

Substitution of Phosphate with Liquid Smoke as a Binder on the Quality of Chicken Nugget

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Abstract : One of functional properties of the meat is decrease of water holding capacity (WHC) during rigor mortis. At the time of pre-rigor, WHC is higher than post-rigor. The decline of WHC has implication to the other functional properties such as decreased cooking lost and yields resulting in lower elasticity and compactness of processed meat product. In many cases, the addition of phosphate in the meat will increase the functional properties of the meat such as WHC. Furthermore, liquid smoke has also been known in increasing the WHC of fresh meat. For food safety reasons, liquid smoke in the present study was used as a substitute to phosphate in production of chicken nuggets. This study aimed to know the effect of substitution of phosphate with liquid smoke on the quality of nuggets made from post-rigor chicken thigh and breast. The study was arranged using completely randomized design of factorial pattern 2x3 with three replications. Factor 1 was thigh and breast parts of the chicken, and factor 2 was different levels of liquid smoke in substitution to phosphate (0%, 50%, and 100%). The thigh and breast post-rigor broiler aged 40 days were used as the main raw materials in making nuggets. Auxiliary materials instead of meat were phosphate, liquid smoke at concentration of 10%, tapioca flour, salt, eggs and ice. Variables measured were flexibility, shear force value, cooking loss, elasticity level, and preferences. The results of this study showed that the substitution of phosphate with 100% liquid smoke resulting high quality nuggets. Likewise, the breast part of the meat showed higher quality nuggets than thigh part. This is indicated by high elasticity, low shear force value, low cooking loss, and a high level of preference of the nuggets. It can be concluded that liquid smoke can be used as a binder in making nuggets of chicken post-rigor.

Keywords : liquid smoke, nugget quality, phosphate, post-rigor

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