

Evaluation of Quality Characteristics of Chicken, Turkey and Quail Meat-based Traditional Meatballs

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The processed meat industry in Sri Lanka has responded to the growing consumer demand by offering a diverse range of value-added meat products, including meatballs. Among these, chicken meatballs are the most popular variety in Sri Lankan food culture. Other poultry meat sources, such as quail and turkey possess considerable potential as alternative raw materials for meatball production. Hence, this study aimed to develop rice-flour-incorporated meatballs from turkey and quail meat using pre-colonial recipes (*Mas guli/ Kurakkal*) and investigate the effect on proximate composition, physico-chemical properties and sensory qualities. A Preliminary study was conducted to evaluate three levels of rice flour incorporation (10%, 15% and 20%). According to the sensory and texture analysis results, 10% inclusion was the optimum inclusion rate of rice flour for this formulation. Based on these findings, three treatments (chicken, turkey, and quail meatballs) were developed using a standardized formulation and evaluated under a completely randomized design (CRD) with three replicates, where chicken meatballs served as the control. The quail and turkey meatballs had significantly ($P < 0.05$) higher protein percentage and lower hardness compared to chicken meatballs. The highest ash content and lowest fat percentage were observed in quail meatballs ($p < 0.05$). Significant differences ($P < 0.05$) in the colour parameters were observed among the samples. The highest a^* value (redness) was observed in quail meatballs, followed by turkey meatballs, while the lowest value was observed in chicken meatballs. Sensory evaluation results showed that quail meatballs had received the highest scores for colour, flavour, juiciness, and overall acceptability. In conclusion, developed quail meatballs exhibited better quality and sensory attributes than turkey and chicken meatballs.

Keywords: Physico-chemical properties, Proximate composition, Rice flour incorporation, Sensory evaluation, Texture analysis