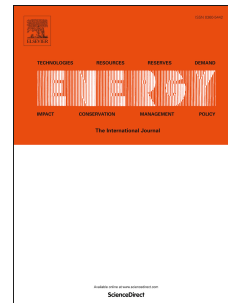


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Techno-economic analysis of biodiesel production from palm oil with supercritical methanol at a low molar ratio

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21 Abbreviations: SCA, supercritical alcohol; SCM, supercritical methanol; L-SCM, low  
22 methanol: oil molar ratio; Alkali-cat, homogeneous alkali-catalyzed process; C-SCM,  
23 conventional supercritical methanol; NPV, net present value; FFA, free fatty acid; TEA,  
24 techno-economic analysis; ASTM, American society for testing and materials; EN, European  
25 standards; UNIQUAC, universal quasi-chemical; TCI, total capital investment; CEPCI,  
26 Chemical Engineering Plant Index; COM, total annual cost of manufacturing; DCI, direct  
27 capital investment; FMC, fixed manufacturing costs; GE, General expenses; MFC,  
28 Manufacturing cost.

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