

Iron-catalyzed graphitization of biomass

Z. Schnepf,¹

1. School of Chemistry, University of Birmingham, B152TT, z.schnepf@bham.ac.uk

Carbons have a wide range of applications such as battery electrodes, supercapacitors and materials for water treatment. Many of these applications rely on precise control of chemical and structural features such as graphitic layering or pore size distribution. Graphitic or turbostratic features are particularly valuable for introducing porosity and maximizing electronic conductivity and chemical stability. One route to synthesize carbons with a wide range of graphitic features is catalytic graphitization. This talk will give an overview of catalytic graphitization and how it can be applied to produce carbons with different properties from biomass.

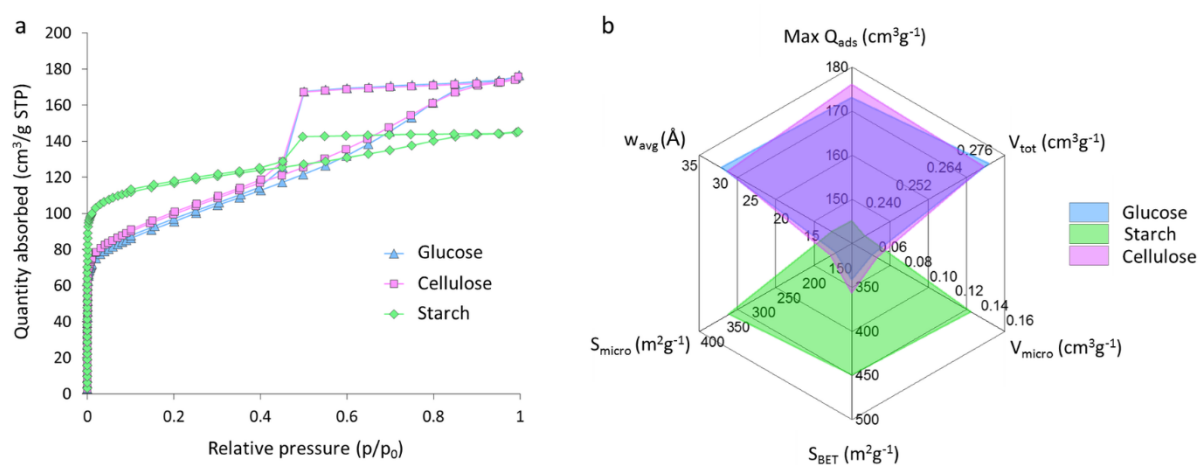


Figure 1 Porosimetry data for carbons produced via the same method from three different biomass sources, showing that the choice of precursor can have a significant effect on the textural properties.

References

1. R. D. Hunter, E. C. Hayward, G. J. Smales, B. R. Pauw, A. Kulak, S. Guan and Z. Schnepf *Mater. Adv.*, 2023, **4**, 2070-2077.
2. R. D. Hunter, J. Ramírez-Rico and Z. Schnepf, *J. Mater. Chem. A*, 2022, **10**, 4489-4516.
3. R. D. Hunter, J. Davies, S. J. A. Herou, A. Kulak and Z. Schnepf, *Phil. Trans. R. Soc. A.*, 2021, **379**, 20200336.
4. R. D. Hunter, J. L. Rowlandson, G. J. Smales, B. R. Pauw, V. P. Ting, A. Kulak and Z. Schnepf, *Mater. Adv.*, 2020, **1**, 3281-3291.