

# Lipase mediated synthesis of fatty acid methyl esters from kitchen waste oil



Methanol induced denaturation of microbial lipases was studied using molecular dynamics simulations. Based on the simulation studies, ideal combination of reactants were used for transesterification reaction to keep lipase stable in the presence of methanol.

*Candida rugosa* lipase was used for transesterification of kitchen waste oil into fatty acid methyl esters (FAME, also known as biodiesel). Synthesis of FAME under different reaction conditions was confirmed and quantified (20% - 84%) by NMR. This work suggests that microbial lipases can be stabilized in the organic solvents for synthesis of FAME.