

## Accepted Manuscript

Title: Superabsorbent nanocomposite from sugarcane bagasse, chitin and clay: Synthesis, characterization and swelling behaviour

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PII: S0144-8617(18)30374-6  
DOI: <https://doi.org/10.1016/j.carbpol.2018.04.006>  
Reference: CARP 13460

To appear in:

Received date: 19-1-2018  
Revised date: 24-2-2018  
Accepted date: 1-4-2018

Please cite this article as: Sharma, Maya., & Bajpai, Anjali., Superabsorbent nanocomposite from sugarcane bagasse, chitin and clay: Synthesis, characterization and swelling behaviour. *Carbohydrate Polymers* <https://doi.org/10.1016/j.carbpol.2018.04.006>

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# Superabsorbent nanocomposite from sugarcane bagasse, chitin and clay: Synthesis, characterization and swelling behaviour

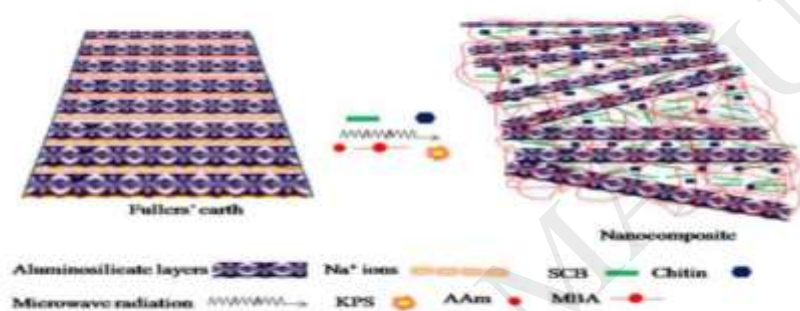
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## Graphical abstract



## Highlights

- Agricultural lignocellulosic waste sugarcane bagasse and marine food industry waste chitin were employed to prepare a nanocomposite by green synthesis.
- Two biopolymers chitin and cellulose were incorporated in a semi interpenetrating network.
- Sugarcane bagasse and chitin were effectively microfibrillated by an ionic liquid.
- Cost effective Ionic liquid 2-hydroxy ethyl ammonium formate was used.
- Nanocomposite exhibited superabsorbent behaviour over a long period of time.
- Efficient use for adsorption and release of agrochemicals is suggested.

## ABSTRACT

A nanocomposite comprising crosslinked hybrid polymer network was prepared using chitin and sugarcane bagasse in presence of montmorillonite clay. Chitin and sugarcane bagasse

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