

BIODIESEL PRODUCTION FROM TEA SEED OIL

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ABSTRACT

Biofuels are gaining in popularity because they reduce greenhouse gas emissions and provide economic opportunities for rural areas besides strengthening local energy security. In India, biofuels production has grown dramatically in the past few years. It is now poised for even stronger growth in response to higher energy prices, climate change mitigation strategies, and greater mass awareness. There are well-developed markets of biofuels in many countries of the world. The key to success in the biofuels market is a high-quality product capable of competition with petro-fuels. Biodiesel is an alternative fuel that can be obtained from both plant and animal lipids and fats. The production of biodiesel from non-edible oil is a promising alternative to petro-diesel. The present study aims at investigating the possible conversion of Tea seeds oils to biodiesel. Tea, being a major plantation crop of the region, its seeds are abundantly available. Transesterification of tea seed oil in methanol was studied with the use of potassium hydroxide as a catalyst. The biodiesel produced was characterized by ¹HNMR and FTIR analysis. The biodiesel produced was also characterized as alternative diesel fuel through BIS test methods. The properties of the produced biodiesel were compared with that of commercial diesel oil. Rheological parameters of tea seed oil biodiesel were compared with soyabean oil biodiesel. Blend parameters of tea seed oil biodiesel with commercial diesel oil were optimized to meet the BIS parameters of diesel oil. The investigation so far made points towards feasibility of conversion of tea seed oil to quality biodiesel.

Keyword: Biofuel, biodiesel, tea seed