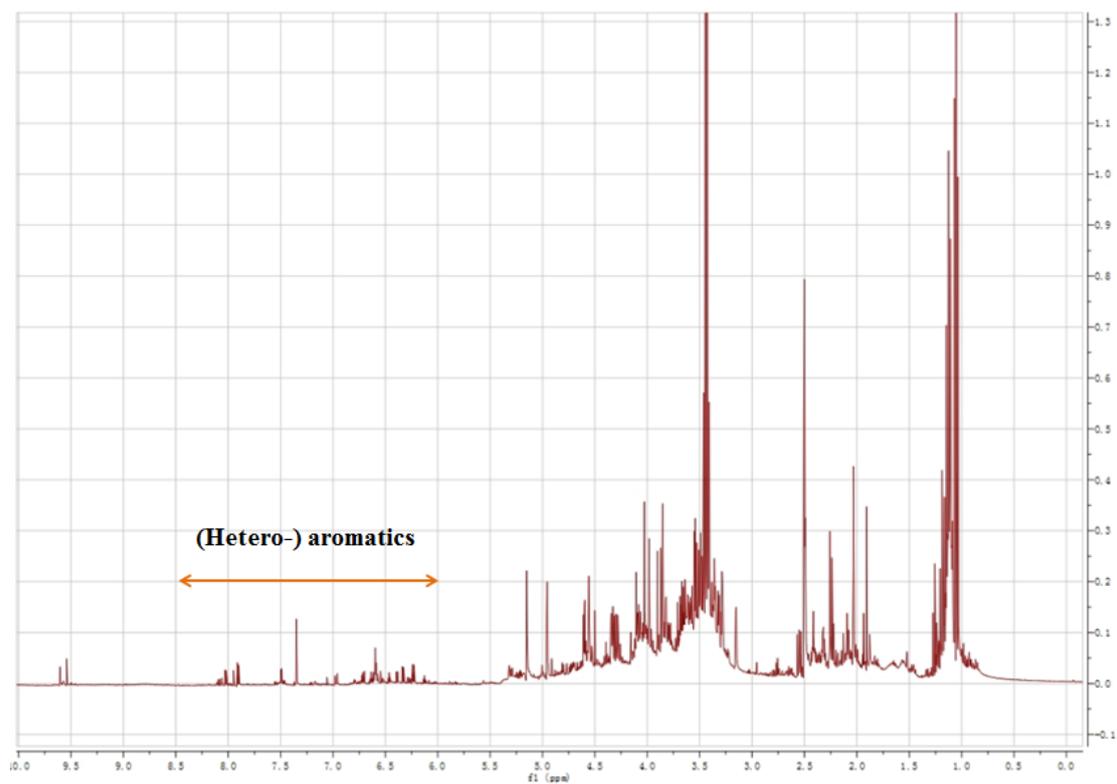


**Supplemental Information**

**Low-temperature microwave-assisted pyrolysis of waste office  
paper and the application of bio-oil as an Al adhesive**

Zhanrong Zhang,<sup>a</sup> Duncan J. Macquarrie,<sup>a</sup> Mario De bruyn,<sup>a</sup> Vitaliy L. Budarin,<sup>a</sup> Andrew J. Hunt,<sup>a</sup> Mark J. Gronnow,<sup>b</sup> Jiajun Fan,<sup>a</sup> Peter S. Shuttleworth,<sup>c</sup> James H. Clark<sup>a</sup> and Avtar S. Matharu<sup>\*a</sup>



**Fig. S1** <sup>1</sup>H NMR spectrum of organic phase bio-oil from microwave assisted fast pyrolysis of milled waste office paper in DMSO-d<sub>6</sub>. The presence of (hetero-) aromatics is confirmed by peaks between 6.0 – 8.5 ppm.

**Table S1** Comparison of  $^{13}\text{C}$  NMR chemical shifts of commercial reference samples and organic phase bio-oil from low temperature microwave-assisted pyrolysis of milled waste paper (All spectra used the central resonance of DMSO-d<sub>6</sub> ( $\delta\text{C}$ , 39.52 ppm) as the internal reference).

Compound	Commercial sample (ppm)	Organic phase bio-oil (ppm)
Levoglucozan	102.66	102.67
	76.96	76.95
	74.12	74.11
	72.28	72.27
	72.03	72.02
	65.44	65.41
Levoglucozenone	189.31	188.42
	151.23	150.06
	125.35	124.96
	100.65	101.08
	71.52	71.48
	66.16	66.24
HMF	178.10	178.19
	162.40	162.46
	152.01	152.16
	124.53	124.59
	109.90	109.95
	56.21	56.31
1, 2, 4 - trihydroxybenzene	150.30	150.15
	145.78	145.83
	137.68	137.87
	115.92	115.94
	105.14	105.16
	103.56	103.56