

The Effect of Wood Apple Bark Extract (*Limonia acidissima*) on Internal and Sensory Attributes of Chicken Eggs Stored under Room Temperature

S.V.A.P. Samaranyake¹, A.L.Y.H. Aruppala¹, H.M.J. Pitawala², E.D.N.S. Abeyrathne^{1*}

Department of Animal Science, Uva Wellassa University, Badulla 90000, Sri Lanka

²Department of Science and Technology, Uva Wellassa University, Badulla 90000, Sri Lanka

Eggs are one of the highly nutritious, low-cost food consumed. Storage under ambient temperature is known to reduce the internal qualities. Wood apple bark extract (*Limonia acidissima*) is a waxy substance which is available naturally. Coating materials are used to improve the shelf life of eggs. So the objective was to increase the shelf life and preserve sensory qualities of egg using wood apple bark extract as a coating material on eggs. A total of 312 medium sized white eggs from 61-weeks old Hy-line white were purchased from a commercial layer farm. Eggs were individually weighed and arranged under completely randomized design into three different coating treatments as wood apple extract (WA), mineral oil (MO) and non-coated (NC). Each parameters were measured by using 03 replicates. The eggs were stored under room temperature (27 ± 2 °C) for 06 weeks. Weight losses, internal quality parameters such as Haugh unit, albumen and yolk pH values, and microbial analysis for *Salmonella* of eggs were measured weekly for 06 weeks. Sensory attributes of eggs were measured using 30 untrained panellists (age 23-27). Fourier-transform infrared spectroscopy (FTIR) analysis was done to analyse the structural changes. Weight losses were minimum in MO coated eggs than others ($p < 0.05$). Haugh unit decreased significantly ($p < 0.05$) in NC but in others it was more than 50% till the 04th week. In all treatments, egg albumen and yolk pH increased during the storage ($p > 0.05$). However, coated eggs reduced the grade from AA to A within 03 weeks. All coated eggs were negative for *Salmonella* test during the tested period. Colour of the egg yolk did not change due to the coating material. Sensory attributes confirmed that no sensory changes in all treated eggs up to the 03rd week of storage. FTIR analysis confirmed that the Amide-A and Amide-1 bonds of the coated eggs did not change with the time. The present study confirmed that WA is another good replacer for the MO in commercial scale.

Keywords: Haugh unit, Mineral Oil, *Salmonella*, Sensory properties, Wood apple.