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ABSTRACT BOOK

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P-022 THE EDIBLE *FUCUS SPIRALIS* LIFE-CYCLE: GC-MS PROFILE ANALYSIS

Ana M. L. Seca[a, b],*, Nuno F. B. Aguiar[b], Vera L. M. Gouveia[a], Artur M. S. Silva[b] and Diana C. G. A. Pinto[b]

[a] Department of Technological Sciences and Development, University of Azores, 9501-801 Ponta Delgada, Portugal.

[b] Department of Chemistry & QOPNA, University of Aveiro, Campus de Santiago, 3810-193 Aveiro, Portugal.

Fucus spiralis Linnaeus, known in Azores as "Fava-do-mar" is an edible brown macroalga (Ochrophyta (Phaeophyceae)) which can be found on rocks at upper intertidal levels, where it forms a patchy zone [1]. It is the only member of the genus *Fucus* that can be found in Azores and its receptacles are eaten as a local delicacy [1]. Nutritionally, it is very rich in fiber (crude content 63.9% dw) [2], contains important minerals Na, K, Mg, Ca and low content in lipids (5.2%) [3]. This edible seaweed is also rich in secondary metabolites, such as phlorotannins, sterols and fatty acids, which are associated with several biological activities [4]. From the human health point of view, all the above mentioned constituents are of extreme importance and show the potential of *F. spiralis* as a nutraceutical product.

It is known that the chemical composition varies between macroalga species and is also dependent on environmental factors and geographical location [5]. However, as far as we know the metabolomic profile changes throughout its life cycle has not been explored. GC-MS is an extremely useful tool for assessing these differences (quantitative and qualitative) in profile of volatile and non-volatile (but capable of being volatilized for example by silylation) since it is versatile, cheap, efficient and reliable method.

The main goal of this research was to identify, by GC-MS, the differences and/or similarities on chemical composition of hexane fractions obtained from the methanolic extracts of fresh *F. spiralis* collected in two phases of its life cycle (juvenile and mature phases). The results showed that in both phases are identified alkanes, fatty acids, sugars, alditols, sterols, monoacylglycerols, tocopherol and free glycerol, being the hydroxylated compounds identified as TMS derivatives.

In juvenile phase the most abundant constituents are mannitol (25.4%), palmitic acid (16.1%) and fucosterol (11.7%) while the most abundant classes are fatty acids, and alditols (Fig 1). In the mature phase the profile is very similar. It is noteworthy that the sterols content decreases while the fatty acids content increases (Fig 1). Interesting compounds such as citric and steraric acids and desmosterol were only found in the mature phase. The differences and/or similarities of juvenile and mature *F. spiralis* profile will be presented and discussed.

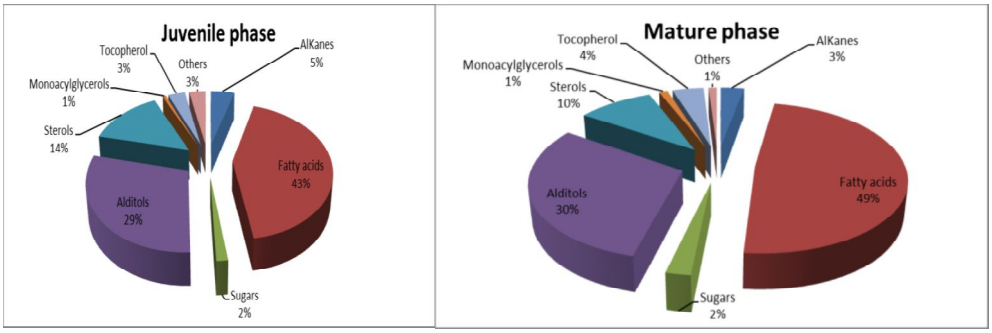

Figure 1. GC-MS quantitative results obtained for hexane fractions of methanol extracts from juvenile and mature *Fucus spiralis*

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