COMPARISON OF LIPID PROFILE OF SMOKED CATLA (*Catla catla*) WITH DIFFERENT COMBUSTION CONDITIONS

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ABSTRACT

Fish lipids are considered as one of the major sources of polyunsaturated fatty acids including docosahexaenoic (DHA) and eicosapentaenoic (EPA) acids. Since fish is a highly perishable food item, preservation techniques are needed to keep the quality of fish at a higher level for longer shelf-life. Smoking is one of most popular fish preservation techniques and during which lipid profile of fish may be changed resulting in the reduction of nutritional value of fish. This study was conducted to compare the lipid profile of smoked fish made under different combustion conditions. Medium sized (2-3 kg) male Catla fish (*Catla catla*) were selected from a local reservoir in Ampara district. Fish were brought to the laboratory under chilled conditions and fish fillets were prepared for smoking. Smoking was carried out at 45°C for 2-4 hours. Mahogany, Paddy straw, Cinnamon and Gliricidea were selected as the combustion materials according to the availability and low cost. Lipid extraction was carried out from the smoked fish samples. The composition of lipid extracts of smoked fish were compared with the lipid extract of raw fish by Gas Chromatography-Mass Spectroscopy method and Thin Layer Chromatography method. The level of unsaturation was compared by calculating iodine, acid, peroxide and saponification values. Smoke was collected from the combustion materials and analyzed using Gas Chromatography-Mass Spectroscopy to determine the composition of the smoke. Results showed that there was a significant difference ($p < 0.05$) in the level of unsaturation between the lipid extracts of the smoked fish and raw fish. According to the results from titrations, Mahogany was selected as the best combustion material. In concluding the results, during the processing of fish chemical changes occur which changes the fish nutritional value.

Keywords: *Catla*, Lipid extraction, Fatty acids, Gas chromatography-mass spectroscopy, Smoke