DEVELOPMENT OF VALUE ADDED PRODUCTS FROM TILAPIA: A PRELIMINARY AND INNOVATIVE APPROACH TO IMPROVE TILAPIA FISHERY SECTOR IN SRI LANKA

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Abstract

Tilapia is one of popular freshwater food fish in aquaculture industry over the world including Sri Lanka. Innovative, processed and ready-to-eat fish products from Tilapia are still limited in local market of Sri Lanka. Current study focused on development of low cost, value added, nutritional fish products using Nile Tilapia: *Oreochromis niloticus*. Raw tilapia fish samples were purchased from Sorabora reservoir having highest production in Badulla district. Fish wafer was processed using 3 different ratios of tapioca: corn flour (treatment 1-1:1/ treatment 2-2:1/ treatment 3-5:1). Minced fish was employed to prepare fish noodles using 4 treatments with different flour and oil combinations (treatment 1: wheat flour 43% +coconut oil 1.5%, treatment 2:wheat flour 43%+vegetable oil 1.5%, treatment 3:red rice flour 43%+coconut oil 1.5%, treatment 4:red rice flour 43%+vegetable oil 1.5%). Fish patties were formulated and undergone for different cooking temperatures (60°C, 80°C, and 100°C). Final products were analyzed for organoleptic parameters (color/texture/ aroma/mouth feel/ taste/overall acceptance), proximate composition, keeping quality tests and color during storage period. Fish wafer with 1:1of tapioca: corn flour and fish noodles with 43% wheat flour+1.5% vegetable oil were recorded highest consumer preference ($P<0.05$). Treatment method had significant effect on lipid content of wafer products (31.60-42.04%, $P<0.05$), while lipid levels of all noodles products were not significantly different at range between 8.8-12.1% ($p>0.05$). The higher consumer preference was gained by 80°C treated one in fish patties. There was no significant difference in color a*(redness), b*(yellowness), L*(lightness), pH, TBARS, moisture and ash contents with different treatments of wafer (pH: 7.48-6.60, TBARS:1.4-1.9 MDAmg/kg, moisture: 12.52-14.38%, ash: 3.20-5.26%) and noodle products (pH: 7.43-6.46, TBARS:1.8-1.3 MDAmg/kg, moisture: 10.16 11.83%, ash: 1.63-2.15%). In the fish patties ash, moisture and fat content was not significantly differ (ash: 2.18%, moisture: 78%, fat 13.35%). Color value and TBARS were significantly differ ($p<0.05$) during the storage of 12days. Production costs of all three products were significantly lower compared to the cost of available similar products in market. In conclusion, current study showed suitability of production of value-added fish wafer, noodles and fish patties using low cost Tilapia as alternatives for conventional, expensive seafood sources.