International Journal of ChemTech Research
CODEN (USA): IJCRGG ISSN: 0974-4290
Vol.9, No.04 pp 171-176, 2016

Chemometric analysis of Nicotiana tabacum FAME's using GC/MS, FT IR and NMR spectroscopic studies

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Abstract: Nicotiana tabacum commonly known as Tobacco plant which has broad application over soap, paint and cigar industries was now investigated for biodiesel production. Nicotiana tabacum seeds were one of the prominent sources for non-edible oil. Oil from Tobacco seeds were expelled with Soxhlet extraction apparatus using *n*-hexane as extraction solvent. Two stage trans-esterification has been adopted as the acid value of tobacco seed was higher. Standardization and characterization of the Tobacco seed biodiesel was accomplished by GC-MS, FTIR and NMR spectroscopy studies. Gas Chromatography and Mass Spectroscopy results indicated the existence of different fatty acids in the biodiesel and major constituent found among the fatty acids was linoleic acid. Stretching and bending signals of FT-IR spectrum revealed the methyl ester group presence in biodiesel. ^{1}H NMR and ^{13}C NMR analysis was also conducted for identification of different constituents and yield of biodiesel.
Keywords: GC-MS, FT-IR, Trans-esterification, Biodiesel, Soxhlet apparatus.

Hariram V *et al* /International Journal of ChemTech Research, 2016,9(4),pp 171-176.

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