

Supporting Information

Enhancement of Recyclable pH-Responsive Lignin Grafted Phosphobetaine on Enzymatic Hydrolysis of Lignocelluloses

Feiyun Li[†], Cheng Cai[†], Hongming Lou^{†}, Yuxia Pang[†], Xinyi Liu[†] and Xueqing*

Qiu^{†, ‡}*

[†] School of Chemistry and Chemical Engineering, Guangdong Provincial Engineering Research Center for Green Fine Chemicals, South China University of Technology, Guangzhou, 510641, PR China

[‡] State Key Laboratory of Pulp and Paper Engineering, South China University of Technology, Guangzhou, 510641, PR China

Corresponding Author

*E-mail: cehmlou@scut.edu.cn. Tel.: 86-20-87114722. Fax:+86-20-87114721.

*E-mail: xueqingqiu66@163.com. Tel.: 86-20-87114722. Fax:+86-20-87114721.

Supporting Information contains 3 pages, 2 figures

The HRMS spectra of 3-chloro-2-hydroxypropyl(2-(trimethylammonio)ethyl)phosphate (Compound 3). Intermediate **compound 3** was characterized by maxis impact ultra-high resolution time-of-flight mass spectrometry (MS) using a spectrometer in electrospray ionization mode (Bruker Daltonics, Germany). HRMS: m/z (ESI), calculated $[M + Na]^+$: 298.0582, measured: 298.0582; calculated $[M + Na + 2]^+$: 300.0552, measured: 300.0554.

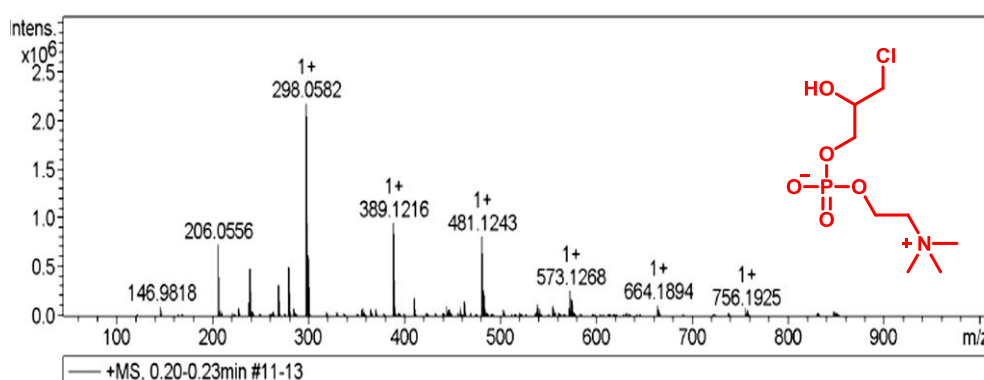


Figure S1. The HRMS spectra of the reaction suspension of including **compound 3**.

The ^{31}P PRMS spectra of EHLPB-210. The chemical structure of EHLPB-210 was recorded with a Bruker AV 400 spectrometer (Bruker, Germany) in phosphorus-31 nuclear magnetic resonance ^{31}P NMR in dimethyl sulfoxide- d_6 . The peak at δ 0.36 ppm was attributed to the P-O-C group of EHLPB-210.

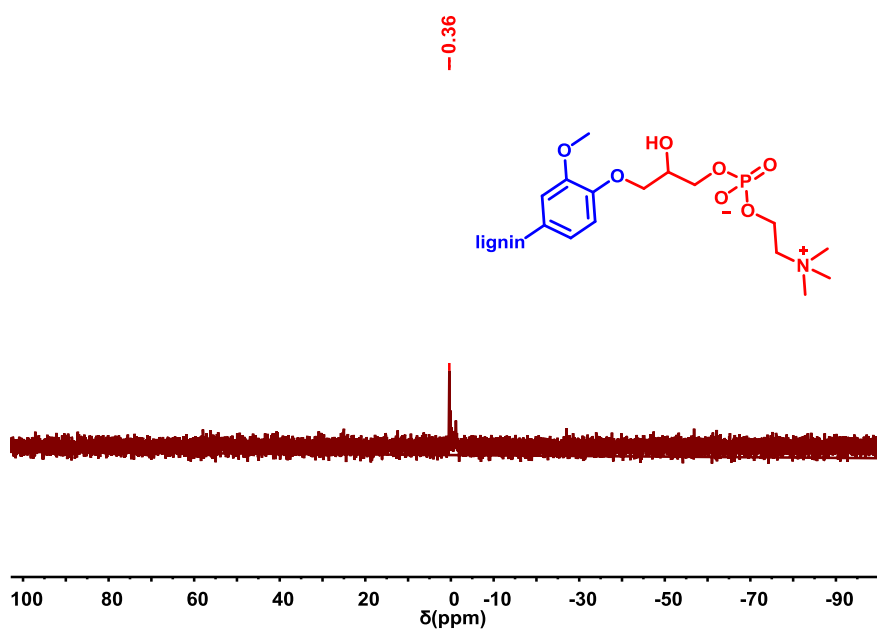


Figure S2. The ^{31}P NMR spectra of EHLPB-210.