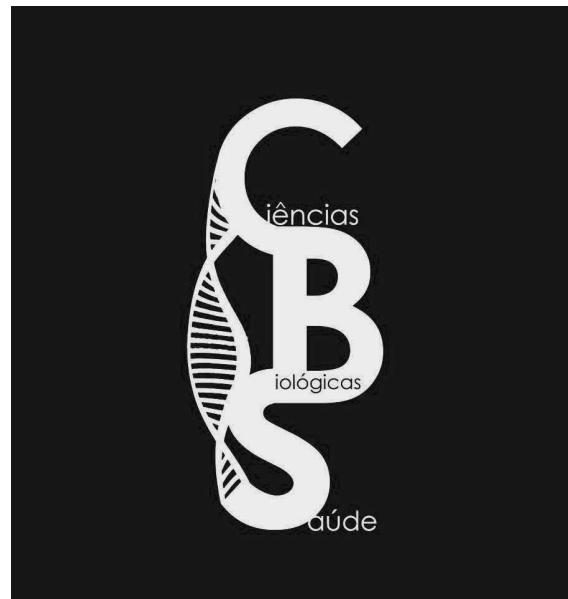




Universidade dos Açores
Departamento de Biologia
Licenciatura em Ciências Biológicas e da Saúde

Projecto – CBS
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Relatório de Projecto

“Phytochemistry and biological activities of *Fucus spiralis* fractions containing long-chain compounds”

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Phytochemistry and biological activities of *Fucus spiralis* fractions containing long-chain compounds

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ABSTRACT

Fucus spiralis Linnaeus, of the order Fucales, is an edible seaweed rich in secondary metabolites, such as phlorotannins, glycolipids, sterols and fatty acids, which are associated with several biological activities. In this project, the fraction of dichloromethane from the dichloromethane extract of *Fucus spiralis* that was collected in the coast of São Miguel island, were tested to evaluate their biological activities and were further purified. Fractions 2.2.1, 2.2.4 and 2.2.12 were tested for antioxidant, anticholinesterasic, and antitumor activities and fractions 2.2.2 and 2.2.4 were fractionated by preparative thin layer chromatography and the compounds obtained were recovered from silica, the solvent evaporated and the samples sent to nuclear magnetic resonance and mass spectrum analysis. As far as it was possible to determine, this is the first time that these 4 compounds (pentacosane, nonadecanoic methyl ester, 1-heneicosanol alcohol and monounsaturated tricontenoic acid) were isolated in the *Fucus spiralis* specie and in the *Fucus* genus. Given the commercial value of some of this compounds (mainly 1-heneicosanol alcohol, 1g \cong 540€), a future work would be the optimization of the extraction conditions of the interest compounds from *Fucus spiralis*, in order to increase the income.

INTRODUCTION

The Azores is an archipelago in the center of the Atlantic Ocean composed of nine islands situated about 1,500 km west of continental Portugal. It is characterized by a diversified culture with unique traditions, beautiful landscapes, a subtropical climate and a remarkable mix of biodiversity in flora and fauna of land and sea (especially this one) that attracts thousands of tourists each year and makes tourism one of the main industries of this region (Bentz *et al.*, 2013), along with dairy farming, agriculture and fishing.

As mentioned before, the sea is a very important sector for the economic development of the region, but it can offer a lot more than just fish to be fished and wale watching. Other niche markets are waiting to be explored and developed. The Azores archipelago is rich in algal communities, and some of them have been already used as food (e. g. *Fucus spiralis* and *Osmundea pinnatifida*) and in industry (e. g. *Gelidium microdon*) in the region (Neto *et al.*, 2006). Considering that in the last years, there has been an increase in the interest in macroalgae and their use in the