

Appendix 1. Supplementary data

Table S1-1. Clinoptilolite data

Chemical name	Calcium, potassium, sodium aluminosilicate
Chemical formula	$(Ca,K_2,Na_2)_4Al_8Si_{40}O_{96} \times 24 H_2O$
Clinoptilolite content	85-95 %
Total surface area	43-47 m ² /g
Micropore surface area	10-12 m ² /g
Mesopore surface area	28-30 m ² /g
Pore diameter	4 Å
Porosity	40-45 %
Water absorption	36-48 %
Solubility	Non soluble
pH	7.0-7.5
Melting temperature	1300 °C
Bulk density	0.6-0.8 g/cm ³
Density	2.2-2.4 g/cm ³
Chemical stability	Stable
Ion exchange capacity	1.5-2.0 meq/g
Toxicity	Non-toxic

Table S1-2. Properties of pretreated waste oil

Specific gravity at 23.5 °C	0.9250
Density at 20 °C	0.9200 gcm ⁻³
Kinematic viscosity at 40 °C	38.2612 mm ² s ⁻¹
Acid value	0.4075 mg KOHg ⁻¹
Peroxide value	15.5337 mmol O ₂ kg ⁻¹
H ₂ O content (before CaCl ₂ addition)	0.0691 %
Sadržaj H ₂ O (after CaCl ₂ addition)	0.0491 %

Table S1-3. Comparison of FT-IR spectra of waste oil and biodiesel

Wave number /cm ⁻¹	Vibration of group	Wave number/cm ⁻¹				Vibration of group
		BD 5-10	BD 10-10	BD 5-50	BD 10-50	
1746.48	C=O ester	1743.73	1743.70	1743.65	1743.70	C=O ester
1465.29	-CH ₃	1436.24	1436.17	1436.20	1436.17	(CO)-O-CH ₃
		1464.60	1464.55	1464.56	1464.55	-CH ₃
1377.93	Glycerol - O-CH ₂	1362.80	1362.40	1362.51	1362.53	C=O ester
1163.88	-O-CH ₃	1196.77	1196.87	1197.00	1196.95	-O-CH ₃
		1171.52	1171.60	1171.67	1171.63	