Effect of Microbial Transglutaminase Enzyme on Textural Properties and Water Holding Capacity of Jackfruit (*Artocarpus heterophyllus*) Incorporated Veggie Fingers

Jayalath A.D.W., Fernando P.R.M.K., Jayawardene N.[1], Vidanarachchi J.K., and Himali S.M.C.[*]
Department of Animal Science,
Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka

Jackfruit is an excellent source of carbohydrates, proteins, vitamins, and minerals. The current study was carried out to formulate a veggie finger using jackfruit and to identify the effect of microbial transglutaminase (MTG) on its quality. The preliminary studies revealed that 25% of jackfruit is the optimum level to be incorporated into veggie fingers. Three formulations (F1, F2 & F3) of veggie fingers were formulated by incorporating 25% of jackfruit. F1 contained 5% kidney bean powder, 10% isolated soy protein (ISP), and 5% texturized vegetable protein (TVP), F2 contained 5% chickpea flour and 15% ISP and F3 contained 5% chickpea flour, 5% ISP, 5% oats, and 5% wheat gluten. According to the sensory evaluation findings, F1 and F2 were selected for further improvements and, were treated with MTG at levels of 0%, 1%, and 1.5% and were subjected to sensory evaluation. Selected veggie fingers with the best level of MTG were subjected to analysis of water holding capacity (WHC), hardness, cooking loss, pH, 2-thiobarbituric acid reactive substances (2-TBARS) value, and proximate composition. The WHC of F1 (0% MTG), F1+1% MTG, F2 (0% enzyme), and F2+1% MTG were 43.47±0.52%, 46.34±0.48, 43.29±0.83%, 46.26±1.16% respectively. The hardness of veggie fingers was significantly ($P<0.05$) increased with the addition of MTG while the cooking loss was significantly ($P<0.05$) decreased. The pH and 2-TBARS values were not significantly different ($P>0.05$) among treatments. F1 with 1% of MTG was selected as the best formulation based on sensory evaluation and the overall findings. The dry matter content and the crude protein content of the Jackfruit containing veggie finger with 1% MTG were 45.61±1.13% and 19.61±0.63% respectively. It can be concluded that 1% MTG is the most suitable for Jackfruit containing veggie fingers and it can increase the WHC, and hardness while reducing the cooking loss.

Keywords: Jackfruit, MGT, Sausage analog, Veggie fingers, Vegetarian food

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[1]Allex International (Pvt.) ltd., 195/5, Ranaviru Prabath Cooray Mawatha, Rajagiriya, Sri Lanka
[*]smchimali@agri.pdn.ac.lk