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Production of biofuel from *Dictyosphaerium ehrenbergianum*, *Chlorella sorokiniana* and *Mougeotia gracillima*

The isolated microalgae were harvested. The biomass yield was calculated, dried and the dry weight was determined. The dried microalgal cells were subjected to total lipid estimation using gravimetry. A total of 10 different fatty acids were identified from the FAME products of lipids of *Dictyosphaerium ehrenbergianum* using GC-MS analysis of trans esterified microalgal lipids, among which oleic acid, palmitic acid, linoleic acid, palmitoleic acid and dodecyl acrylate were recorded as major fatty acids, whereas fatty acids of Phenol, 2,4-bis(1,1-dimethylethyl), Methyl stearate, 3,7,11,15-Tetramethyl-2-hexadecen-1-ol showed least lipid percentage abundance. *Chlorella sorokiniana* showed linolenic acid, palmitic acid, 2-propenoic acid methyl palmitoleate, hexadecadienoic acid and propionic acid as major fatty acids. Whereas fatty acids of Heptane 3,3,5-trimethyl, Decane, 3-ethyl-3-methyl, Phenol, 2,4-bis(1,1-dimethylethyl) showed least lipid percentage abundance. *Mougeotia gracillima* showed Hexadecanoic acid methyl ester, and 9,12-Octadecadienoic acid methyl ester were recorded as major fatty acids, whereas fatty acids of 3,3-dimethyl hexane, 3,8-dimethyl-Undecane and 2,4-bis(1,1-dimethylethyl)- Phenol showed least lipid percentage abundance. Biofuel property was also analyzed and compared with different standards. This study was attempted to contribute towards renewable energy and sustainability.

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