

Research in biological invasions calls for multidisciplinary studies that embrace its multifaceted nature. We present the main results of a 4-year study on the invasive lineage 2 of the red seaweed *Asparagopsis taxiformis* species complex (IL2, Bonnemaisoniales, Rhodophyta), regarded as one of the worst invasive taxa in Europe. First, we make use of global phylogeography combined with historical demographic analyses to identify the donor population/s, the invasive route, differences in haplotype structure between the lineage's native and introduced range and its invasibility risk compared to other non-invasive lineages of this species. Second, being the tetrasporophyte (*Falkenbergia*) mostly responsible for dispersal, its physiological adaptive potential was examined through short-term thermal plasticity of photosynthesis. This was essential to explain the global distribution of each *A. taxiformis* lineage (invasive and non-invasive). Finally, a field study on a well-established L2 *A. taxiformis* gametophyte population, considered as the persistent stage, revealed their colonization strategy, annual biomass variation, population dynamics and primary production. We followed the yearly cycle of both life stages and analyzed their sexual behavior, useful to determine temporal windows in which the lineage can potentially turn into a pest. Additionally, we demonstrated that specific richness and diversity of the native community are reduced when *A. taxiformis* IL2 increases in abundance. In the Mediterranean Sea, high genetic diversity and a variety of ecophysiological traits account for the high invasive potential of *A. taxiformis* L2. These include unusual physiological plasticity of the tetrasporophytes, massive vegetative recruitment capacity of the gametophytes, high primary production and finally sexual reproduction assessed over seven overlapping cohorts, which bear almost constantly reproductive structures.

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TOWARDS A SEAWEED TRAIT DATABASE FOR EUROPEAN SPECIES

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Trait-based approaches are a key to address questions of paramount importance in ecology and evolution such as the responses of species and communities to changing environments, the relationship between biodiversity and ecosystem functioning or the mechanisms of community assembly. In phycology, trait-based approaches are not new and information on species traits does exist; however, this information is scattered, hardly available and semantically heterogeneous, hampering trait-based approaches over broad taxonomic, spatial or temporal scales. The objective of this project is to build a seaweed trait database for the c.a. 1800 species listed in Europe to overcome the aforementioned drawbacks and enhance the development of a common ontology to favour the use and comparability of trait-based approaches on European seaweeds. Towards this objective, two complementary methods were used. First, we carried out a review of the literature to collect information on seaweed traits at the taxonomic rank of genus. Second, we invited more than 40 phycologists to share their knowledge and expertise on seaweed traits at the species taxonomic rank by filling a survey. The information was collected for traits related to distribution, life history, morphofunctionality and habitat using a standardised vocabulary. Once completed, the data will be available and searchable through the World Register of Marine Species (WoRMS, www.marine-species.org) and linked to the Biology Portal of the European Marine Observation and Data Network (www.emodnet-biology.eu).

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OCCURRENCE AND SEASONAL ABUNDANCE OF SAND-DWELLING AND EPIPHYTIC DINOFLAGELLATES INCLUDING POTENTIALLY TOXIC SPECIES ALONG THE COAST OF JEJU ISLAND, KOREA

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