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Characteristics and application of animal byproduct-based films and coatings in the packaging of food products

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Abstract

Background

A large volume of animal byproducts remains underutilized, and low-value components such as skin, bones, feathers, heads, feet, hairs, horns, hooves, tails, cartilage, unused myofibril muscles, fins, fish scales, and whey protein are generated by meat processing industries, slaughterhouses, and milk processing industries. The main value-added biopolymers derived from animal byproducts are chitosan, keratin, gelatin, collagen, myofibrillar proteins, and whey protein. Despite having a wide range of uses in the food and pharmaceutical sectors, animal byproducts still have a considerable quantity that is not being used, which has the potential to be used to create bioplastics.

Scope and approach

Using animal byproducts to create biodegradable packaging materials can be a creative way to solve waste management problems in the food sector. This state-of-the-art review discusses the characteristics and applications of animal byproduct-based films in packaging food commodities like meat, fruits and vegetables, and dairy products. The challenges and future perspectives of animal byproduct-based packaging materials have also been discussed which can help food scientists to develop robust food packaging systems.