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Synthetic Polymers Based on Lignin-Derived Aromatic Monomers for High-Performance Energy-Storage Materials

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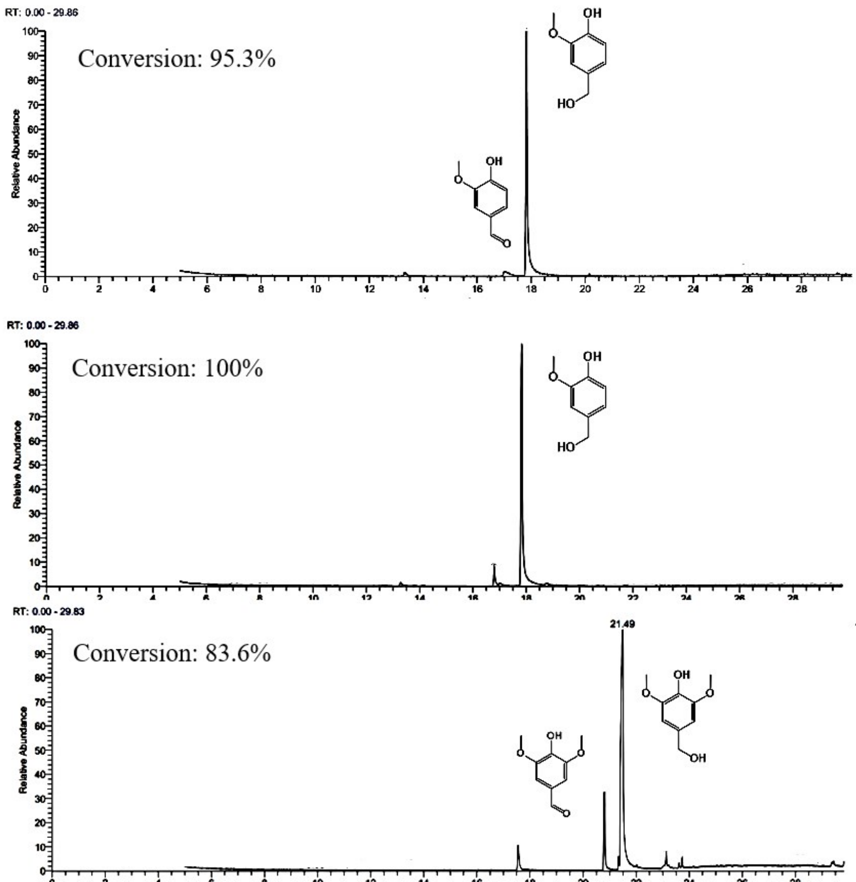

Figure. S1 GC-MS analysis of the generated vanillyl alcohol from vanillin and methyl vanillate and the syringic alcohol from syringaldehyde (the area normalization method was adopted to calculate the yields of the vanillyl alcohol and syringyl alcohol).

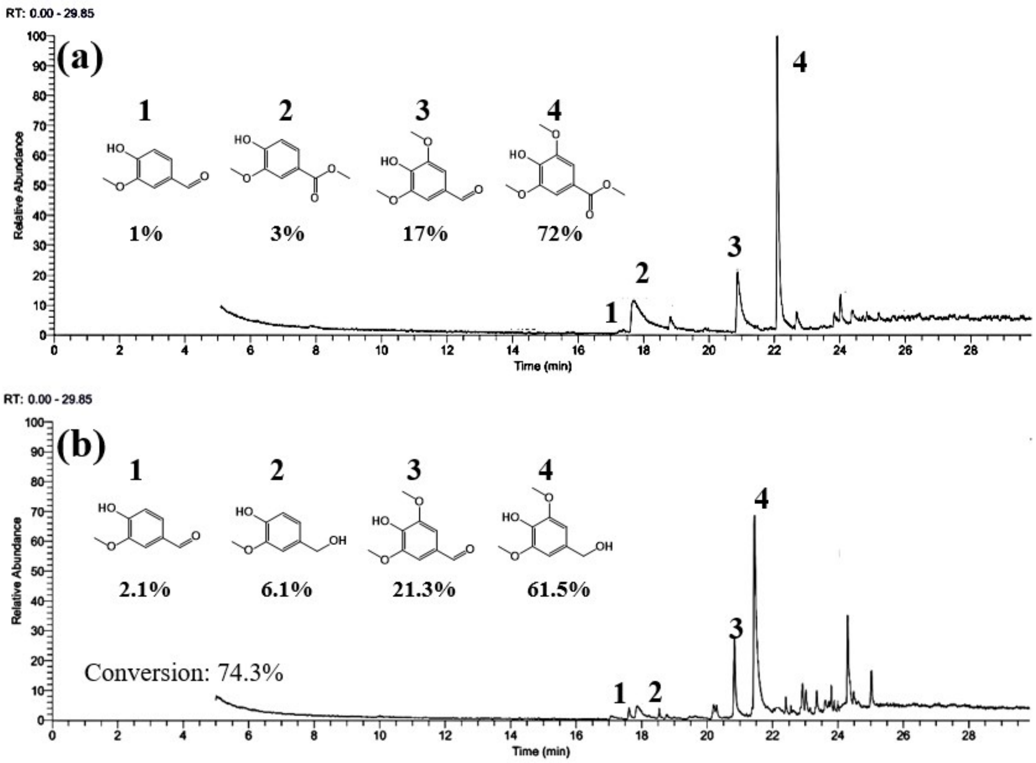

Figure. S2 GC-MS analysis of the LDAM obtained from lignin depolymerization before (a) and after (b) reduction (the area normalization method was adopted to calculate the yields of the vanillyl alcohol and syringyl alcohol).

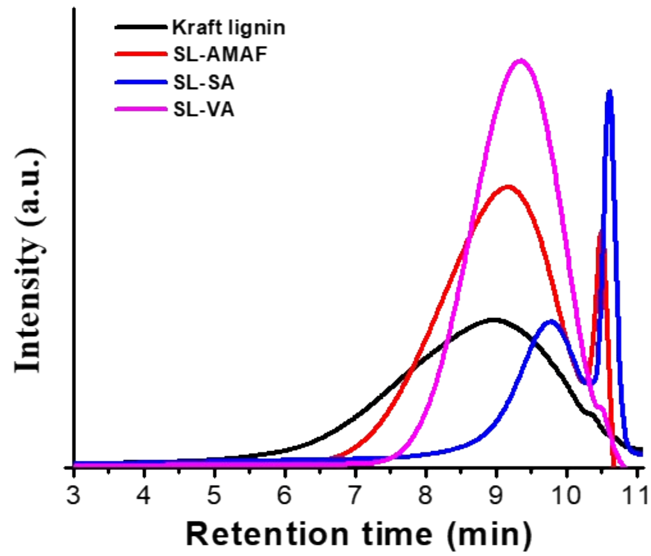

Figure. S3 GPC spectra of Kraft lignin, SL-AMAF, SL-SA, and SL-VA.

Table. S1 Yield and Mw (average molecular weight) of synthetic lignin samples.

Samples	Yield (%)	Mw (Da)
Kraft lignin	-	5935
SL-VA	89.1	2521
SL-SA	73.0	1909
SL-AMA	39.9	1320
SL-AMAF	73.5	2160

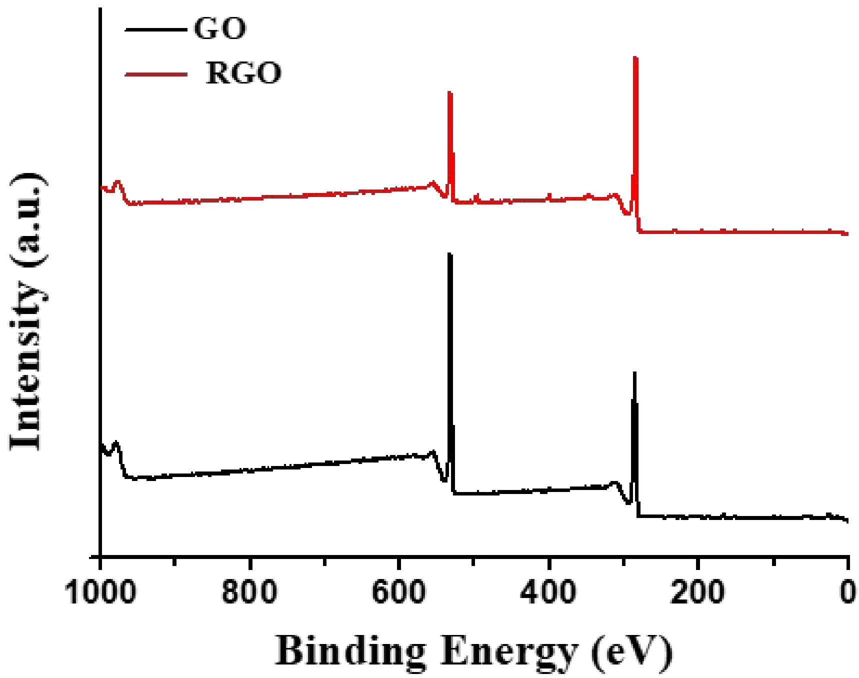

Figure. S4 Survey XPS spectra of GO and RGO.

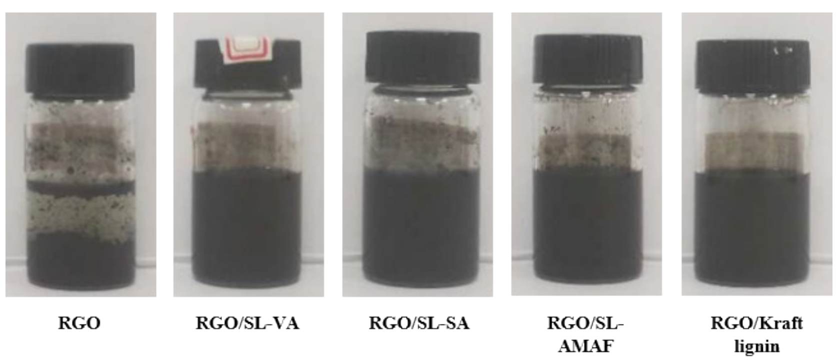

Figure. S5 Photograph of RGO, RGO/Kraft lignin, RGO/SL-AMAF, RGO/SL-SA, and RGO/SL-VA hybrid solutions in deionized water after one week.

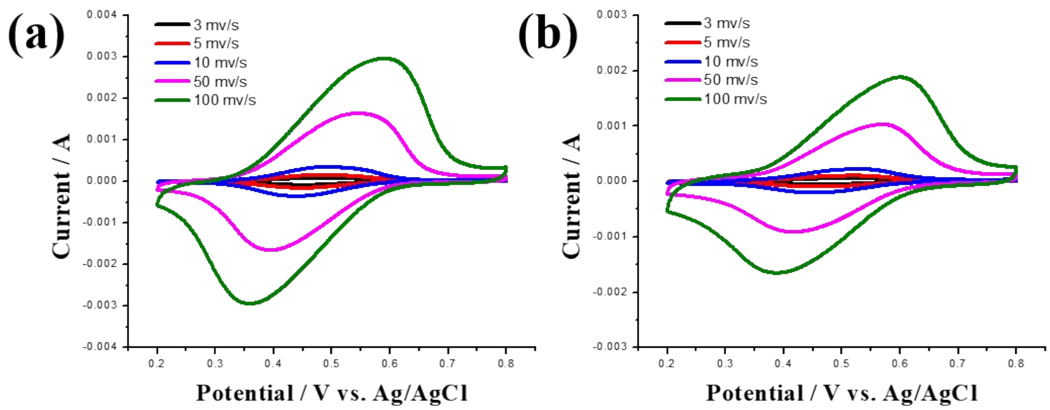

Figure. S6 CV curves of RGO/SL-SA and RGO/SL-AMAF measured at a scan rate of 3, 5, 10, 50, 100 mV/s.

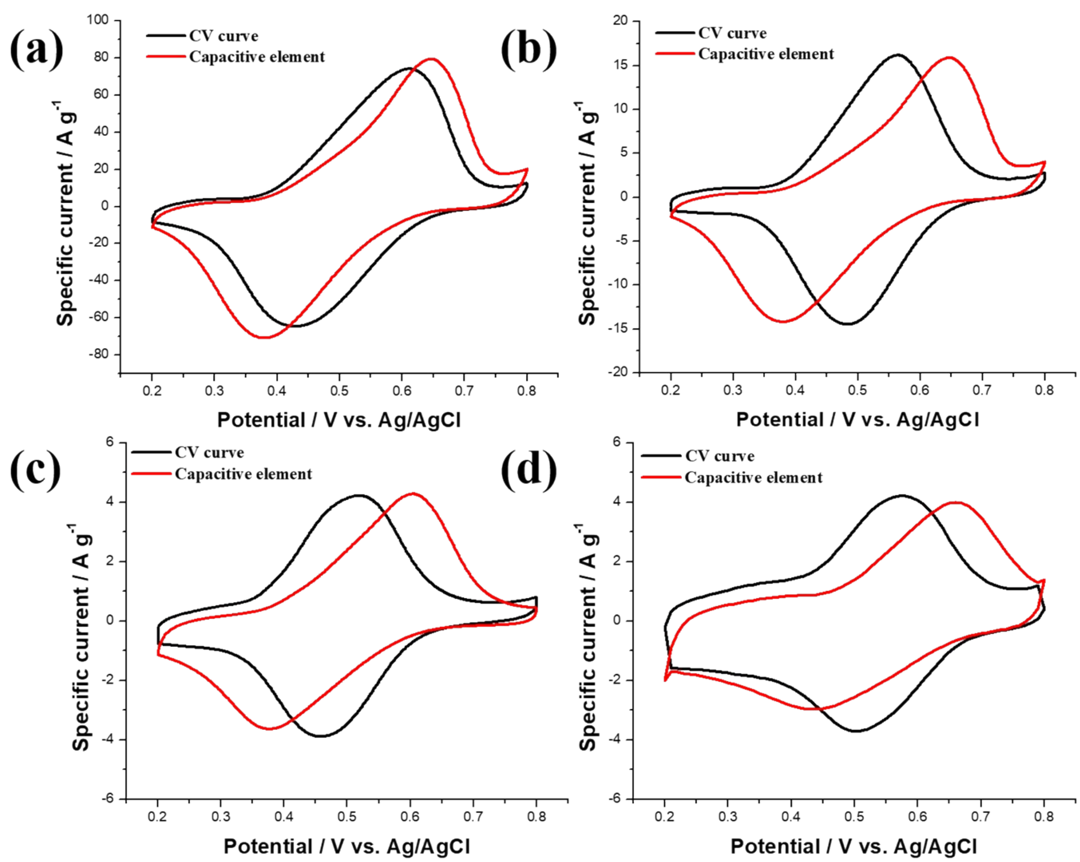

Figure. S7 CV curves collected at 50 (a), 10 (b), 5 (c), 3 (d) mV/s with capacitive charge-storage elements (red curves) of RGO/SP-VA.

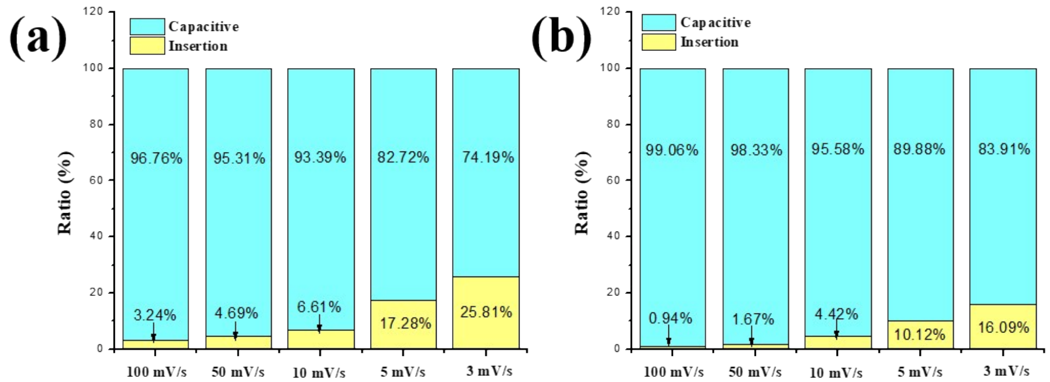

Figure. S8 Diffusion-controlled and contributions of RGO/SL-SA and RGO/SL-AMAF measured at a scan rate of 3, 5, 10, 50, 100 mV/s.