

BIO-GUIDED ISOLATION OF ANTIPROLIFERATIVE MICROALGAE CULTURES

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Abstract: The search for new therapeutic agents for the treatment of diseases such as cancer is a topic of special interest as alternative to fight the increasing resistance to antiproliferative drugs (De Vera et al., 2018). That is why attention is focused on the study of the marine ecosystem as a potential source of new compounds. The exceptional diversity of chemical components of microalgae and their high unused biomass may represent a main step in the development of anticancer drugs (El-Hacka et al., 2019).

The present study shows the bio-guided isolation of two extracts of the species *Chrysoeinhardia giraudii* cultured in two different nutrient medium (F/2 and seawater diluted centrate-SDC) (Arashiro et al., 2020) in 80-400 L photobioreactors under outdoor natural conditions. Both extracts showed antiproliferative activity when tested against 6 cancer cell lines. Different chromatographic techniques allowed to separate the active compounds and their molecular structures analyzed by application of spectroscopic and spectrometric methods.

The results show that most of the active compounds isolated from the F/2 extract fit a characteristic pattern of triglycerides and fatty acids, and also an active sterol was isolated. Additionally, the SDC extract yielded a halogenated polyphenolic nature compound. This work demonstrate the importance of culture medium as a key factor in the production of secondary metabolites, and constitutes the first chemical study of the species *C. giraudii*.

Key words: Marine natural products, triglycerides, sterols, polyphenols, antiproliferative activity, marine microalgae.

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