

## Pomegranate Peel Based Edible Coating Treatment for Safety and Quality of Chicken Nuggets

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**Abstract :** In this study, the effects of pomegranate peel based edible coating were determined on safety and quality of chicken nuggets. Four treatment groups were prepared as control (without coating), coating with sodium alginate (SA) (1.5%), pomegranate peel powder (PPP) (1.5%), and combination of SA and PPP. There was a significant variation observed with respect to coating treatments and storage intervals. The chicken nuggets were subjected to refrigerated storage (40C) and were analyzed at regular intervals of 0, 7, 14 1 and 21 days. The microbiological quality was determined by total aerobic and coliform counts. Total aerobic ( $5.09 \pm 0.05$  log CFU/g) and coliforms ( $3.91 \pm 0.06$  log CFU/g) counts were higher in uncoated chicken nuggets whereas lower was observed in coated chicken nuggets having combination of SA and PPP. Likewise, antioxidant potential of chicken nuggets was observed by assessing total phenolic contents (TPC) and DPPH activity. Higher TPC (135.66 GAE/100g) and DPPH (64.65%) were found in combination with SA and PPP, whereas minimum TPC (91.38) and DPPH (41.48) was observed in uncoated chicken nuggets. Regarding the stability analysis of chicken nuggets, thiobarbituric acid reactive substances (TBARS) and peroxide value (POV) were determined. Higher TBARS ( $1.62 \pm 0.03$  MDA/Kg) and POV ( $0.92 \pm 0.03$  meq peroxide/kg) were found in uncoated chicken nuggets. Hunter color values were also observed in both uncoated and coated chicken nuggets. Sensorial attributes were also observed by the trained panelists. The higher sensory score for appearance, color, taste, texture and overall acceptability were observed in control (uncoated) while in coated treatments, it was found within acceptable limits. In nutshell, the combination of SA and PPP enhanced the overall quality, antioxidant potential, and stability of chicken nuggets.

**Keywords :** chicken nuggets, edible coatings, pomegranate peel powder, sodium alginate

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