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BIOENERGY AND GREEN TECHNOLOGY: CHALLENGES AND OPPORTUNITIES [ORA-2016]

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Biodiesel production using Neem oil with immobilized lipase from *Pseudomonas aeruginosa* TEN 01

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Abstract:

Biodiesel is defined as the mono alkyl esters of long chain fatty acids derived from vegetable oils or animal fats using a catalyst. Neem oil being a non-edible oil source, it is an effective alternative for the production of biodiesel. There are many approaches for the production of biodiesel. Until now, heterogenous chemical catalysts are used for the conversion of neem oil to biodiesel. Through our project, we aim to produce high yield of biodiesel from neem oil using immobilized lipase as a catalyst. The lipase can be immobilized on to the Loofah sponge by means of covalent attachment. The immobilized lipase will have more pH stability, temperature stability, reusability and high substrate specificity. The neem oil contains fatty acids such as nimbin, campesterol, stigmasterol beta-sitosterol and azadirachtin. The immobilized lipase will act on the triglycerides present in the neem oil and convert them into the methyl esters (i.e., Biodiesel). Corrosion test, flash point test and viscosity test are to be conducted to confirm the produced biodiesel.

Keywords: *Biodiesel; Neem oil; Loofah sponge; Lipase.*

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