Proximate composition, nutritional lipid quality, and health indices of largemouth bass (*Micropterus salmoides* Lacépède, 1802) from several Mediterranean reservoirs

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ABSTRACT

The largemouth bass (*Micropterus salmoides* Lacépède, 1802) is one of the most searched species in sports fishing in the world, including Portugal. In inland regions it is culturally consumed over the last century. The aim of this study was to characterize the proximate composition and evaluate the nutritional lipid quality of wild largemouth bass from the Alentejo region (south Portugal) and compare it temporally (winter versus summer) and spatially, according to the reservoir where individuals were captured. In this study we found that the reservoir characteristics, the time of year, as well as the interaction of these two factors had a significant effect on the proximate composition and nutritional lipid quality of largemouth bass in Mediterranean ecosystems. Basses from Póvoa e Meadas revealed the highest lipid content (3.7% dry weight) and the highest gross energy content (479.8 kcal/100g) when compared with fish from Morgavel (2.5% and 471 kcal/100g respectively) and the highest protein content (19.49%) and gross energy content (479.8 kcal/100g) in relation to fish from Monte Novo (17.42% and 475 kcal/100g, respectively). Concerning the largemouth bass fillet analysis, ω3-FA family was the most representative, followed by the ω6-FA, ω9-FA, and finally ω7-FA family in all reservoirs and in both capture periods. Results also confirm that adult bass have a carnivorous behavior, by presenting high values of C18:1ω9 (10-12%) and low value of C20:5ω3/C22:6ω3 ratio (0.30). Basses fillet lipid profile based on fatty acid trophic markers used revealed the presence of macroalgae, microalgae and heterotrophic bacteria fatty acids origins. The lipid health indexes result suggest that the flesh of wild largemouth bass provides nutritional benefits based on its lipid profile. Present results can contribute to evaluate the value of wild largemouth bass as a gastronomic item for consumers.

Keywords: Wild largemouth bass, nutritional quality, fatty acid profile, lipid health indexes, Mediterranean reservoirs.