

# Pharmacognostical Studies of *Undaria pinnatifida* (Alariaceae), an Allochthonous brown Seaweed from the Golfo San Jorge (Patagonia Argentina) †

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**Abstract:** There are many antecedents showing *Undaria pinnatifida* as a potential source of bioactive metabolites worldwide. In this context, this work aimed to analyze the chemical composition and biological activity of the algae collected in autumn in the Golfo San Jorge (45°57'41.8"S, 67° 33'20.9" W). The fronds were dried, grounded, and exhaustively extracted by different methodologies, obtaining EOH1, EOH2, EUpOMeOH. They were analyzed by chemical screening, planar, and gas chromatography; the biological activities were evaluated by determination of cytotoxicity against *Artemia salina* and antibacterial activity against typified bacterial strains. The main metabolites were phenolic acids (caffeic, ferulic), flavonoids (cacticin, quercitrin), tannins, lipids (mono and diglycosylglycerides, fatty acids, cholesterol), steroids, triterpenes, carbohydrates (mannitol, monosaccharides), cardiotoxic glycosides (k-strophanthoside and convalatoxin type). The extracts showed outstanding cytotoxicity with an LD<sub>50</sub> of 16.75 and 312.20 µg/ml for EOH2 and EUpOMeOH, respectively. Antibacterial activity was negative. Our results show a complex chemical composition coinciding with that indicated for other countries, although the determined flavonoids and cardiotoxic had not been reported for the species. The cytotoxicity evidence presumes antitumor activity and is related to the determined metabolites, positioning *U. pinnatifida* as a promising source of products of pharmaceutical interest.

**Keywords:** *Undaria pinnatifida*; Golfo San Jorge; bioactive metabolites; marine pharmacognosy.

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## **Conflicts of Interest**

The authors declare no conflict of interest.