Supplementary information

"Boosting Biodiesel Production from WCO Utilizing Marble Waste Powder as Precursor for CaO/K_2CO_3 Nanocatalyst at Low Temperature via RSM Optimization

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$$Conversion\ (\%) = \left(\frac{2\ A_{ME}}{3\ A_{\alpha - CH_2}}\right) x\ 100$$

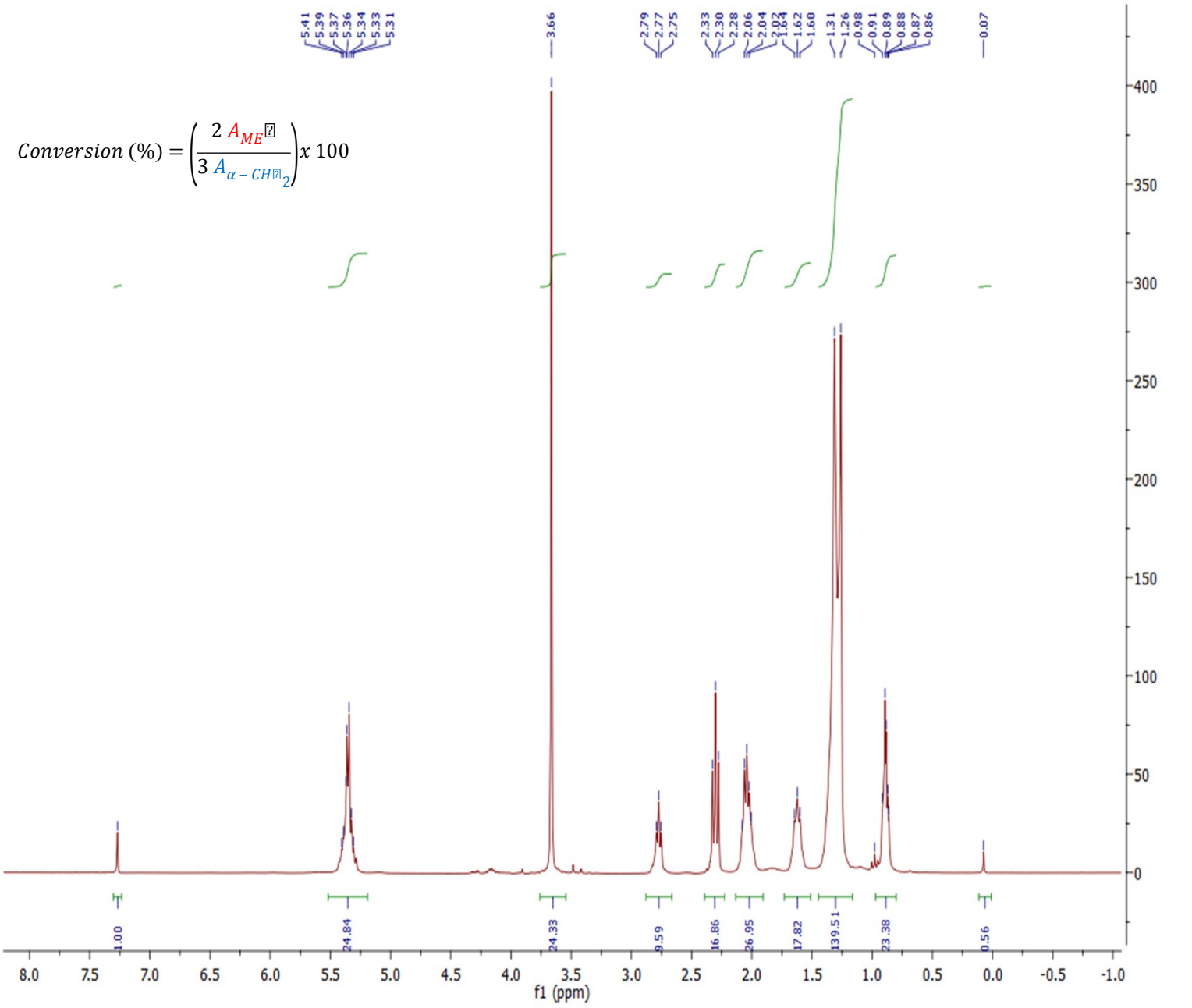

Fig. S1: Proton nuclear magnetic resonance (^{1}H-NMR) spectrum of a typical biodiesel sample produced in this study.

Table S1: The fatty acid composition of Waste Cooking oil as obtained using GC technique.

Fatty Acid composition	Weight %
Myristic acid (C 14:0)	0.18
palmitic acid (C 16:0)	10.70
Palmitoleic acid (C 16:1n^7)	0.16
Stearic acid (C 18:0)	4.38
Vaccenic acid (C 18:1n^7)	1.22
Oleic acid (C 18:1n^9)	23.07
Linoleic acid (C 18:2n^6)	53.80
Linolenic acid (C 18:3n^3)	4.09
Arachidic acid (C 20:0)	0.30
Gondoic acid (C 20:1n^9)	0.19
Behenic acid (C 22:0)	0.30
Non-identified fatty acids	1.56

Table S2: Elemental composition of marble waste powder (MWP) on a dry basis as obtained from XRF.

Sample	Weight (%)	Nature of the oxide
CaO%	94.24	Basic
MgO%	1.54	Basic
Na_2O%	0.35	Basic
K_2O%	0.14	Basic
Al_2O_3%	0.45	Amphoteric
SiO_2%	3.28	Acidic
P_2O_5%	0.52	Acidic