Side reactions in the synthesis of biodiesel fuel in supercritical methanol

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The side reactions occurring during the transesterification of vegetable oil in supercritical methanol were studied. The products obtained from batch and continuous experiments were analyzed by gas chromatography and mass analyzer. As reaction temperature increased, the content of fatty acid methyl esters (FAMEs) increased. However, when the reaction temperature was too high or the reaction time was too long, the content of FAMEs decreased due to side reactions. The byproducts formed from side reactions were identified by mass analyzer.