

Analytical phytochemical analysis of the major secondary metabolites of *Chondrus crispus* and *Swertia japonica*, and their correlation with their pharmacological properties



Michalis Skattou¹, Dr Michael Plioukas^{*1}

ABSTRACT

Chondrus crispus is red seaweed widely distributed in the north western and north eastern Atlantic Ocean used in cooking and herbal remedies in some countries. Because of its content in carrageenans, it is used as a thickening and stabilizing agent in the food industry. *Swertia japonica* is a plant grown in Japan, Korea and China, recommended by local populations for the treatment of stomach-ache and digestive disorders. The aim of this evaluative literature review is to highlight the therapeutic potential of these two species, via the most recent scientific studies, compare their traditional use as medicinal plants with their scientifically-proven documented phytotherapy, and report their major secondary metabolites via their phytochemical analysis. Phytochemical analysis on *C. crispus* resulted to the isolation of several carrageenans, carotenoids, fatty acids, phenolic acid derivatives, phycobilins (phycobiliproteins) and catechins. Pharmacological studies referred that the plant possesses antimicrobial, anti-inflammatory properties while a significant neuroprotective effect was observed. As for *Swertia japonica*, phytochemical studies have shown the existence of iridoid glycosides, terpenes, alkaloids, flavonoids and biphenyl glycosides with the most prominent category of secondary metabolites to be xanthenes and secoiridoid glycosides. According to pharmacological studies, *S. japonica* seems to exhibit various properties including hypoglycemic, antioxidant, hepatoprotective, and even have the potential to stimulate gastric emptying and gastrointestinal motility. It is important to emphasize the need to carry out further research studies and phytochemical analysis, so as to isolate more compounds that will justify the pharmacological action that is attributed to the above species. All this information may be useful for the promotion of the further use of these plants in food and medicinal products, justifying also their traditional use as beneficial to health.

BIOGRAPHY

Michael Plioukas graduated with a BPharm degree from the School of Pharmacy at Aristotle University of Thessaloniki in Greece. He gained his PhD in the field of Phytochemistry - Pharmacognosy from the same University. Currently, he is a Lecturer at the University of Nicosia (Pharmacy Programme) since 2016.

3rd International Conference on Natural Products & Traditional Medicine, Webinar | April 29, 2021, 01

¹ Pharmacy Program, Department of Life and Health Sciences, School of Sciences and Engineering, University of Nicosia, Nicosia, Cyprus

Citation: Michael Plioukas, Analytical phytochemical analysis of the major secondary metabolites of *Chondrus crispus* and *Swertia japonica*, and their correlation with their pharmacological properties, *Natural Products 2021*, 3rd International Conference on Natural Products & Traditional Medicine, Webinar, April 29, 2021, 07