Received: 08 April 2024 | Revised: 22 May 2024 | Accepted: 05 June 2024

Journal of Chemistry and Environment

Supplementary file

Lagerstroemia speciosa (Banaba) seed as a new and prospective bioenergy resource

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Table S.1. FT-IR analysis of the oil derived from banaba seeds.

Frequency (cm^{-1})	Functional group	Compounds
3410 cm^{-1}	-OH stretching from cellulose	Phenols and alcohols
2820 and 2950 cm−1	-CH symmetric strech -CH asymmetric strech	Alkane
~1710 cm−1	C=O stretch	Esters, Ketone, Acid
~1654 cm−1	Aromatic skeletal vibration (C=C)	Olefins
1380 -1462 cm−1	CH deformation, asymmetry in CH_3 and CH_2	Olefins
1274	C-O stretching of lignin	Phenolic
1022	C-O	Alcohol
1049	C-O	
1084	Aromatic skeletal and C-O stretch	Alcohols and phenolic
890-821 cm−1	Di and tri-substituted aromatic ring due to CH_3 group	Aromatic compounds
667 cm−1	C-H bending	Alkene

Table S2. ^{1}H NMR analysis of the oil fraction.

Type of hydrogen	Chemical shift (δ)
Methyl hydrogen (aliphatic)	0.5−1.05
Aliphatic hydrogen linked to heteroatom or unsaturation	1.05−2.0
Aliphatic hydrogen α linked to aromatic ring	2.0−4.5
Phenolic, methoxy, carbohydrates	4.3−5
(hetero-) aromatics, aromatic hydrogen	6-8
Aldehydes	9.3-10

Table S3. ^{13}C NMR analysis of the oil fraction.

Type of hydrogen	chemical shift (δ)
Short aliphatics	0-25
Long and branched aliphatics	25-55
All of above	0-55
Alcohol, ether, phenolic-methoxys, carbohydrates, sugars	55-80
Olefins, aromatics	100-155
Esters, carboxylic acids	155-180
Ketones, aldehydes	200-210