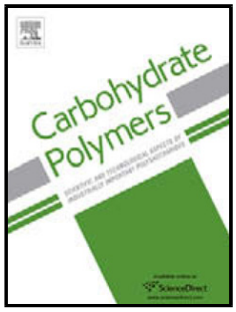

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Superabsorbent nanocomposite from sugarcane bagasse, chitin and clay: Synthesis, characterization and swelling behaviour

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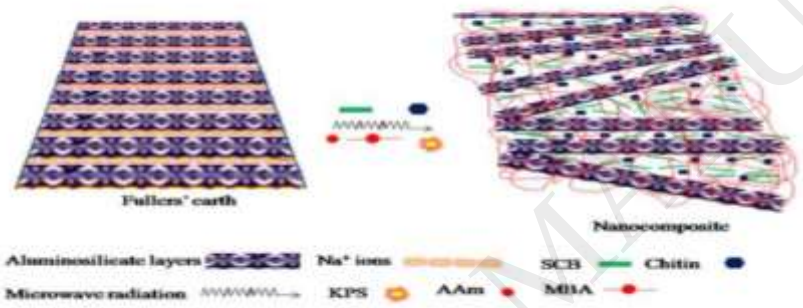
Graphical abstract



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 microfibrilated 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