

Higher grade biodiesel production by using solid heterogeneous catalysts

ABSTRACT

To date with the day of less dependence with fossil-based energy, there has been extensive research into the area of generation for alternative fuel—biodiesel for utilization in diesel engine. Development of effective catalyst is important for continuous biodiesel production. Select a right catalyst together with suitable feedstock is necessary to create an economically viable and sustainable energy source. Although homogeneous catalyzed reaction showed superior transesterification activity than heterogeneous system, but the focus on the development of solid green catalyst becomes more attractive due to the point of easy process and economics concern. Furthermore, the catalytic activity of solid catalyst was comparable to that of the existing liquid catalyst. This chapter reviews various types of homogeneous and heterogeneous catalysts used for transesterification of high free fatty acid oil (Jatropha oil). The process involves single-step or two-step reactions which rely on the physicochemical properties and flexibility of catalyst.

Keyword: Biodiesel; Heterogeneous catalyst; Homogeneous catalyst transesterification