

38 Effect of different cereal binders on the physico-chemical, textural, histological and sensory qualities of retort pouched buffalo meat blocks. I. Prince*^{1,3}, A. S. R. Anjaneyulu², and T. R. K Murthy³, ¹Louisiana State University, Baton Rouge, ²Indian Veterinary Research Institute, Bareilly, U.P 243122, ³National Research Center on Meat, Hyderabad, India.

The functional properties of four binders viz corn starch, wheat semolina, wheat flour and tapioca starch were evaluated to improve the quality of buffalo meat blocks processed in retort pouches at F0=12.13. Incorporation of corn starch in buffalo meat blocks produced more stable emulsion than other binders used. Product yield, drip loss and pH did not vary significantly between the products with different binders. Shear force value was significantly higher for product with corn starch ($0.42 \pm 0.0\text{Kg/cm}^3$) followed by refined wheat flour ($0.36 \pm 0.010\text{Kg/cm}^3$), tapioca starch ($0.32 \pm 0.010\text{Kg/cm}^3$) and wheat semolina ($0.32 \pm 0.010\text{Kg/cm}^3$). Type of binder used has no significant effect on frying loss, moisture and protein content of the product. However fat content was higher in products with corn starch when compared to products with other binders. Texture profile indicated that products made with corn starch ($22.17 \pm 2.55\text{N}$) and refined wheat flour ($21.50 \pm 0.75\text{N}$) contributed firmer texture to the product where as tapioca starch ($17.41 \pm 0.46\text{N}$) and wheat semolina ($16.52 \pm 2.12\text{N}$) with soft texture. Cornstarch contributed greater chewiness (83.8 ± 12.51) to the products resulting in higher sensory scores for texture and over all acceptability. Products containing corn starch showed higher sensory scores for all attributes in comparison to products with other binders. Panelists preferred products containing different binders in the order of corn starch (7.23 ± 0.09) > refined wheat flour (6.48 ± 0.13) > tapioca starch (6.45 ± 0.14) > wheat semolina (6.35 ± 0.13) based on 8 point hedonic scale. Histological studies indicated that products with cornstarch showed dense protein matrix, uniform fat globules and less number of vacuoles when compared to products made with other binders. The results indicated that corn flour is the best cereal binder when compared to all other binders based on physico-chemical and sensory attributes.