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Title: Use of Plant Extracts and their Bioactive Compounds in Active Seafood Packaging

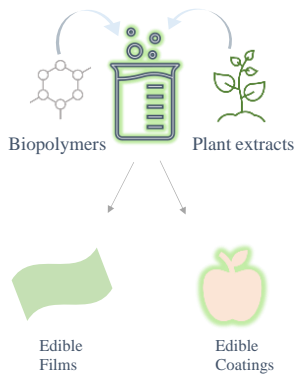
Background: Petroleum-based polymers are widely used and known that they cause serious environmental problems due to their non-biodegradability. To this end, researchers have been focusing on the development of ecological packaging materials from natural resources. However, the films produced from natural biopolymers have fewer desirable properties than synthetic polymers; Subsequently, active packaging has arrived. Research has been conducted to develop biodegradable films/coatings based on wide range of ingredients, which may affect the properties of those materials.

Scope and approach: Plant extracts represent an interesting ingredient for biodegradable food packaging. The scope of this review is to present the latest ideas on how plant extracts impact properties like physical, mechanical, barrier, functional, structural, antioxidant, antimicrobial and the biodegradability of the films. Moreover, it has been introduced the interaction of plant extracts with the food product, which may prevent or reduce deterioration and improve the quality of the packaged product during its lifetime.

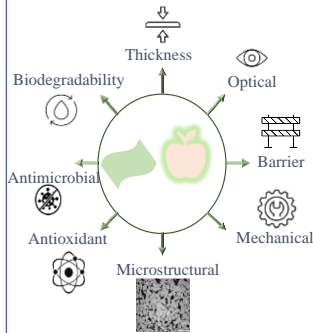
Key findings and conclusion: Recent studies focus on the identification of extracts from various plant sources such as leaves, fruits, pomace, seeds, etc. for use in biodegradable polymer. Generally, most of the plant extracts increase the thickness of the biopolymer, reduce the transparency, decrease water vapor and oxygen permeability, enhance water moisture and solubility, and have adverse effects on the mechanical properties. Additionally, in most cases natural extracts can boost the antioxidant and antimicrobial properties and alters the biodegradation rate, contact angle (θ), and viscosity of the films and coatings. Furthermore, improvement of shelf life of packaged food, like meat, and meat products, fruits, and vegetables with the incorporation of plant extracts has been observed. Results are promising further research on the effect of plant extracts on sensorial properties and application to many other food products may encourage practical application.

Keywords: Plant extracts; Biodegradable films; Active packaging; Film's properties; Antioxidant; Antimicrobial

Formation of Active Packaging



Effects of Plant Extracts in Active Films/Coatings



Application of Active films/Coatings

