



## The formulation and preparation method of an edible coating with shelf life-extending function on meats

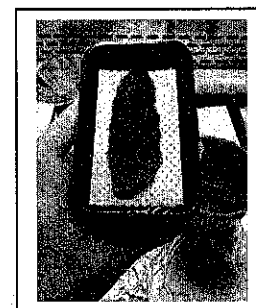
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### Experience:

<https://scholars.lib.ntu.edu.tw/cris/rp/rp199624>

<https://homepage.ntu.edu.tw/~khlu/>



### Market Needs:

The consumption of meat is the most crucial source of protein in the Taiwanese diet, with the annual market value of beef and pork reaching nearly one hundred billion New Taiwan Dollars in recent years. However, fresh meat is challenging to preserve. While freezing meat at  $-18^{\circ}\text{C}$  can provide a storage period of several months, the thawing process can damage the cellular structure, leading to a decline in taste and nutrient loss, impacting consumer acceptance. Refrigerating meat at  $4^{\circ}\text{C}$ , on the other hand, cannot completely inhibit microbial growth and deterioration reactions, resulting in a storage period of less than 10 days. Therefore, the invention of a method or technology that effectively extends the storage period would be highly beneficial. Such an innovation would help reduce losses for meat industry operators and enhance food safety for consumers, offering significant advantages in the market.

### Our Technology:

The present invention relates to an edible coating designed to overcome issues during the refrigeration process of meat, including bacterial growth, lipid oxidation, and moisture loss. The formulation of this coating includes natural bio-preservatives belonging to the Generally Recognized as Safe (GRAS) category. It is crafted with chitosan and gelatin to create an edible coating that inhibits common pathogens in meat, including *Staphylococcus aureus*, *Escherichia coli* O157:H7, *Salmonella* Typhimurium, and *Pseudomonas aeruginosa*. Additionally, the coating provides antioxidant effects. This edible coating formula is suitable for application by meat industry operators to extend the shelf life of fresh meat.

### Strength:

The formula materials used in the present invention are readily available from suppliers in Taiwan. Based on the material quantities applied in the embodiments for coating fresh beef, the estimated cost of coating materials per kilogram of meat is approximately 0.8 to 1.6 New Taiwan Dollars. This cost allows for the extension of the shelf life of refrigerated meat from 10 days to 20 days. For operators selling high-value meat products, the use of low-cost coating materials can effectively enhance product safety, reduce time pressures on sales and inventory, making it a highly valuable investment. Therefore, the combination of low cost and high efficiency represents a significant advantage for the market application of the present invention.

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### **Competing Products:**

There is currently no edible film product or technology applied to extend the shelf life of meat in Taiwan.

### **Intellectual Properties:**

- (1) This technology does not have any relevant Taiwan patents.
- (2) The research team has a decade of research experience in the field of functional food development.

### **Contact (do not need to fill out):**

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