

Edible and Ecofriendly Packaging - A Trendsetter of the Modern Era - Standardization and Properties of Films and Cutleries from Food Starch

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Abstract : The edible packaging is a new trendsetter in the era of modern packaging. The researchers and food scientist recognise edible packaging as a useful alternative or addition to conventional packaging to reduce waste and to create novel applications for improving product stability. Starch was extracted from different sources that contains abundantly like potato, tapioca, rice, wheat, and corn. The starch based edible films and cutleries are developed as an alternative for conventional packages providing the nutritional benefit when consumed along with the food. The development of starch based edible films by the extraction of starch from various raw ingredients at lab scale level. The films are developed by the employment of plasticiser at different concentrations of 1.5ml and 2ml. The films developed using glycerol as a plasticiser in filmogenic solution to increase the flexibility and plasticity of film. It reduces intra and intermolecular forces in starch, and it increases the mobility of starch based edible films. The films developed are tested for its functional properties such as thickness, tensile strength, elongation at break, moisture permeability, moisture content, and puncture strength. The cutleries like spoons and cups are prepared by making dough and rolling the starch along with water. The overall results showed that starch based edible films absorbed less moisture, and they also contributed to the low moisture permeability with high tensile strength. Food colorants extracted from red onion peel, pumpkin, and red amaranth adds on the nutritive value, colour, and attraction when incorporated in edible cutleries, and it doesn't influence the functional properties. Addition of a low quantity of glycerol in edible films and colour extraction from onion peel, pumpkin, and red amaranth enhances biodegradability and provides a good quantity of nutrients when consumed. Therefore, due to its multiple advantages, food starch can serve as the best response for eco-friendly industrial products aimed to replace single use plastics at low cost.

Keywords : edible films, edible cutleries, plasticizer, glycerol, starch, functional property

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