

Appendix A: Supplementary data

Preparation of sulfur doped carbon quantum dots from lignin as sensor to detect Sudan I in acidic environment

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Table S1 Comparison of the presented system with other reported methods for detection of

Sudan I						
Method	Detection material	Linear range (μM)	K_{SV} (M^{-1})	LOD (μM)	Detection medium	Ref.
GC-MS	-	0.02-0.098	-	0.066	-	[12]
IAC	-	0.41-20.1	16762	0.23	methanol	[13]
HPLC	-	-	-	0.34	dichloromethane	[14]
PL	copper nanoclusters	0.1-30	-	0.065	chloroform	[16]
PL	Mn-ZnS QDs	0.2-7.41	56900	0.099	cyclohexane	[17]
PL	CQDs	2.4-104.0	13400	0.95	pH=6.09	[18]
PL	SCQDs	0-40	30810	0.12	pH=4.0	This work

12 C. Long, Z. Mai, X. Yang, B. Zhu, X. Xu, X. Huang and X. Zou, *Food Chem.*, 2011, **126**, 1324-1329.

13 L. He, Y. Su, B. Fang, X. Shen, Z. Zeng and Y. Liu, *Anal. Chim. Acta*, 2007, **594**, 139-146.

14 Y. Li, Y. Wang, H. Yang, Y. Gao, H. Zhao and A. Deng, *J. Chromatogr. A*, 2010, **1217**, 7840-7847.

16 S. Huang, L. Yang, N. Li and H. Luo, *Biosens. Bioelectron.*, 2013, **42**, 136-140.

17 N. Chen, H. Li, Z. Gao, F. Qu, N. Li and H. Luo, *Sensor. Actuat. B-Chem.*, 2014, **193**, 730-736.

18 A. R. Jose, U. Sivasankaran, S. Menon and K. G. Kumar, *Anal. Methods*, 2016, **8**, 5701-5706.

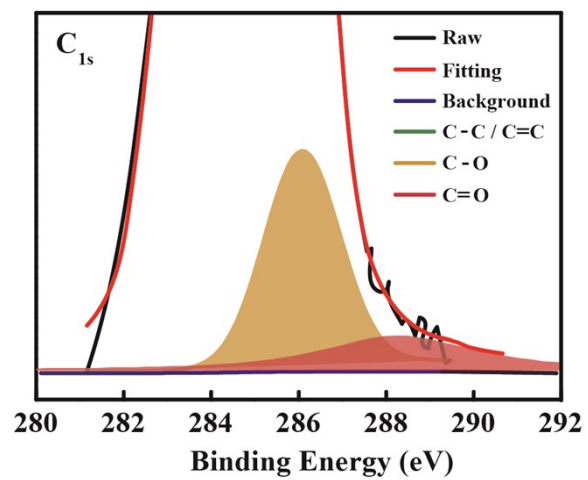


Fig. S1 The local enlarged C_{1s} high-resolution spectrum of PHL.