




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Chitin Nanopaper from Mushroom Extract: Natural Composite of Nanofibers and Glucan from a Single Biobased Source (Article)

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Abstract

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An isolation method with mild mechanical agitation and no acidic extraction step from a mushroom substrate resulted in chitin nanofibers (ChNFs) with large shares of retained glucans (50-65%). The subsequent chitin nanopapers exhibited exceptionally high tensile strengths of >200 MPa and moduli of ca. 7 GPa, which were largely attributed to the preserved glucans in the mixture, imparting a composite nature to the nanopapers. The isolation method for ChNFs is notably different from the conventional process with crustacean chitin sources that do not incorporate glucans and where an acidic extraction step for the removal of minerals must always be included. © 2019 American Chemical Society.

SciVal Topic Prominence

Topic: Chitin | Nanofibers | chitin nanofibers

Prominence percentile: 95.161 

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Author keywords

Alternative biomass Chitin nanofibers Mechanical properties Mild extraction Nanopaper Nonwoven networks

Indexed keywords

Engineering controlled terms: Extraction Mechanical properties Nanofibers Polysaccharides Tensile strength Weaving

Engineering uncontrolled terms: Acidic extraction High-tensile strength Mechanical agitation Mild extraction Mushroom substrate Nanopaper Natural composites Non-woven

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