REVIEW ON MODIFICATION OF POULTRY GELATIN AS FOOD PACKAGING

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ABSTRACT

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The demand for biodegradable plastics has recently increased due to the environmental pollution issue of synthetic plastics. The study of gelatin-based active packaging films as an alternative of synthetic plastic food packaging has sparked widespread attention across the world. However, unlike synthetic plastics, most bioplastics do not meet the essential requirements of food packaging, especially in terms of barrier and mechanical properties. Previous research has shown that pure gelatin can be improved mechanically by adding active ingredients and incorporating them with biopolymers to achieve the desired preservation effect. Gelatin made from non-mammalian sources, particularly fish and poultry, has seen a surge in popularity during the last decade. The yield of gelatin from poultry by-products (skin, bone, scale, mechanically deboned residue, and feet) has been so low that it has yet to be commercialised. This review mainly shows how the poultry gelatin can be extracted as well as the modification that can be done in order to improve the quality of the poultry gelatin so it exhibits outstanding advantages in food packaging application.

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CHAPTER 1

INTRODUCTION

2.1 Background of study

Gelatin is a biopolymer derived from collagenous animal products that is transparent, dismal, flavourless, and colourless. It's often employed as a gelling agent, but it's also found in foods, drugs, cosmetics, paint, matches, photographic film, and foam stabilisers (Ul Rehman et al., 2016). Gelatin is also the most promising biopolymer that is frequently studied owing to its film forming capacity and potential to perform as an outer packaging layer in protecting food from exposure to light, oxygen and temperature (Ramos et al., 2016). Next, gelatin is a protein made by hydrolyzing collagen, which is found in animal connective tissues, skin, and bones. However, gelatin films have a high hygroscopic tendency, which causes them to swell or dissolve when they come into touch with the surface of meals with a high moisture content (Ramos et al., 2016).

Traditionally, the main sources of gelatin are porcine and bovine (Kittiphattanabawon et al., 2010). Although, due to religious issue of porcine gelatin and also transmissible spongiform encephalopathy (BSE) and foot and-mouth diseases (FMD) issue of bovine gelatin, there are great interest in