The Torch
Vol. 2 (22)

Edible food packaging from starch-based films

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Environmental pollution caused by packaging materials such as plastics is a major concern as they take hundreds of years to decompose and generate toxic contaminants. The development of edible packaging material is a sustainable alternative to solve this problem. In recent years, research has been carried out on different types of biopolymers, such as polysaccharides, protein and lipids to produce edible films or coatings for packaging food. Edible packaging can be derived from corn and rice starch as they do not contain any harmful chemicals and are biodegradable. The edible coatings are formulated by immersing the product in a film-forming suspension of the biopolymer. They can be used as carriers to enhance the nutritional value as well as be supplemented with antifungal and antimicrobial substances to increase the shelf-life of food products. However, since oxidative reactions of the edible packaging may occur, the rate of oxidative deterioration can be delayed by the addition of antioxidants. When compared to traditional synthetic packaging materials, edible films help in decreasing waste generation and can be recycled more efficiently. Since starch is abundant and economical, it is being considered by researchers in the food packaging industry as biodegradable films. Further studies on this innovative concept could improve the features of starch-based films and provide a breakthrough to reduce the carbon footprint of the packaging industry.

Keywords: Edible films, Biopolymers, Food packaging, Corn starch, Rice starch

Citation:
Satarupa Roy. Edible food packaging from starch-based films. The Torch. 2021. 2(22). Available from: https://www.styvalley.com/pub/magazines/torch/read/edible-food-packaging-from-starch-based-films.