

Investigations of enzymatic transesterification of castor oil for biodiesel production

Christensen K V, Andrade T A and Errico M

University of Southern Denmark, Denmark

The search for renewable biofuels to replace fossil fuels makes biodiesel production a fairly strait forward choice, both from a production and application point of view, in as much as the processing technology is readily available and only minor changes to the existing fuel distribution network and diesel engines are needed. Unfortunately, at present most biodiesel is produced by transesterification of edible vegetable oils produced on lands useful for producing crops for feed and fodder. This makes biodiesel production less attractive from a resource and sustainability point of view. There are crops available that do grow in arid soils not normally attractive for production of food or fodder. One such crop is castor beans. The oil produced from castor beans, castor oil, is not suitable for human consumption but can be used as a starting point for polymer production, as lubricant, and, if mixed with other fatty

methyl or ethyl esters, after transesterification for biodiesel. The work presented gives an overview of the results obtained from transesterification of castor oils using the non-immobilized enzymes Eversa Transform and Resinase HT, the immobilized enzyme Novozyme 435, combining kinetic studies and enzyme reuse with process simulation.

Speaker Biography

Christensen K V holds a PhD from Technical University of Denmark, Denmark. He is an associate professor at University of Southern Denmark and is the head of section of Chemical Engineering. He has over 30 publications with a total number of citations above 1000, and a publication H-index of 12 (SCOPUS). During his academic career at Odense University College (Denmark), American University of Sharjah (AUE) and University of Southern Denmark, he has supervised and co-supervised several PhD-students, over 90 master and bachelor students in their thesis work and has further partaken in over 10 externally funded projects within biofuel and value-added production from biomass and bio-waste.

e: kvc@kvm.sdu.dk



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