



First Record of the Sacoglossan Sea Slug *Elysia timida* (Risso, 1818) (Gastropoda: Heterobranchia: Plakobranchidae) in Bosnia and Herzegovina

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Abstract: The heterobranch *Elysia timida* is reported as a new species for the malacofauna of Bosnia and Herzegovina based on the finding of a single specimen collected on the 28th February 2021 in the shallow waters of the Neum Bay, Klek Peninsula. Considering the scarcity of previous studies on marine Heterobranchia in Bosnia and Herzegovina, with only 6 species recorded so far, the present record extends the knowledge about this group of molluscs in the area and first summarises the species known from country.

Key words: Adriatic Sea, Mollusca, Gastropoda, sea slug, Neum Bay

Introduction

The sea slug *Elysia timida* (Risso, 1818) is a sacoglossan species living in shallow rocky bottoms covered by photophilic algae, including *Acetabularia acetabulum* (Linnaeus) P. C. Silva and *Padina pavonica* (Linnaeus) Thivy (see BALLESTEROS 1979, 1986, GIMÉNEZ-CASALDUERO et al. 2011). It has been recorded in Mediterranean Sea, Gibraltar Strait, Canary Islands, Cape Verde Island, Sao Tomé Island (BALLESTEROS 1979) but also off Cuba and Florida, thus exhibiting an amphi-Atlantic distribution (CARMONA et al. 2011). It usually feeds on algae, from which it retains functioning chloroplasts inside the animal tissues (CASALDUERO & MUNIAIN 2008).

Based on most recent reviews, over 660 sea slug species have been recorded in the Mediterranean Sea (COSTELLO et al. 2001) and about 300 species in Adriatic Sea (Croatia, Italy, Albania, Montenegro, Slovenia) (ZENETOS et al. 2016, PRKIĆ

et al. 2018). Unfortunately, Bosnia and Herzegovina was excluded from this Adriatic marine species list due to unavailability of data and, more general, to the absence of studies on local biodiversity. As by 2020, only six heterobranch species have been recorded in the country. The first systematic study of the local marine malacofauna was conducted by Šoljan (1980) in 1960–1963. During that study, only two heterobranch species have been recorded, i.e. *Philine quadripartita* Ascanius, 1772 and *Tethys fimbria* Linnaeus, 1767 (reported as *Tethys leporelina* Linnaeus, 1758). Since then, no records were provided for Bosnia and Herzegovina until 2016, when NAHIĆ et al. (2016) and DELIĆ et al. (2019) recorded four additional species: *Berthella aurantiaca* (Risso, 1818), *Aplysia fasciata* Poiret, 1789, *Aplysia punctata* (Cuvier, 1803), and *Bursatella leachii* Blainville, 1817. All these but *B. leachii* are native species, whereas the latter is now considered a cryptogenic taxon in the Mediterranean Sea (BAZZICALUPO et al. 2018, 2020). In this study, we add

another species to the heterobranch fauna of Bosnia and Herzegovina, i.e. *Elysia timida*. With regards to its distribution in the Adriatic Sea, this species has been recorded in the Northern, Western and Eastern parts of the sea (ZENETOS et al. 2016). However, records for the Eastern Adriatic Sea are known from Croatia, Montenegro and Albania. Thus, the present record from the Neum Bay (Bosnia and Herzegovina) fills a distribution gap for this species at the country level.

Materials and Methods

The specimen hereby reported was collected, during daytime, on the 28th February 2021 in the Neum Bay (Klek Peninsula, Bosnia and Herzegovina), at the outskirts of the Opuće



Fig 1. The Neum Bay (Klek Peninsula, Bosnia and Herzegovina), with a red dot highlighting the locality where *Elysia timida* (Risso, 1818) was found.

Village (42.931109° N, 17.567512° E, Fig. 1). The Neum Bay is a small bay in Eastern Adriatic Sea, around 6 km long and 1.2 km wide, characterised by muddy and sandy bottoms with a rocky intertidal zone. The specimen was found in a shallow rocky zone with algae. It was collected and photographed, then preserved in 96% ethanol and deposited in the Invertebrate Collection of the National Museum of Bosnia and Herzegovina, Sarajevo (code INMO 000134). Species identification was based on PRKIĆ et al. (2018), while taxonomy and nomenclature are in accordance with the World Register of Marine Species (WoRMS 2021).

Results

The specimen recorded had a white-coloured body with red and black dots on the outer side of parapodia and dark green inside of parapodia (Fig. 2). It was 20 mm in length, which is above the average length for this species (the most common length of this species is between 5 and 15 mm, see BALLESTEROS 1979). Our specimen was found in a rocky and shallow environment dominated by *P. pavonica*, at depth of c. 20 cm, in agreement with published literature (see above).

Discussion

Elysia timida is a common sea slug species occurring in the Mediterranean Sea, widely reported from the eastern to the western parts of the basin (CERVERA et al. 2004, MICARONI et al. 2018, CROCCETTA

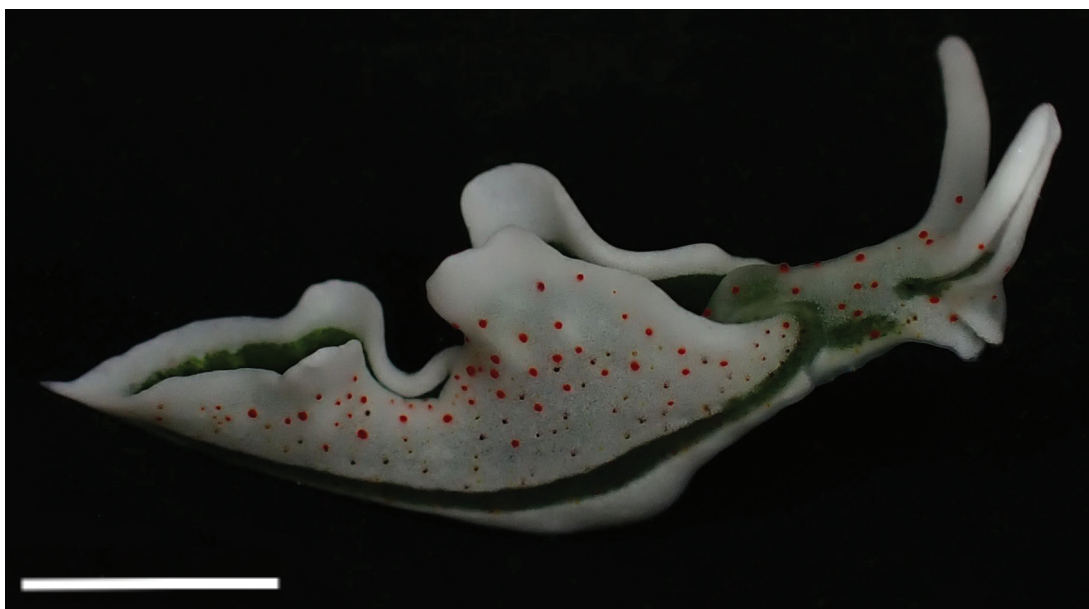


Fig. 2. Lateral view of *Elysia timida* (Risso, 1818) from the Neum Bay. Scale-bar 5 mm.

et al. 2020). Considering the diversity of this group in the Adriatic Sea (PRKIĆ et al. 2018, ZENETOS et al. 2016), its presence in Bosnia and Herzegovina has been expected. However, the paucity of local studies (Šoljan 1980, NAHIĆ et al. 2016, DELIĆ et al. 2019) has presumably hindered its records so far. The present record from the Neum Bay widens its distribution to all countries of the Adriatic Sea. It is expected that more than six species inhabit the seawaters of Bosnia and Herzegovina. However, since there is almost a total lack of data about this molluscan group in the country, each new report, even when isolated, is remarkable to raise the knowledge of the heterobranch fauna of the area.

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