

Table S<sub>1</sub>: Optimization of reaction conditions at calcinations temperature of 600 °C

Run	Catalyst concentration (wt.% of oil)	Methanol to oil molar ratio	FAME yield (%)
1	1	5.5	23.05
2	1	6.0	25.28
3	1	6.5	29.64
4	1.50	5.5	24.31
5	1.50	6.0	27.38
6	1.50	6.5	30.63
7	2.00	5.5	23.25
8	2.00	6.0	26.65
9	2.00	6.5	30.23

Table S<sub>2</sub>: Optimization of reaction conditions at calcinations temperature of 800 °C

Run	Catalyst concentration (wt% of oil)	Methanol to oil molar ratio	FAME (%)
1	1.0	5.5	73.63
2	1.0	6.0	75.52
3	1.0	6.5	81.23
4	1.5	5.5	80.56
5	1.5	6.0	85.52
6	1.5	6.5	88.89
7	2.0	5.5	79.58
8	2.0	6.0	84.56
9	2.0	6.5	88.58

Table S<sub>3</sub>: Optimization of reaction conditions at calcinations temperature of 900 °C

Run	Catalyst concentration (wt% of oil)	Methanol to oil molar ratio	FAME (%)
1	1.0	5.5	88.36
2	1.0	6.0	90.26
3	1.0	6.5	91.78
4	1.5	5.5	89.65
5	1.5	6.0	93.62
6	1.5	6.5	96.47
7	2.0	5.5	90.56
8	2.0	6.0	93.31
9	2.0	6.5	95.04