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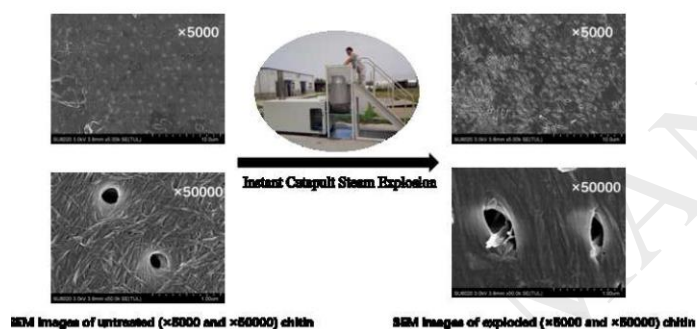
Crystalline Reduction, Surface Area Enlargement and Pore Generation of Chitin by Instant Catapult Steam Explosion

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Graphical abstract



Highlights

- Instant catapult steam explosion (ICSE) was used to pretreat chitin.
- Significantly greater surface areas (up to 2.5 times greater) with more and larger pores (up to 3.5 times larger pore volume) were achieved after ICSE.
- Numerous lacerated-like pore shapes were observed on chitin's porous surface.
- The ICSE provided a novel strategy for chitin pretreatment with less undesired molecular degradation and decomposition.

Abstract

In this study, instant catapult steam explosion (ICSE) was employed for chitin treatment, and the effect of ICSE on the chitin structure was systematically investigated by using a series of analytical techniques including scanning electron microscopy, X-ray diffraction and Brunauer–Emmett–Teller analysis. Due to the powerful seepage force of the steam during

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