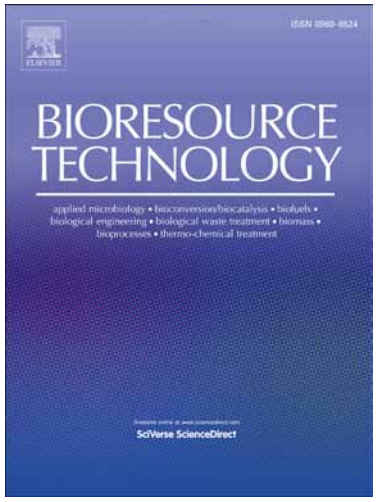

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PII: S0960-8524(16)30765-9
DOI: http://dx.doi.org/10.1016/j.biortech.2016.05.106
Reference: BITE 16603

To appear in: *Bioresource Technology*

Received Date: 22 April 2016
Revised Date: 25 May 2016
Accepted Date: 26 May 2016

Please cite this article as: Suhas, Gupta, V.K., Carrott, P.J.M., Singh, R., Chaudhary, M., Kushwaha, S., Cellulose: A review as natural, modified and activated carbon adsorbent, *Bioresource Technology* (2016), doi: http://dx.doi.org/10.1016/j.biortech.2016.05.106

Cellulose: A review as natural, modified and activated carbon adsorbent

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Abstract

Cellulose is a biodegradable, renewable, non-meltable polymer which is insoluble in most solvents due to hydrogen bonding and crystallinity. Natural cellulose shows lower adsorption capacity as compared to modified cellulose and its capacity can be enhanced by modification usually by chemicals. This review focuses on the utilization of cellulose as an adsorbent in natural/modified form or as a precursor for activated carbon (AC) for adsorbing substances from water. The literature revealed that cellulose can be a promising precursor for production of activated carbon with appreciable surface area (~1300 m^2g^{-1}) and total pore volume (~0.6 cm^3g^{-1}) and the surface area and pore volume varies with the cellulose content. Finally, the purpose of review is to report a few controversies and unresolved questions concerning the preparation/properties of ACs from cellulose and to make aware to readers that there is still considerable scope for future development, characterization and utilization of ACs from cellulose.

Keywords: Activated carbon, adsorbent, adsorption, cellulose, lignocellulosic

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