

**EFFECT OF CASHEW (*ANACARDIUM OCCIDENTALE* L.) GUM AND CHITOSAN COATING ON PHYSICO-FUNCTIONAL PROPERTIES AND SHELF LIFE OF CHICKEN EGGS STORED AT ROOM TEMPERATURE**

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Eggs are highly perishable and susceptible to internal quality deterioration, mainly due to diffusion of carbon dioxide and moisture via the egg shell pores. Surface coating is an inexpensive and effective method to preserve the internal quality of eggs and prolong the shelf life. Thus, the objective of the present study was to determine the effect of different coating materials on physico-functional properties and shelf life of chicken eggs during storage at room temperature (29±2 °C).

A total of 960 eggs (52 weeks old Shaver Brown) were obtained from a commercial layer farm. Eggs were individually weighed and randomly assigned to four different coating treatments of chitosan, cashew gum, mineral oil (positive control) and uncoated (negative control) and stored at room temperature. At weekly intervals, internal quality parameters including weight loss (%), Haugh unit, yolk index, yolk colour, air cell depth, albumen pH and yolk pH were determined. In addition, functional properties including gelling, foaming and rheological measurements were evaluated. Microbiological analysis was done to determine the total viable aerobic plate count (TVAPC) value in the internal contents of eggs. The experimental design was Completely Randomized Design and means were compared by Least Square Means Test at  $\alpha = 0.05$ .

The coated eggs were more effective in preserving the internal quality of eggs. Next to mineral oil, cashew gum and chitosan coated eggs obtained the highest Haugh unit, yolk index and yolk colour values, respectively. There was a significant difference in quality ( $P < 0.05$ ) between the treatments and storage time. While the highest weight loss (%) and depth of air cell were observed in uncoated eggs, cashew gum showed the lowest values next to the mineral oil coating. Regardless of coating material, there was no significant ( $P < 0.05$ ) differences in functional properties of eggs stored at room temperature. With regard to yolk pH and albumen pH, interactions between the treatments and the storage time were significant ( $P < 0.05$ ). Results of microbiological analysis showed that all coated eggs were microbiologically safe throughout the storage period of six weeks at room temperature.

The present study substantiated the conclusion that in comparison to the chitosan coated and the non-coated eggs, cashew gum is a low cost novel coating material, which is more effective in preserving the internal quality and extending the shelf life of chicken eggs stored at 29±2 °C for six weeks.