



Tropentag, September 17-19, 2018, Ghent

“Global food security and food safety:
The role of universities”

The Future Role of Fish in Food Security and Nutrition in Sudan

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Abstract

The demand for fish production in Sudan will continue to increase over the next decade. The total fish production in 2016 was over (35 thousand tons), indicating that fish is a possible sustainable solution for food security and increased dietary nutrition in Sudan, where people rely on fish as their primary source of animal protein. This study was designed to determine the quality of commercial Nile fishes and their role in food security in Sudan. Proximate composition, minerals and lipid contents as well as amino and fatty acids in muscles, head, liver and fat tissues were determined in both fresh and processed fish. Fresh fish was found to contain (59.8–84 g/100 g) protein, (11.8–26 g/100 g) lipid and (104.3–176.2 mg/100 g) of total minerals, while dry fish contained (59.9–78.8 g/100 g) protein, (2–16.6 g/100 g) lipids and (4.4–28.9 mg/g) of minerals. Total fatty acids, TFA, in muscles of fresh fish was (4–40.1 g/100 g), polyunsaturated fatty acids, PUFA (1–5.9 g/100 g), monounsaturated fatty acids, MUFA (1.1–15.7 g/100 g), omega-6 and omega-3 (0.3–1.8 and 0.9–3.4 g/100 g), respectively. Fish liver contained (4.5–19.3, 0.5–2.9, 1.5–4.7 g/100 g) of TFA, PUFA and MUFA, respectively. Fat tissues contained (248.6–270.8 g/100 g) TFA, (19.7–34.1 g/100 g) PUFA and (14.4–36.7 g/100 g) MUFA. Nile fish also contain essential amino acids need by humans. The data indicated that the muscles of both fresh and processed Nile fish are of high nutritional value and good source of proteins, minerals as well as essential fatty and amino acids. Even the head and liver which are discharged as wastes contain substantial amount of protein, minerals and lipids. The overall significance of this study is the revelation that the muscle and fat tissues of the Nile fish are good sources of essential nutrients important for human dietary needs. Both dry and fermented products of fish may play a good role in food security for people in remote areas.

Keywords: Fatty acids, fish, food security, minerals, quality, Sudan