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Synergistic interaction of binders in development of tilapia fish sausage

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Nile tilapia (*Oreochromis niloticus*) is a relatively abundant inland fish that has a wide distribution in Sri Lanka. It has a limited acceptance for consumption in cooked form due to its unacceptable flavor, unacceptable odor and inconvenient preprocessing practices and less dress-out (53% yield). Hence, during the harvesting period there is a huge production that could be used for the preparation of various types of fisheries products. This study aims to develop a tilapia mince based precooked sausage that matches the acceptability of local consumers. However, the muscle fiber content and strength of collagen is less in tilapia meat and improving this property is especially addressed in the study during the preparation of tilapia fish sausage. Thus, optimizing the synergistic interaction of commercially practicing binders i.e. isolated soy protein (ISP), modified starch (Taric), phosphate binder with cereal binders i.e. red rice flour, finger millets flour and white rice flour were tested in this study. Approximately, 600 – 750 g of weight and 22 – 27 cm length of tilapia fish were used for processing. Binding properties were evaluated by standard methods i.e. determination of cooking losses, water holding capacity and folding test. Sensory evaluation was conducted for taste, texture, colour according to the simple ranking test to determine the best acceptable product. Synergistic interaction between ISP, Taric and cereal binders was tested with five combinations of binders by evaluation of its quality for a 20 day period under frozen conditions (-18°C). White rice flour (6%), ISP (2%) and Taric7 (1%) was selected as the best combination of the binders as sausage prepared with this combination shows high water holding capacity (58%) and lowest cooking losses (13%) after 20 days. Accordingly, tilapia mince (60%), water (20%), palm oil (7%), binder mix (9%), spices mixture (1.5%), roasted curry powder mix, salt, sodium ascorbate and nitrate salt combination was identified as the best ingredient composition for tilapia sausage. The most preferable spice mixture was identified as red chili, garlic, ginger, cinnamon, clove and black pepper that could alter the muddy flavor of tilapia. The results indicate that tilapia fish mince can be successfully utilized for preparation of fish sausage for local consumers.

Keywords: Tilapia sausage, synergistic interaction, cereal binders, texture

Acknowledgments: Financial assistance by NARP/12/WUSL/LFN/2012/01

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