

Fatty acid composition of Farmed Bluefin Tuna (*Thunnus thynnus*) from the Mediterranean Sea

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Many studies have demonstrated that dietary intake of long chain ω -3 polyunsaturated fatty acids (ω -3 PUFA) has beneficial effects on human health. In particular eicosapentaenoic acid (C20:5 ω 3) and docosahexaenoic acid (C22:6 ω 3) are abundant in fish tissues and protect against cardiovascular, autoimmune and inflammatory diseases and certain types of cancer (prostate, colon, and ovary).

The purpose of this study was to investigate fatty acid composition in the muscle and gonads of bluefin tuna specimens farmed in cages in the Mediterranean Sea. The bluefin tuna (*Thunnus thynnus*) is biologically and economically important in the Atlantic and Mediterranean ecosystems and is a top predator in the marine trophic web. The tuna farming industry in the Mediterranean has grown rapidly in the last few years. Several Mediterranean countries practice this activity in order to satisfy market demands.

Gas chromatography revealed that in the muscle tissue monounsaturated fatty acid was the most abundant family (32.44 %), while in gonads the saturated fatty acids (30.52 %) prevailed over other families. In both tissues, palmitic acid (C16:0), oleic acid (C18:1 ω 9) and docosahexaenoic acid (C22:6 ω 3) were the major fatty acids among saturated, monounsaturated and polyunsaturated fatty acids, respectively. In both tissues ω -3 PUFAs were more abundant than the ω -6 PUFAs. The predominant PUFAs were C22:6 ω 3 (9.03 % in muscle and 11.09 % in gonads) and C20:5 ω 3 (7.01 % in muscle and 8.4 % in gonads). Among the ω -6 PUFAs, arachidonic acid (C20:4 ω 6) was the most abundant in both muscle (5.75 %) and in gonads (4.34 %).

These results confirmed that the bluefin tuna is a good dietary source of ω -3 polyunsaturated fatty acids.