

Supporting Information

Oxidative Depolymerization of Kraft Lignin for Microbial Conversion

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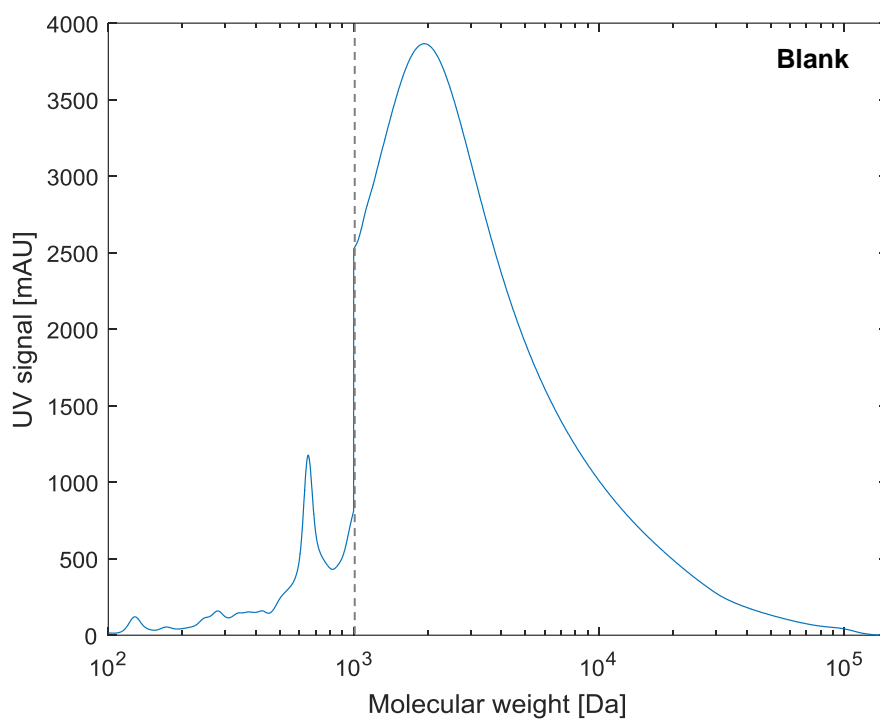


Figure S1. SEC profile obtained from the blank LB lignin sample. Two different Superdex 10/300 GL columns (Peptide; 200 Increase) were used to enable the coverage of a large range of molecular weights; the first for the low molecular weight interval (up to 1,000 Da) and the second for higher molecular weights ($>1,000$ Da), as indicated by the dashed line.

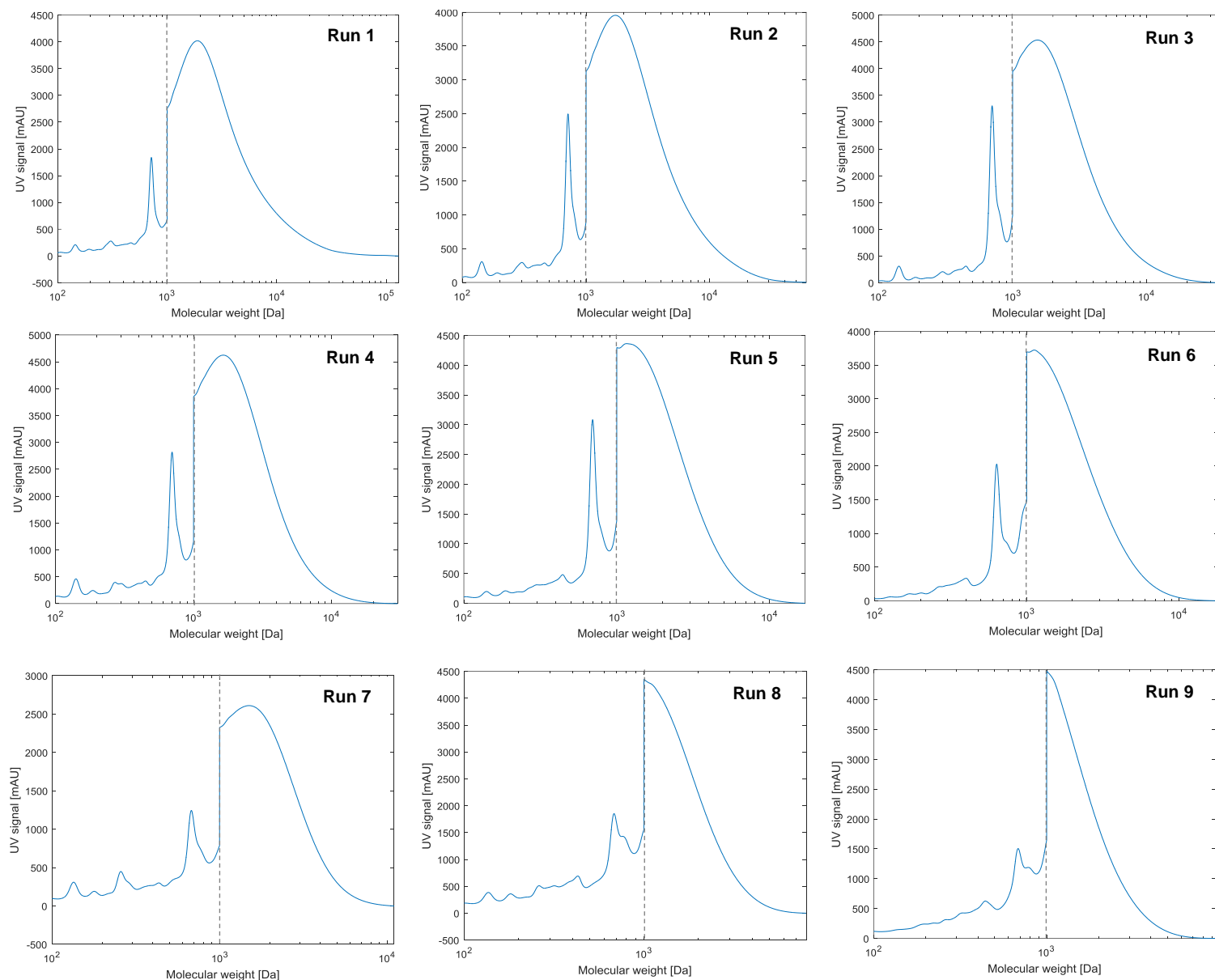


Figure S2. SEC profiles of oxidatively depolymerized lignin products for the reactions 1–9 (Table 1). Reaction conditions: 20 g/L lignin, 0.2 M NaOH aqueous solution, 120–200 °C, 3–15 bar O₂, 30 min. Two different Superdex 10/300 GL columns (Peptide; 200 Increase) were used to enable coverage of a large range of molecular weights; the first for the low molecular weight interval (up to 1,000 Da) and the second for higher molecular weights (>1,000 Da), as indicated by the dashed line.

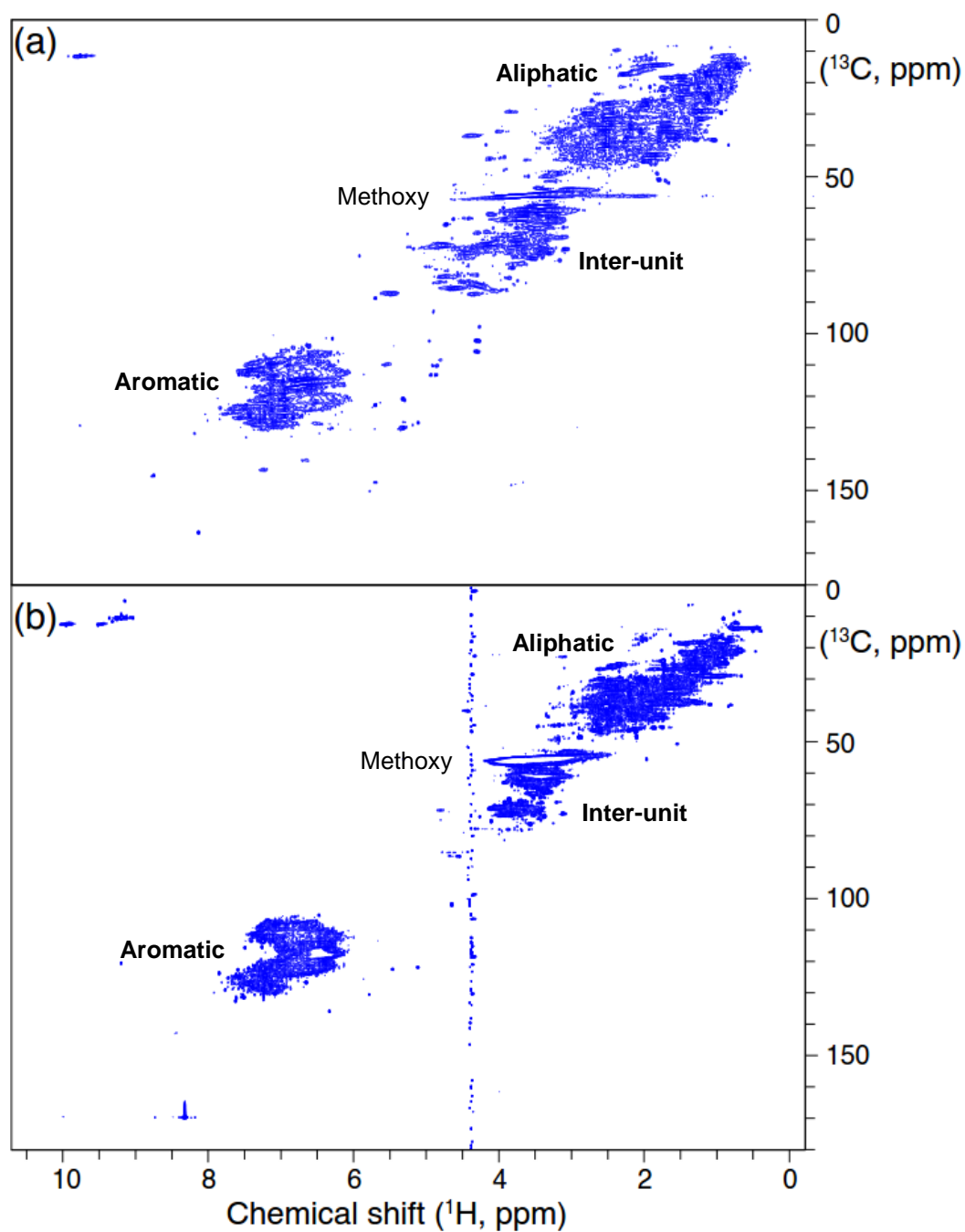


Figure S3. Two-dimensional ^1H - ^{13}C HSQC NMR spectra from (a) untreated LB lignin and (b) the ODLB product. Reaction conditions: 20 g/L lignin, 0.2 M NaOH aqueous solution, 160 $^{\circ}\text{C}$, 3 bar O_2 , 30 min.

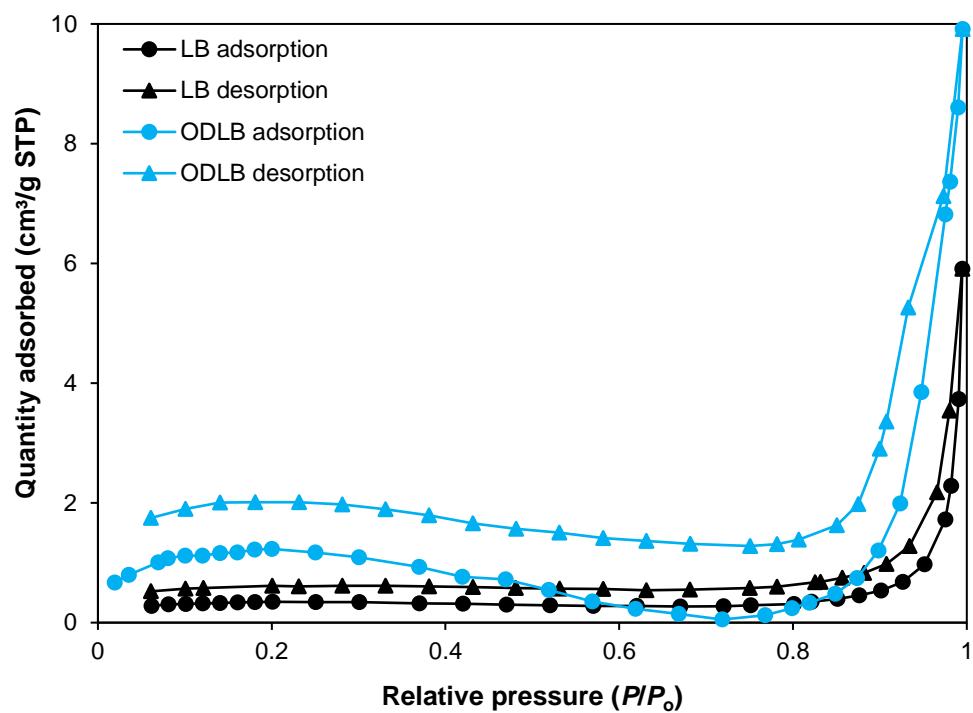


Figure S4. N_2 adsorption–desorption isotherms of LB and ODLB lignin samples. STP: standard temperature and pressure.

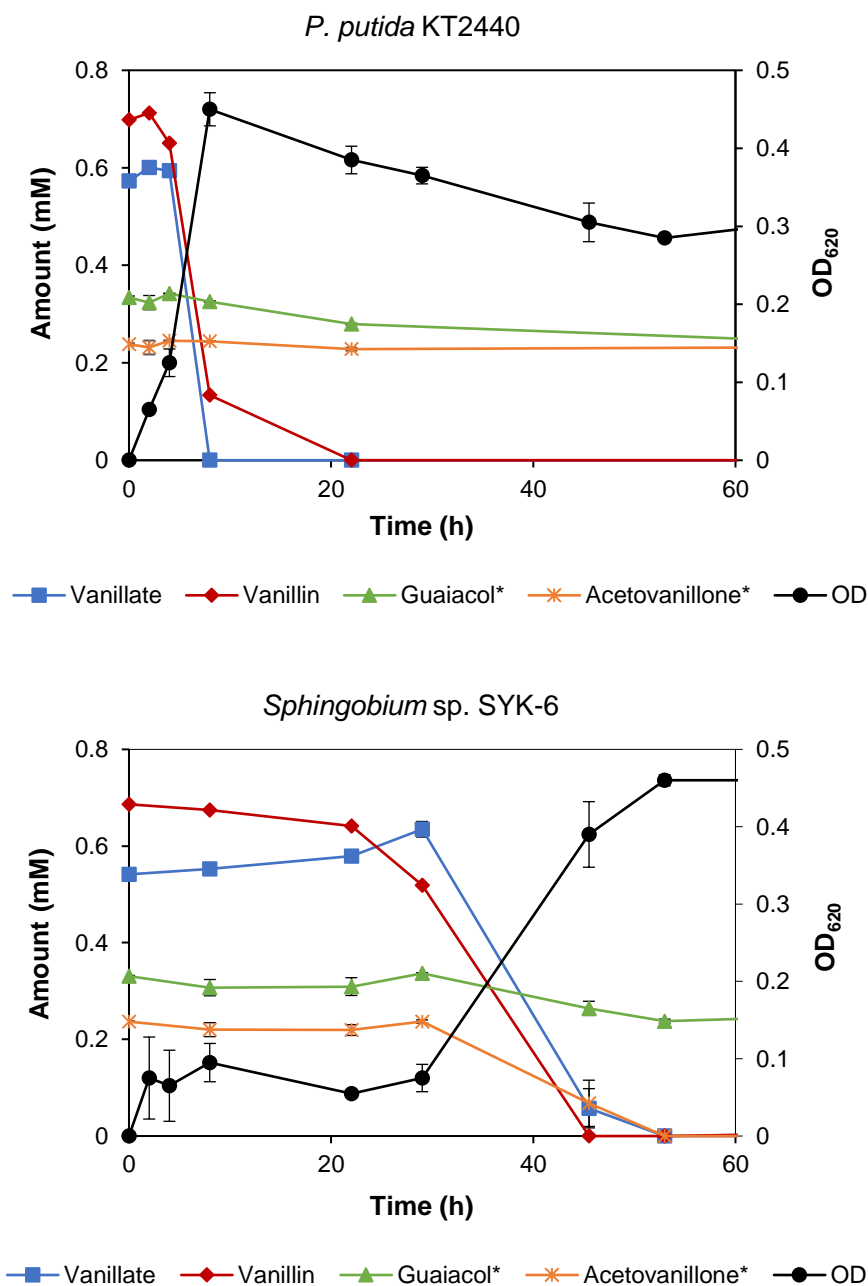


Figure S5. Growth (OD_{620}) of *Pseudomonas putida* KT2440 and *Sphingobium* sp. SYK-6 on M9 medium supplemented with 10 g/L ODLB lignin (160 °C and 3 bar O_2) as the sole carbon source. Concentrations of aromatic monomers are shown. Cultivations were performed in duplicate, and the data points represent the average, and the error bars the standard deviation.