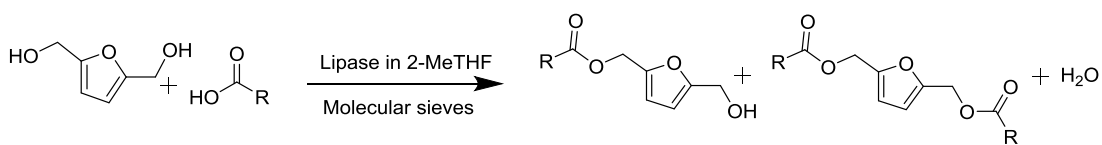


An eco-friendly enzymatic approach for the production of 2,5-bis-(hydroxymethyl)furan fatty acid esters

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Abstract: Biomass-based platform chemicals have attracted a lot of attention from the research community in the last years, due to the necessity of greener and renewable alternatives to fossil-based industrial chemicals and products. One of these green alternatives is 2,5-bis-(hydroxymethyl)furan (BHMF), a derivative of 5-hydroxymethylfurfural. In this work, a green and efficient method for the esterification of BHMF with saturated long-chain fatty acids has been successfully established. Commercially available lipase Novozyme 435 and biomass-derived 2-MeTHF as solvent have a promising environmental footprint while offering excellent results in terms of conversion (>99% conversion in 2 hours at 50°C) and reusability of the biocatalyst (recycled 4 times without significant decreases of activity). The high carbon content of the obtained fatty acid diesters make them suitable candidates as additives for biodiesel fuels.



R: -C₉H₁₉ ; -C₁₁H₂₃ ; -C₁₃H₂₇ ; -C₁₅H₃₁ ; -C₁₇H₃₅