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Chemical and biological studies from an Azorean macroalga: *Ulva rigida*

Madalena L. C. Silva,[a] Luís M. Mira Vieira,[b] Ana P. Almeida,[a] Artur M. S. Silva,[c] Anake Kijjoa, [b,d] Ana M. L. Seca,[e] Maria do Carmo Barreto[e,f]

[a]Centro de Química Medicinal da Universidade do Porto (CEQUIMED-UP), Portugal; [b]Instituto de Ciências Biomédicas de Abel Salazar, Universidade do Porto, Portugal; [c]Departamento de Química da Universidade de Aveiro, Portugal; [d]CIIMAR, Universidade do Porto, Portugal; [e]DCTD, University of Azores, Rua Mãe de Deus, 9501-801 Ponta Delgada, Portugal. [f]CIRN, 9501-80 Ponta Delgada, Portugal.

New drugs from natural sources have been targets of the drug discovery program and some bioactive compounds from macroalgae such as sulfated polysaccharides, steroids and diterpens have found their applications in the pharmaceutical industry.[1,2] Consequently, we have investigated the chemical composition and the *in vitro* antitumor potential of the metabolites isolated from the macroalga *Ulva rigida*, collected from the Azorean coast, an environmentally healthy habitat with a high level of biodiversity. We hereby describe isolation of isofucosterol (**1**) and 7(*E*)-3*β*-hidroxy-5α, 6α-epoxymegastigmane (**2**) from the methanol extract of *Ulva rigida*, collected in May of 2011 in the Sea of St Miguel Island - Azores archipelago. The process of isolation of these metabolites involved chlorophylls elimination by the method previously described[3] and fractionation by column chromatography. The structures of **1** and **2** were established by 1D and 2D NMR spectral analysis and specific rotation as well as comparison of their spectral data with those described in the literature.[4,5] Compounds **1** and **2** were evaluated for their capacity to inhibit the *in vitro* growth of three human cancer cell lines: MCF-7 (breast adenocarcinoma), NCI-H460 (non-small cell lung cancer) and A375-C5 (human skin cell line), using the protein binding dye SRB method. The results showed that compound **1** exhibited only a weak activity against MCF-7 (GI_{50} = 122.2 ± 17.9 μM), NCI-H460 (GI_{50} = 128.4 ± 32.4 μM), A375-C5 (GI_{50} = 119.2 ± 28.9 μM), while compound **2** was inactive against all the three cell lines (GI_{50} >200 μM).

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References

[1] Gupta, S. and Abu-Ghannam N. *Food Science & Technology* **2011**, 22, 315-326.
[2] Khanavi, M.; *et al*. *Pharmacognosy Magazine* **2012**, 8, 69-64.
[3] Kijjoa, A.; *et al*., *Phytochemistry* **2002**, 59, 543-549.
[4] Kodai, T.; *et al*. *Chemical & Pharmaceutical Bulletin* **2007**, 55, 1528-1531.
[5] D´Abrosca, B.; *et al*. *Phytochemistry* **2004**, 65:497-505.