

**Formation of Antimicrobial and Biodegradable Edible  
Casing from Hydrolyzed Ovalbumin**

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by

**R.M.T.S. RATHNAYAKE**

**Department of Animal Science  
Faculty of Animal Science and Export Agriculture  
Uva Wellassa University**

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## ABSTRACT

Edible casings are an environmental friendly approach that can be applied on food products to control the deterioration due to oxidation or microbial growth, while enhancing the nutritional attributes. Ovalbumin and its hydrolysate exhibit functional properties to a greater extent and can be used to form an edible casing. Thus, the present study was focused to develop an antimicrobial and biodegradable edible casing using hydrolyzed ovalbumin (HOB) and to assess its physical properties. At first, already extracted ovalbumin protein was hydrolyzed using 1% pepsin. The HOB solid was dissolved in distilled water (9 g/ 100 mL) and glycerin (Gly) 30% was added. Then, the pH of the solution was adjusted to  $11.25 \pm 0.10$  and heated up to  $45^\circ\text{C}$  for 20 min in water bath. The treated solution was casted into polypropylene covered plates and the films were peeled after 48 hrs at  $25 \pm 2^\circ\text{C}$ . After peeling, the films were subjected to heat treatment at  $85^\circ\text{C}$  for 20 min. In conclusion, Both SB and LA were not suitable in film formation from HOB as plasticizers while the film with 30% Gly and 0.10 mm thickness showed better film characteristics as an edible casing. According to the physical properties, the HOB casing had the highest TS among other treatments while showing the highest antimicrobial activity against *E.coli* and *Salmonella*. In biodegradability, the highest weight loss percentage was resulted in OVB casings and HNO casings and those two can be utilized to form biodegradable edible casings.