

## Vitamin Content of Swordfish (*Xiphias gladius*) Affected by Salting and Frying

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**Abstract :** The swordfish (*Xiphias gladius*) is a large oceanic fish of high commercial value, which is widely distributed in waters of the world's oceans. They are considered to be an important source of high quality proteins, vitamins and essential fatty acids, although only half of the population follows the recommendation of nutritionists to consume fish at least twice a week. Swordfish is consumed worldwide because of its low fat content and high protein content. It is generally sold as fresh, frozen, and as pieces or slices. The aim of this study was to evaluate the effect of salting and frying on the composition of the water-soluble vitamins (B<sub>2</sub>, B<sub>3</sub>, B<sub>9</sub> and B<sub>12</sub>) and fat-soluble vitamins (A, D, and E) of swordfish. Three loins of swordfish from Pacific Ocean were analyzed. All the fishes had a weight between 50 and 70 kg and were transported to the laboratory frozen (-18 °C). Before the processing, they were defrosted at 4 °C. Each loin was sliced and salted in brine. After cleaning the slices, they were divided into portions (10×2 cm) and fried in olive oil. The identification and quantification of vitamins were carried out by high-performance liquid chromatography (HPLC), using methanol and 0.010% trifluoroacetic acid as mobile phases at a flow-rate of 0.7 mL min<sup>-1</sup>. The UV-Vis detector was used for the detection of the water- and fat-soluble vitamins (A and D), as well as the fluorescence detector for the detection of the vitamin E. During salting, water and fat-soluble vitamin contents remained constant, observing an evident decrease in the values of vitamin B<sub>2</sub>. The diffusion of salt into the interior of the pieces and the loss of constitution water that occur during this stage would be related to this significant decrease. In general, after frying water-soluble and fat-soluble vitamins showed a great thermolability with high percentages of retention with values among 50–100%. Vitamin B<sub>3</sub> is the one that exhibited higher percentages of retention with values close to 100%. However, vitamin B<sub>9</sub> presented the highest losses with a percentage of retention of less than 20%.

**Keywords :** frying, HPLC, salting, swordfish, vitamins

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