

CONSUMER PREFERENCE OF SMOKED DRY TILAPIA FISH PROCESSED WITH DIFFERENT ADDITIVES

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Smoking is a method of food preservation used since antiquity. Large amount of salt and long smoking duration are used to preserve the fish. At present, smoked fish is prepared giving priority for flavor and appearance¹. Using spoiled and freezer burned fish, produce poor quality smoked products. Traditionally tilapias have been of major importance world-wide in small scale commercial or subsistence fishing, especially in Africa and Asia. It is the third most widely cultured fish, after carp and salmonids. Tilapia is nutritious and forms a healthy part of a balanced diet, rich in protein (16-25%), low in fat (0.5-3.0%) and substitutes well in any seafood recipe². Smoked or dried fish is a prominent part of the diet of a large section of the world population. However, the gap between the demand and supply of fish is widening due to increasing population, poor postharvest handling, lack of processing and storage facilities and utilization of unconventional fish species³. The present study focuses on identifying the consumer preference for smoked dry Tilapia fish processed with different additives.

Traditional smoking methods for fish were investigated by interviewing 20 fishermen in Bingiriya area, using a questionnaire. Head, skin and visceral organs of fresh Tilapia were removed and washed properly. The cleaned fish were divided into 4 samples each with a weight of 1kg. Four treatments were used, without any additives (T1), with only salt (T2), salt with chili powder (T3), and salt with pepper powder (T4). The fish samples were preserved by wood smoke in smoke-house separately for 2 weeks (Fig.1). Four smoked fish samples were cooked separately using the same cooking method with addition of tomatoes, onion, coconut oil and curry leaves. Taste of each treatment was evaluated by three different groups of individuals (staff and students of Rajarata University, villagers in Bingiriya area) using questionnaires and were analyzed using Kruskal Wallies test. These groups were selected to represent individuals with different backgrounds viz. educated (university staff), young (university students) and rural community (people from Bingiriya area).

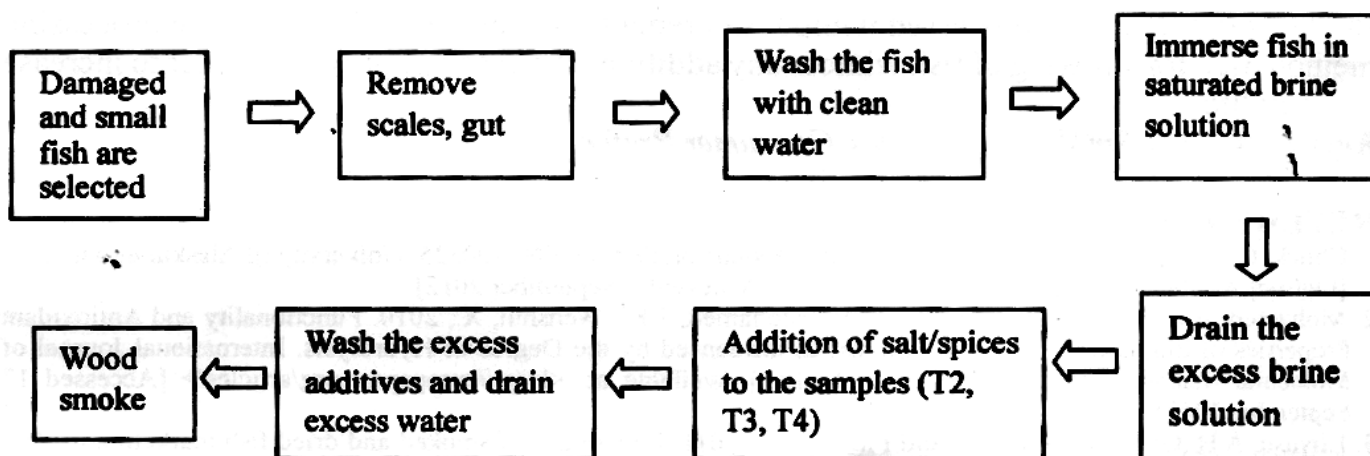


Fig. 1: Flow diagram to illustrate the procedure of processing smoked dry Tilapia

Table 1: Comparison of four different types of smoked dry tilapia fish among the population groups

Population group	Chi-Square	Rank values and type of additives			
		Highest		Lowest	
Staff of Rajarata University	16.97*	29.20	without salt	9.90	salt & chili
Students of Rajarata University	15.01*	28.10	without salt	10.75	salt & chili
Villagers in Bingiriya	7.02	26.50	with salt	13.50	salt & chili

There was a significant difference ($p < 0.05$) among the four treatments for the two groups viz. staff and students of Rajarata University (Table 1). Highest rank value of 29.20 was analyzed for T1 (without salt) and lowest rank value (9.90) for T3 (with chili and salt). Ranking by students of Rajarata University, showed the highest T1-28.10, and the lowest value T3-10.75. However, the villagers in Bingiriya area ranked T2-26.50 and T3-13.50 as highest and lowest, respectively. Smoked dry Tilapia fish without any additives was preferred by staff and students of Rajarata University may be due to the taste, which was more palatable as they could feel the real taste of fish, fried with coconut oil, tomatoes, onion and curry leaves. The villagers in Bingiriya area usually process smoked dry Tilapia fish with high percentage of salt, hence they may prefer the smoked fish with salty taste that is most familiar to them. Among the additives, the chilli powder found the lowest rank value, hence it may reveal that it is not palatable as pepper. Since the pepper added smoked Tilapia fish resulted a moderate preference, it could be used as an additive in smoked fish processing. Although, smoked dry tilapia fish could be processed with different additives, fish without additives could be used for any type of cooking method. Consequently it may give different tastes for the smoked Tilapia fish according to the recipe of cooking. Smoking procedure preserves the fish by drying, precooking and depositing natural wood-smoke chemicals such as phenols and aldehydes, which have powerful bactericidal action for preventing the growth of microorganisms on the flesh of the fish⁴. The addition of salt also enhances the inhibition of bacterial and fungal growth. Preservation of smoked dry tilapia fish processed without salt remains a challenge. Therefore the processing method used for smoking of fish without any additives should be improved in order to increase the shelf life.

Keywords: Fish, Smoked fish, Spices, Consumer Preference

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