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Figure 1

Our previous work demonstrated that supercritical methanol offers key advantages over the traditional, base-catalyzed method to convert waste fats into biodiesel. This work established that supercritical transesterification occurs in minutes in the absence of catalysts. The use of supercritical methanol in the transesterification reaction offers advantages including fast reaction times, catalyst free reactions, and minimal pre-processing of the fat. Recently, a small scale supercritical flow reactor was assembled from off-the-shelf components and its suitability tested for the transesterification of alligator fat to biodiesel. Initial data indicate an exponential increase in product yields between 240°C and 420°C over time intervals of 5 and 30 minutes, respectively, with an approx. ten-fold higher yield for the latter reaction time. The products are clean and consist of the fatty acid methyl esters (FAME) of mostly C16- C18 carboxylic acids. This suggests that temperatures (> 420 °C) are needed and suited for the rapid conversion of alligator fat to biodiesel using supercritical methanol.

Biography

August A Gallo earned his PhD in Organic Chemistry from Vanderbilt University (Nashville, TN) and was a Postdoctoral scholar at the University of California, San Francisco Medical Center in the Department of Pharmaceutical Chemistry. Presently, he is a Professor of chemistry at The University of Louisiana, Lafayette, where he has been since being promoted through the academic ranks since 1981. He has published more than 30 papers in reputed international journals, he has been awarded nearly \$400,000 in grants, and he has been serving as a Reviewer for the *Universal Journal of Chemistry and Chemosphere*.

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