of 78.67% and FAME content of 99.59%. Transesterification reactions of methyl esters and molasses have been carried out using dimethyl sulfoxide (DMSO) as solvent and Na<sub>2</sub>CO<sub>3</sub> as catalyst as much as 13 mol% of esters with variations of molasses to methyl ester mole ratio 3:1, 5:1, and 8:1 at 90<sup>o</sup>C for 4 hours. The sucrose ester surfactant produced were sucrose mono-linoleic and sucrose mono-oleic which were characterized using LC-MS analysis instruments. Sucrose ester surfactants with highest production produced at molasses to ester mol ratio of 8: 1.