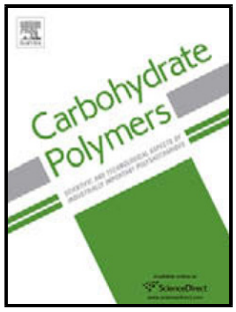

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Nanostructured membranes based on native chitin nanofibers prepared by mild process

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Highlights,

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Abstract

Procedures for chitin nanofiber or nanocrystal extraction from Crustaceans modify the chitin structure significantly, through surface deacetylation, surface oxidation and/or molar mass degradation. Here, very mild conditions were used to disintegrate chitin fibril bundles and isolate low protein content individualized chitin nanofibers, and prepare nanostructured high-strength chitin membranes. Most of the strongly '*bound*' protein was removed. The degree of acetylation, crystal structure as well as length and width of the native chitin microfibrils in the organism were successfully preserved. Atomic force microscopy and scanning transmission electron microscopy, showed chitin nanofibers with width between 3 and 4 nm. Chitin