

Cryptic introduction and invasion of *Rugulopteryx okamurae* (Dictyotales, Ochrophyta) at the Strait of Gibraltar: a real threat to the Mediterranean ecosystems

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A new exotic seaweed with invasive behaviour was detected at the Strait of Gibraltar in 2015. Tentatively identified as *Rugulopteryx okamurae* (Dictyotales, Ochrophyta), its correct identification became difficult due to its morphological similarity with other native Dictyotales. Since then, the species has been expanding its distribution towards the East of the Mediterranean Sea. The aim of the present work is to provide morphological and genetic identification, information on ecological performance and economic impacts, together with the updated distribution to be used to perform favorability distribution maps as a tool to predict its potential range. Results of genetic analyses confirm that sequenced samples of this new invader in Alboran Sea, correspond to *R. okamurae*. Furthermore, the taxonomical identity is supported by morphology, although challenging hypotheses rise about its life history at the introduced area, as only vegetative propagules and asexual monospores have been observed. A strong ecological impact is produced on macroalgal assemblages and *Posidonia oceanica* meadow communities, due to a wide homogenization by the invader. Economic impacts have been estimated to be $0,8 \times 10^6$ € in nine months in the fishery industry due to reduced captures, and $0,4 \times 10^6$ € in the same period due to removal of drifted material on the beaches. Our findings show that the Western Mediterranean is a favourable area for this invasive species. The models appear to be well calibrated and the risk of invasion is high along the Andalusian coast, especially in the coast of Almeria in areas of high ecological value.