

Quality Analysis of Lake Malawi's Diplotaxodon Fish Species Processed in Solar Tent Dryer versus Open Sun Drying

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Abstract : Improved solar tent dryers for processing small fish species were designed to reduce post-harvest fish losses and improve supply of quality fish products in the southern part of Lake Malawi under CultiAF project. A comparative analysis of the quality of Diplotaxodon (Ndunduma) from Lake Malawi processed in solar tent dryer and open sun drying was conducted using proximate analysis, microbial analysis and sensory evaluation. Proximates for solar tent dried fish and open sun dried fish in terms of proteins, fats, moisture and ash were $63.3\pm 0.15\%$ and $63.3\pm 0.34\%$, $19.6\pm 0.09\%$ and $19.9\pm 0.25\%$, $8.3\pm 0.12\%$ and $17.0\pm 0.01\%$, and $15.6\pm 0.61\%$ and $21.9\pm 0.91\%$ respectively. Crude protein and crude fat showed non-significant differences ($p = 0.05$), while moisture and ash content were significantly different ($p = 0.001$). Open sun dried fish had significantly higher numbers of viable bacteria counts (5.2×10^6 CFU) than solar tent dried fish (3.9×10^2 CFU). Most isolated bacteria from solar tent dried and open sun dried fish were 1.0×10^1 and 7.2×10^3 for Total coliform, 0 and 4.5×10^3 for Escherichia coli, 0 and 7.5×10^3 for Salmonella, 0 and 5.7×10^2 for shigella, 4.0×10^1 and 6.1×10^3 for Staphylococcus, 1.0×10^1 and 7.0×10^2 for vibrio. Qualitative evaluation of sensory properties showed higher acceptability of 3.8 for solar tent dried fish than 1.7 for open sun dried fish. It is concluded that promotion of solar tent drying in processing small fish species in Malawi would support small-scale fish processors to produce quality fish in terms of nutritive value, reduced microbial contamination, sensory acceptability and reduced moisture content.

Keywords : diplotaxodon, Malawi, open sun drying, solar tent drying

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