

---

**Hydrotreating of biocrudes derived from hydrothermal liquefaction and lipid extraction  
for the high-lipid *Scenedesmus***

Shun Tang, Ze Shi, Xiaohan Tang, Xiaoyi Yang\*

School of Energy and Power Engineering, Energy and Environment International Centre,  
Beihang University, 37 Xueyuan Road, Haidian District, Beijing, P.R. China, 100191

\* Corresponding Author: Xiaoyi Yang

Tel.: +86-01-82317346 Email: yangxiaoyi@buaa.edu.cn

Table 1 Chemical constituents and carbon number distribution of algae, HTL and EXT

biocrudes									
Species	Alkane	Olefin	Aromatic	Acid	Ester	Alcohol/ Phenol	Aldehyde/ Ketone	N- organic	S- organic
HTL	-	0.26	-	91.22	0.98	0.6	0.22	6.73	-
EXT	0.43	6.62	3.03	22.85	20.65	38.05	4.6	2.56	1.22
Carbon No.	6	7	8	9	10	11	12	13	14
HTL	0.05	-	-	-	0.04	-	-	-	0.14
EXT	0	1.02	4.86	2.43	1.9	0.37	1.19	2.04	0.27
	15	16	17	18	19	20	21	22	23
HTL	-	22.7	0.25	75.07	0.77	-	-	0.07	-
EXT	-	7.79	2.15	17.61	1.41	6.73	1.79	9.67	-
	24	25	26	27	28	29	30	30 <sup>+</sup>	
HTL	-	-	-	-	0.06	0.85	-	-	
EXT	0.64	-	-	-	3.66	27.87	6.59	-	

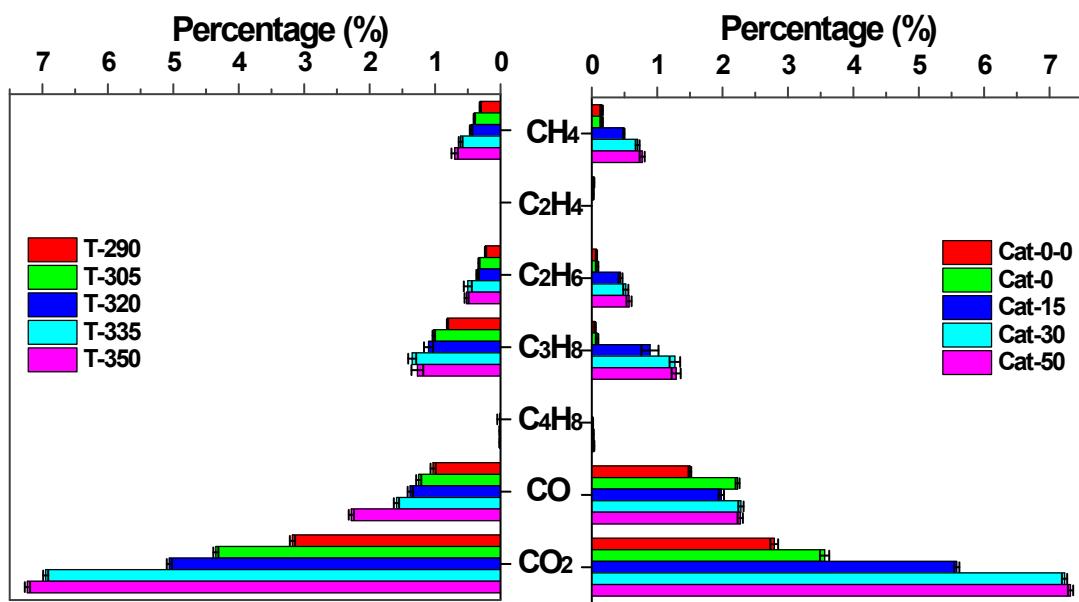


Fig. 1. Gaseous compositions of EXT biocrude and various biofuels.

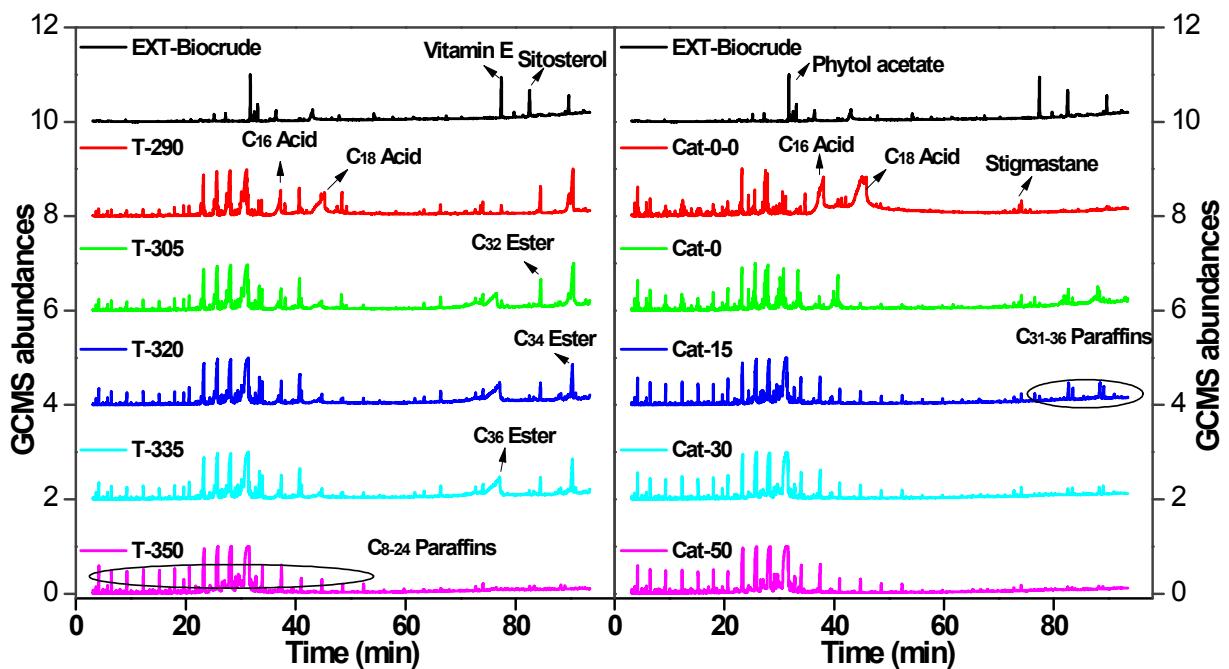


Fig. 2. GC-MS images of EXT biocrude and various biofuels.