

Keys to understand the invasive success of *Rugulopteryx okamurae* (Dictyotales, Ochrophyta).

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Since its first records in the Strait of Gibraltar in 2015, the Pacific brown algae *Rugulopteryx okamurae* has produced important environmental and socioeconomic impacts that have attracted media attention to a seaweed in Spain for the first time and have led to its inclusion in the Spanish checklist of invasive alien species. Since then, this research group has studied the basic biology and the potential distribution of the species, the results of which are part of the present communication in the body of theoretical knowledge of invasion hypotheses. To begin with, the species exhibits a series of vegetative, reproductive and physiological attributes that confer it a high invasiveness. Morphologically the species is an example of a cryptic invasion due to its similarity with native species of the genus *Dictyota*; furthermore, the species exhibits seasonal changes in its morphology, alternating thin, thick and intermediate thalli, that altogether make its correct identification difficult. Although sexual cycle of the species has not been confirmed yet in its introduced area, it is able to maintain a rapid and abundant recruitment of new clonal individuals along the year, by vegetative propagules and asexual monospores, which produce a constant propagule pressure. Furthermore, it presents a high adaptation capacity to a wide range of the main environmental factors such as temperature, light and nutrients, that allows it colonizing a wide bathymetric and community range. A small nuclear content is another invasive attribute of the species. To this we must add the high invasibility of ecosystems that are suffering for more than 20 years an invational meltdown process, due to previous arrivals of other invasive species of macroalgae, such as those of the genus *Asparagopsis* and *Caulerpa racemosa*, that have altered their functions and the resources availability. All this together with a high environmental favorability of the Mediterranean Sea and European Atlantic coasts, explain the wide potential distribution area of the species.

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