

Production and Quality Evaluation of Artisan Spaghetti Incorporated with Xanthan Gum and Eggs

Tasiu¹, Y. G., Alalade², O.M., Atiku³, M.K and Dawi⁴, A. W

¹National Agricultural Extension and Research Liaison Services, Zaria, ²Aliko Dangote University of Science and Technology, Wudil, Kano, Nigeria. ³Bayero University, Kano State, Nigeria. ⁴Federal College of Agricultural Produce Technology, Kano State

Abstract

Locally processed spaghetti is often associated with low mechanical strength and proximate composition. Xanthan gum (XG) and eggs are used by food industries to improve textural properties and nutritional value of foods. Locally processed spaghetti from three different formulation of wheat flour dough consisting XG and egg (3g, 50ml; 2.5g, 40ml; 2g, 30ml) and control sample with neither XG nor egg were produced. The effects of XG and egg on textural properties, proximate composition, and sensory attributes of the spaghetti were analyzed. Proximate composition were determined using standard methods, texture of dry spaghetti was evaluated using fracturability test method, while for the cooked spaghetti texture analyzer machine was used. The sensory profile was investigated using 9-point hedonic scale method. The results showed that incorporating xanthan gum and egg to wheat flour during dough formation significantly modified the properties of the processed spaghetti. There was increased in protein (26.17%), and fat contents (8.07%) compared to the control spaghetti. Sample with higher XG and gum exhibit more hardness (19.01%), cohesiveness (1.39%), and fracturability (78.11%). XG improved mechanical strength of the dried spaghetti, hardness (19.01%), cohesiveness (1.39%), and fracturability (78.11%) compared to other samples. However, sensory evaluation highlighted a need to manage the aroma due to the eggy smell. This research highlights the potential of xanthan gum and egg as functional additives to enhance the quality, textural and sensory properties of locally processed spaghetti. The findings provide a foundation for scaling up production and improving the competitiveness of local pasta producers in the market.

Key Words: Xanthan Gum, Egg, Spaghetti quality and Textural characteristics

