THE USE OF THE INVASIVE ALLIEN SPECIES *RUGULOPTERYX OKAMURAE* (OCHROPHYTA) AS SOURCE OF COSMECEUTICAL COMPOUNDS

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ABSTRACT

The brown macroalga *Rugulopteryx okamurae* (Dictyotales, Ochrophyta) is invading the western coast Mediterranean sea from 2016. In Spain, it is consider exotic invasive species from December, 2020. Recently , it is starting to invade areas in Provence coast (France) and the Azores Islands (Portugal). This risk studies have stablished that it can potentially extend in the whole Mediterranean Sea. This algal species originated from East Asia was identified the first time in the Mediterranean Sea by 2002 in the Thau Lagoon (France) , where its entering was associated to oyster aquaculture. *Rugulopteryx* can be fixed in hard substrates from the surface to 40 m depth presenting the highest cover (95-100%) about 10-20 m depth. It can be also maintained long time as free floating algae and in addition it can be observed as beach cast algae. Drastic alterations in the biodiversity of the native communities and high impacts in fish and touristic economical sectors are being produced . In addition to the prevention, one strategy to control the invasion in high impacted areas is to harvest specimens for commercial use to obtained natural bioactive compounds . This strategy presents a two-folded opportunity i.e high availability of biological material for the extraction of bioactive compounds for cosmeceutical uses and through specimen collection , mitigating negative effects caused by alien species, contributing to ecosystem integrity and sustainability. In this study seasonal pattern of biomass productivity, photosynthetic capacity and the accumulation of high cosmeceutical compounds as polyphenols and fucoidans and biochemical content (protein, lipids and carbohydrates) are presented. *R.okamurae* has a high carbon content (35-42%) and broad range of internal N content (1.5-4.5%). Photosynthetic capacity is maintained very high throughout the year with the maximal production and accumulation of high value compounds in summer. Toxicity of extracts
was also evaluated.

Certification of participation

It is hereby certified that:

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