

Extended Abstract

Recovery of Phenolic Compounds from Edible Algae Using High Hydrostatic Pressure: An Optimization Approach [†]

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Algae are not only of high ecological, but also of great economic importance. The industrial exploitation of algae has suffered a boom in the last two decades because they are a suitable source of interesting compounds for a number of sectors (agriculture, energy, food science, cosmeceutical, and pharmacology, among others) [1]. Among these compounds, phenolics are gaining attention due to their beneficial health properties that they are thought to confer, as they are usually potent antioxidants, although some of them are also regarded as antimicrobial or anticarcinogenic. Taking into account this information, in this work, high hydrostatic pressure (HHP) was applied to optimize the extraction of phenolic compounds from eight edible algae species (*Laminaria* spp., *Saccharina latissimia*, *Himantalia elongate*, *Undaria pinnatifida*, *Porphyra* spp., *Palmaria palmata*, *Codium* spp. and *Ulva* spp.). The process was optimized by response surface methodology using a five-level central composite design combining the independent variables of processing time (t , 5–90 min), pressure (P , 10–600 MPa) and solvent (S , 0%–100% of ethanol (v/v)) [2]. The individual and total phenolic compounds and the extraction yield were used as response variables. In general, the optimum extraction conditions for phenolic acids for all eight species analyzed were found at shorter values of t , high values of P and high values of S . The best results were obtained for Kombu real with a concentration of phenolic compounds of 78.7 mg/g and a yield of 22%. In conclusion, the present study contributes to the valorization of edible algae species, common in the Northwest region of Spain, by the obtainment of rich extracts in phenolic compounds that potentially can be applied as ingredients in different industrial fields with a promising emerging technology.

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