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Role and Effect of Nanomaterials in The Production of Biodiesel Based on Feedstock

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Biodiesel is the most time desired cost effective, sustainable and environment friendly renewable energy source which is produced from the vegetable oil or animal's long chained fatty acid esters. This process can reduce 56%-86% greenhouse gases emission. Nowadays developed countries use many modification form of biodiesel but it is still going on researching to make it accessible for all countries to decrease global warming overall. But it has been found that biodiesel production is still limited commercially for slow mechanism route, different types of feedstock need different types of production methods, huge fuel consumption etc. These problems can be solved by implanting proper use of nanoparticles in this nanotechnology era. zanoparticles can give a good thermal conductivity, increase the brake power, do nonstop power generation, increase conversion of yield, maintain a good methanol to water ratio, increase surface area to volume ratio, increase efficiency. These particles have effect on reaction temperature, time, density and other operating parameters. Nanomaterials basically act as catalyst can maximize the production, improve quality of biodiesel, reduce the cost of raw materials by producing more product from same amount of raw materials than before, increase sustainability and can give eco-friendly biodiesel production by alternative productive mechanism route for sustainable commercialization. Nanoparticles also can play an amazing role in the pre-treatment of the production. A study showed that the use of nanoparticles can reduce 22%-23% of fuel consumption. Overall, nanoparticles give high efficiency and negligible toxic effect. In this paper, different types of processing routes, mechanism methods, configuration, catalytic properties based on nanoparticles type as well as the roles, effects, the possibility of the outstanding contribution of nanoparticles as an alternation of energy source will be discussed in details.

Biography

Supty is a B.Sc. Materials Science and Engineering student at Rajshahi University of Engineering and Technology. She has strong academic achievements and extra curriculum activities experience. She has analytical thinking, problem solving, communication skills as well as has skill on many necessary software. She is very keen to pursue her career in research on nano-materials and advanced materials. Recently, she is working on environment to reduce pollution and global warming.