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Production of Biodiesel from Desert Date Seed Oil

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Abstract : In this work, the oil of desert date (*Balanite aegyptiaca*)seed has been extracted using particle sizes of 0.6mm and 1.8 mm via solvent extraction. The chemical and physical properties of the oil were determined to ascertain its suitability for use in biodiesel production. The results of the analyses of the oil that were obtained to be saponification value, peroxide value, acid value, free fatty acid, specific gravity and moisture contentof 172.5 meqKOH/g, 9.37meq/kg, 0.9256mg/g, 0.47meq/g, 0.9199 and 9.8%, respectivelyhave shown that itis a good raw material for biodiesel production. The production of biodiesel was carried out using the extracted oil through transesterification process by varying catalyst concentration, oil to methanol molar ratio, reaction time and reaction temperature and analysed, and the analysis of the produced biodiesel showed that its cloud point, pour point, flash point and viscosity were 8 ^{o}C, -13^{o}C, 170 ^{o}C and5.2 respectively. The results of the analyses of the produced biodiesel, which were found to compare very well with the standard values, indicated that the liquid produced using the extracted desert date seed oil was biodiesel with a yield of 82%.
Keywords: Biodiesel, date seed oil, solvent oil extraction, transesterification.

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