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Natural deep eutectic solvents based on choline chloride as a green plasticizer to produce chitosan based films

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There is a worldwide interest in replacing the use of oil-based synthetic plastics with biodegradable, nontoxic packages. The development of new package products can benefit various industrial activities, particularly the production, distribution and commercialization of foods. Chitosan (CH), a polysaccharide derived from chitin, is a promising biopolymer to be used for this issue, since chitin is the second most abundant polysaccharide in nature and can be obtained as a reject of the seafood industry in coastal regions, inland or even associated to shrimp aquaculture production. Besides, the environmental benefits related to the removal of seafood residues and the replacement of petroleum-based-packages, chitosan can be considered an active package material, since its physicochemical properties, such as molecular weight and degree of deacetylation, can confer special activities to chitosan, including antimicrobial activity, which can be very useful in food packing. We present previously unexplored approach based on the use of natural deep eutectic solvents (NADESs) as potential biodegradable plasticizer. Specifically, we report the use of different NADESs as precursors for the fabrication of transparent chitosan films prepared by compression molding. Film structure was studied with FESEM and the optical, water permeability and mechanical properties were also evaluated. Significant differences were verified in the behavior of the biofilms under the different experimental conditions.

Biography

Hiléia K S Souza has received her PhD in the Department of Chemistry, Faculty of Sciences, University of Porto. Currently, she is doing her Post-doctoral research in the line of Food Quality and Safety at the Requite- Laboratory for Green Chemistry, Clean Technologies and Processes at the University of Porto. Her main research interests now are centered on the study of Biomolecules (polysaccharides and proteins) and their application in the Food Industry. She has published more than 30 papers in international peer reviewed journals.

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