1,1,3,3-tetramethylguanidinium hydrogen sulphate (TMG.HSO₄) ionic liquid in carbon dioxide enriched water: highly efficient acidic catalytic system for the hydrolysis of cellulose

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Analysis of Sugar Contents:

The contents of the sugar were established by Agilent 1200 High Performance Liquid Chromotography (HPLC) using refractive index detector and Agilent Hi-Plex H (100 mm×7.7 mm) analytical column. Operating conditions were as follows: Column temperature 40 °C; Mobile phase: water; Flow rate: 0.6 mL/min; Analysis time: 15 min.

Calculation:

The following equations were used to calculate the conversion of Cellulose, the yield of Glucose, and the selectivity to Glucose.

$$Total Moles of Sugars Content$$

$$Conversion of Cellulose = \frac{100}{Moles of Anhydroglucose taken} * 100$$

$$Yield of Glucose = \frac{100}{Moles of Glucose Formed} * 100$$

$$Moles of Anhydroglucose taken$$

$$Selectivity to Glucose = \frac{100}{Total Moles of Glucose Formed} * 100$$

$$Total Moles of Sugars Content$$

Fig. S1: ¹H NMR spectrum of TMG.HSO₄ (500 MHz, D₂O):



¹H NMR spectrum of TMG.HSO₄

Fig. S2. ¹³C NMR spectrum of TMG.HSO₄

