

A first integrative taxonomy framework of the family Pyuridae (Ascidiacea: Stolidobranchia) in European waters unveils hidden diversity and reassesses habitat forming species

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Poster abstract

The environmental changes characterising the Anthropocene are altering ecosystems at an unprecedented rate, with the loss of diversity at local and global scale as their most evident effect. For this reason, a comprehensive knowledge of species' diversity is crucial to understanding the extent of such a phenomenon and effectively planning conservation practices. This is particularly true for key species such as the habitat formers, engineering species on which many taxa depend at multiple levels.

In this context, the ascidian family Pyuridae (Ascidiacea: Stolidobranchia), accounting for around 300 species worldwide, includes remarkable habitat formers and important commercial species. Despite the interest of many research fields in this group, the extent of its true alpha-diversity is still poorly known. In fact, this family was barely touched by modern taxonomic approaches and phylogenetic relationships within its members are still unexplored.

In this contribution, we applied an integrative framework to the study of this group in the North Eastern Atlantic and Mediterranean Sea based on a wide population sampling in selected areas covering most of the nominal species. Different molecular markers and sequencing approaches were then used to clarify the taxonomic status and systematic position of these species within the stolidobranch phylogeny. The results unveiled an unprecedented cryptic diversity in the genus *Pyura* Molina, 1872, as well as a new species within the genus *Microcosmus* Heller, 1877, of potential importance in sublittoral communities .