Application of biopolymers-based solutions incorporated with emulsified bioactive compounds as coating of synthetic polymers films: a review

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ABSTRACT

Synthetic polymers are excellent food packaging materials due to their low cost, high flexibility, ease of processing and good physical properties. However, the incorporation of active compounds during the production of synthetic polymeric films can degrade their functionality due to the high temperatures applied. For this reason, an approach was adapted that combines synthetic materials with other biopolymers (carriers of active compounds) to obtain an additional function of conventional packaging. However, a large percentage of biopolymer matrices are hydrophilic, a characteristic that makes it difficult to incorporate hydrophobic bioactive compounds, limiting the development of active films. Thus, to solve this problem, the method of encapsulation of bioactive compounds in Pickering emulsions was recently studied for the preparation of a film-forming solution. Thus, this review aims to present and discuss recent researches on the development of bilayer films produced with coatings based on biopolymer film-forming solution incorporated with bioactive compost (encapsulated into Pickering emulsion) for biodegradable and non-biodegradable synthetic polymers films. The focus will be in the effect of coating on the main physical and functional properties of the bilayer film. This review can be used in further studies for the application of bilayer films and thus allowing to guarantee quality and prolong the shelf life of the foods.

Keywords: Synthetic polymers, food packaging, bioactive compounds, bilayer films.

Acknowledgments: Authors thank Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brazil (CAPES) – financial support code 001 (PhD fellowship of B.G.) and the Brazilian National Council for Scientific and Technological Development (CNPq) (40.3746/2021-3 and 30.0799/2013-6).