

SUPPORTING INFORMATION

Plasma Electrolysis of Cellulose in Polar Aprotic Solvents for Production of Levoglucosenone

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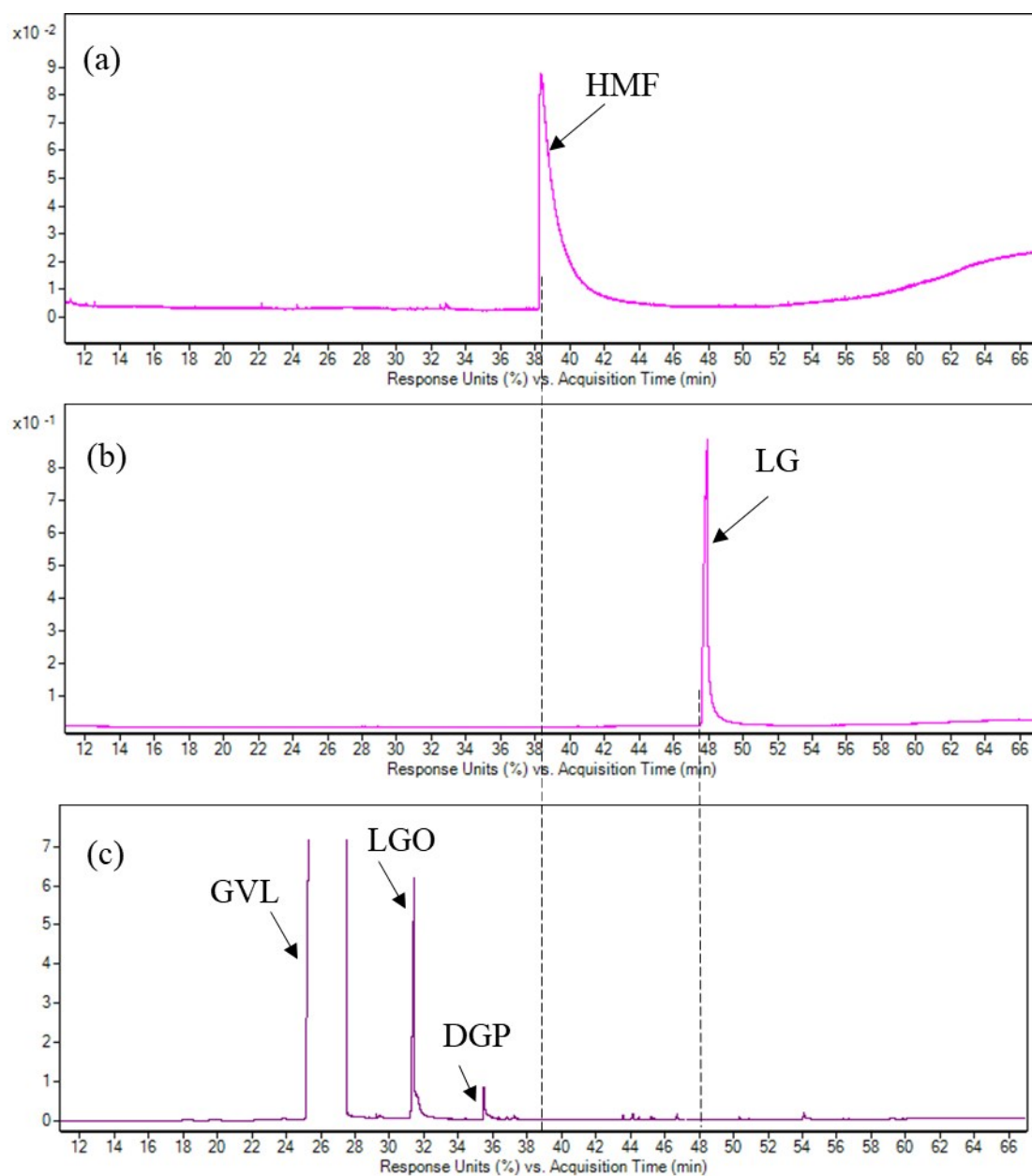


Figure S1 GC/FID chromatograms of (a) HMF, (b) LG and (c) a typical liquid product of cellulose by plasma electrolysis. The chromatograms were enlarged at the retention times between 12 and 68 minutes.

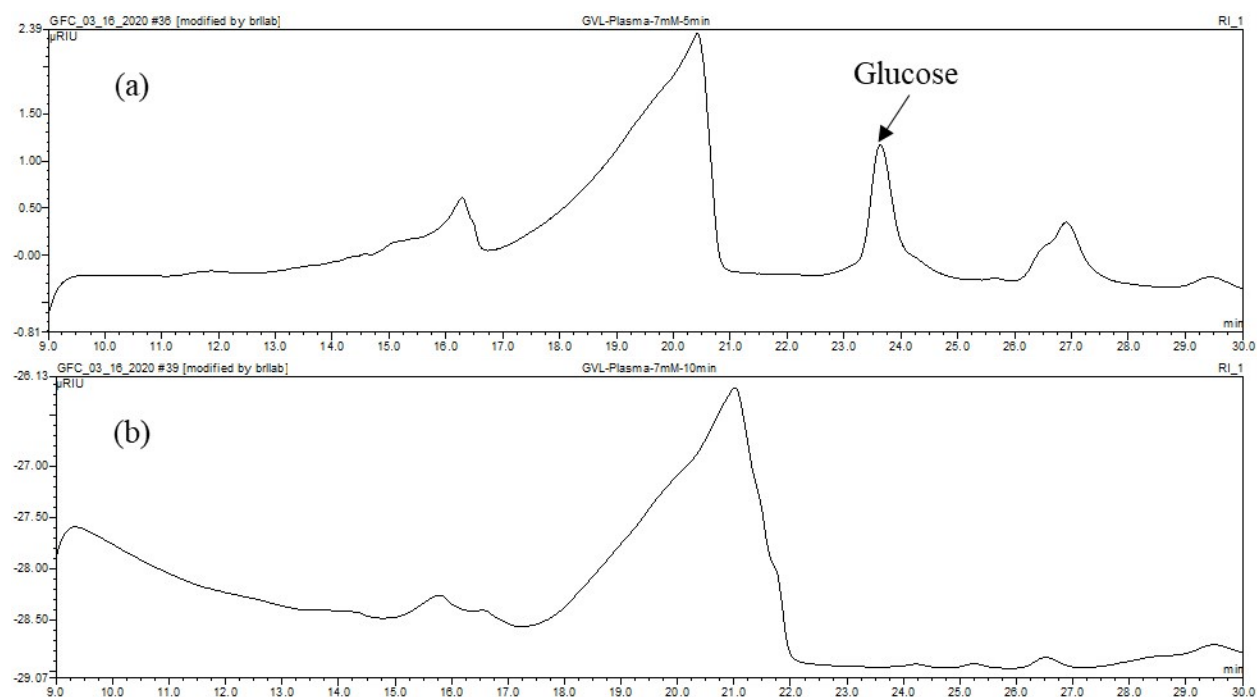


Figure S2 GFC chromatograms of liquid products from the plasma electrolysis of cellulose in GVL with 7 mM acid using AC electricity (6 kV, 6 kHz). (a) After 5 min reaction; (b) after 10 min reaction.

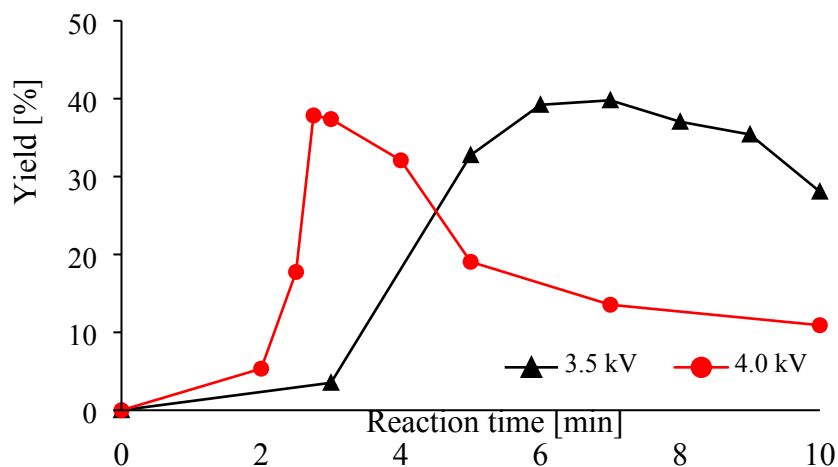


Figure S3 Effect of AC electricity voltage on LGO yield during the plasma electrolysis of cellulose in sulfolane. Reaction conditions: 2.3 mM acid, $f = 6$ Hz.

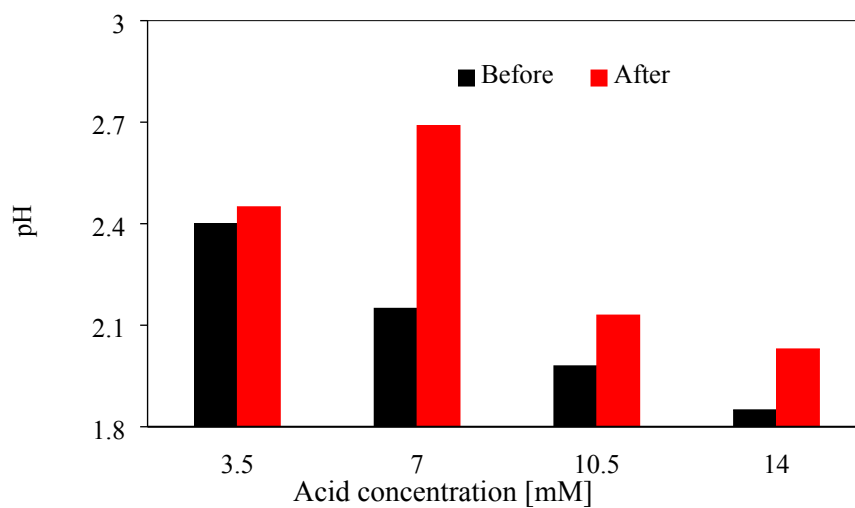


Figure S4 The pH values of GVL solutions before and after the plasma electrolysis of cellulose. Reaction conditions: $V = 6$ kV, $f = 6$ Hz with the optimal reaction times for maximum LGO yields.

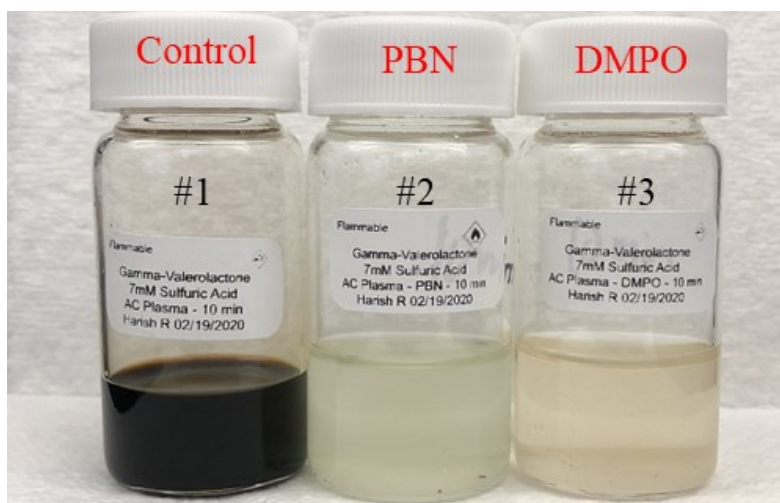


Figure S5 Liquids produced after the plasma electrolysis of cellulose in GVL solution without radical spin-trap agents (vial #1) and with the trap agents (vials #2 and #3). Reaction conditions: 7 mM acid, $V = 6$ kV, $f = 6$ kHz, 10 min reaction.

Table S1 Product distribution during plasma electrolysis of model compounds in GVL solution. Reaction conditions: 7 mM acid, $V = 6$ kV and $f = 6$ kHz.

Model Compound	Time [min]	Yield [%]			
		LGO	DGP	FF	LA
Glucose	15	24.5	8.5	6.9	1.0
Levogluconan	15	2.5	5.2	26.5	0.3