

## **Effect of Frying in Different Cooking Oils on the Fatty Acid Profile and Sensory Characteristics of Tilapia (*Oreochromis niloticus*) Fillets**

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Fish is one of the most abundant sources of essential fatty acids. Among many fish species, Nile tilapia (*Oreochromis niloticus*) is a popular culture species in aquaculture industry and they heavily contribute to the worldwide fish consumption. Fish is mainly consumed in fried forms in many countries and the alterations in the fatty acid composition during frying process may have significant effects to human health. This study was performed to determine the effects of frying with three different cooking oils (soybean, sunflower and coconut oil) on the fatty acid profiles and sensory characteristics of tilapia fillets. Fish were purchased from local fish shop in Badulla and transported to the university laboratory under chilled condition. Tilapia fillets were deep fried in the three different cooking oils separately and the fatty acid composition of each group was evaluated using gas chromatography. The fat content of the fillets increased after frying in all evaluated samples ( $P < 0.05$ ). Mean saturated (SFA), monounsaturated (MUFA), polyunsaturated (PUFA) fatty acids, Total (E)-3 and E-6 contents of raw fillets were 43.26, 10.55, 29.90, 11.26, 26.31, 11.65, 15.43, 11.17 and 10.88, 10.53%, respectively. Frying led to exchange of fatty acids between the tilapia fillets and cooking oils. As a result of interactions, PUFA, E-6 and PUFA/SFA ratio of samples fried in soybean and sunflower oil significantly increased while the amounts of SFA decreased ( $P < 0.05$ ). Frying had a negative effect on the E-3, EPA and DHA amounts in all fried samples. E-6/E-3 ratio was optimum in soybean oil fried samples while sunflower and coconut oil fried samples values were not in the recommended level to health. Frying with coconut oil showed high SFA, MUFA and low PUFA levels among all samples. In concern to sensory results, both sunflower and soybean oil-fried samples obtained positive results. By considering all the facts, soybean oil can be considered as the best cooking oil to fry tilapia fillets.

Keywords: Tilapia, Deep frying, Soybean oil, Coconut oil, Fatty acids