

# First record of *Okenia problematica* Pola, Paz-Sedano, Macali, Minchin, Marchini, Vitale, Licchelli et Crocetta, 2019 (Gastropoda Nudibranchia Goniodorididae) for Sicily (Ionian Sea, Italy)

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## ABSTRACT

*Okenia problematica* Pola, Paz-Sedano, Macali, Minchin, Marchini, Vitale, Licchelli & Crocetta, 2019 (Gastropoda Nudibranchia Goniodorididae) is here reported for the first time for Sicily. The Mediterranean species of the genus *Okenia* Menke, 1830 have recently undergone a taxonomic revision that has reduced the number of species from eight to six because in the past some species were misidentified. For this reason, this new species was described for the Mediterranean. In this short paper, two specimens of this species were found in two nearby areas of Catania (Ionian coast of Sicily) that are strongly anthropized. Therefore, we believe that this species is tolerant to polluted waters.

## KEY WORDS

Goniodorididae; new record; Nudibranchia; *Okenia problematica*; Sicily.

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## INTRODUCTION

The genus *Okenia* Menke, 1830 (Gastropoda Nudibranchia Goniodorididae) has a worldwide distribution with 62 species (MolluscaBase, 2019). The species of this genus have a broad body, flattened oral veil, mantle ridge reduced, bearing a variable number of elongated papillae. Similar papillae may be present on the central part of the dorsum (Thomson & Brown, 1984). According to Pola et al. (2019), in the Mediterranean Sea there are six valid species: *O. aspersa* (Alder et Hancock, 1845), *O. elegans* (Leuckart, 1828), *O. hispanica* Valdés et Ortea, 1995, *O. mediterranea* (Lhering, 1886), *O. longiductis* Pola, Paz-Sedano, Macali, Minchin, Marchini, Vitale, Licchelli et Crocetta, 2019, and *O. problematica* Pola, Paz-Sedano, Macali, Minchin,

Marchini, Vitale, Licchelli et Crocetta, 2019. These latter two species have been recently described, in view of a taxonomic revision of this genus in the Mediterranean Sea (Pola et al., 2019). In fact, in previous studies, some species recorded for the Mediterranean basin, in particular *O. impexa* Er. Marcus, 1957 and *O. cupella* (Vogel et Schultz, 1970), were repeatedly misidentified. This misidentification could be related to the external similarities, such as the color pattern and the characteristic tip of the papillae (Pola et al., 2019). *Okenia impexa* and *O. cupella* are valid species in their type localities that are located in the western Atlantic Ocean. Nevertheless, they were sometimes considered as synonyms and Mediterranean Sea records were assigned to one or the other taxon, according to different authors. *Okenia cupella* was described by Vogel &

Schultz (1970) in York River (Virginia, Atlantic Ocean). In the Mediterranean Sea, the reports ascribed to this species were in Spain: Cabo de Palos (Valdés & Ortea, 1995), Islas Columbretes (Templado et al., 2002), and Estrecho de Gibraltar (Valdés & Ortea, 1995; García-Gómez et al., 2011); and in Italy: Ischia (Sordi, 1974 as *O. pusilla*). On the other hand, *O. impexa* was described by Er. Marcus (1957) in São Sebastião (Brasil, Atlantic Ocean). The Mediterranean Sea records ascribed to this species were in Spain: Cabo de Palos (Templado, 1982) and L'Escala (Ballesteros et al., 2016); in France: Banyuls-sur-mer (Schmekel, 1979; Schmekel & Portmann, 1982 as *O. impexa banyulensis* Schmekel, 1979); and in Italy: Naples (Schmekel, 1979 as *O. impexa banyulensis* Schmekel, 1979).

According to Pola et al. (2019), all Mediterranean Sea records of both species are now ascribed to a single entity, that is *O. problematica*. This new taxon has been recently described by Pola et al. (2019) from specimens collected in Gallipoli (Italy), Aiguafreda (Spain) and Cala Joncols (Spain).

The aim of this note is to document the first record of *O. problematica* in Sicily.

## MATERIAL AND METHODS

Two specimens of *O. problematica* were found in different sites of the Ionian coast of Sicily (Italy): one individual was found in a station near Ognina (Catania) (37°31'49.1"N - 15°07'14.8"E) and the other one in a station called Cannizzaro (Catania) near the Lido Bellatrix (37°32'03.98"N - 15°07'34.12"E). The area where the first specimen was found is characterized by rocky boulders of different sizes and small inlets covered with a sciaphilous assemblage. The other site where the second specimen was found is characterized by a rocky steep slide with sciaphilous organisms. Both areas are strongly anthropized. In fact, at Ognina there is a harbor and in both sites there are many bathing establishments and apartment buildings. Both individuals were photographed with an Olympus TG4 underwater camera.

## RESULTS

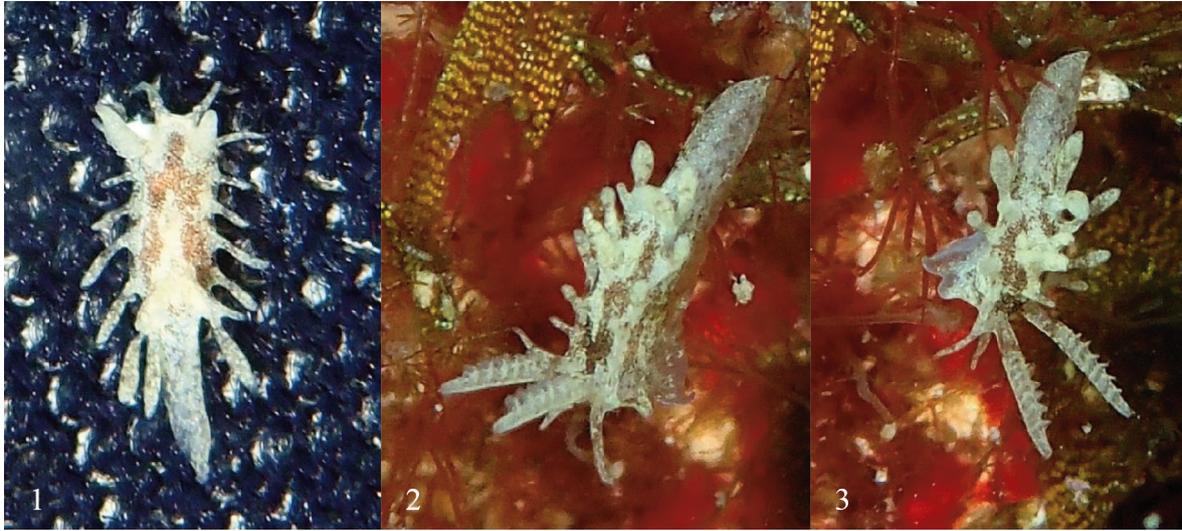
The first specimen (Figs. 1–3) was seen on 11th

May 2019 near Ognina, at 17.4 mt depth. It was found on a rocky boulder covered by photophilous algae, such as *Halopteris scoparia* (Linnaeus) Sauvageau. This individual had an elongated body with eight papillae symmetrically distributed on each side of the notum ridge. Papillae were located in this way: in front of rhinophores there were two elongated papillae with a proximal part larger than the distal one; two papillae, at the same level of rhinophores, similar to the previous ones; 4 papillae, between rhinophores and gills, that became longer towards the back and had a more rounded tip, going backwards; two papillae, behind the gills, arising from the same stalk and larger than the previous ones. Among them, one of the right side was smaller than the fellow, because probably it had been previously lost. Another papilla arose alone in front of the gills and was the smallest of the ones hitherto described. Rhinophores bore seven lamellae backwards. Gills were composed of four branches, two anterior and two posterior. The individual had a white translucent body, a pattern of brown spots on the notum, absent on the ridge, between the central papilla and gills. The gills were slightly yellowish.

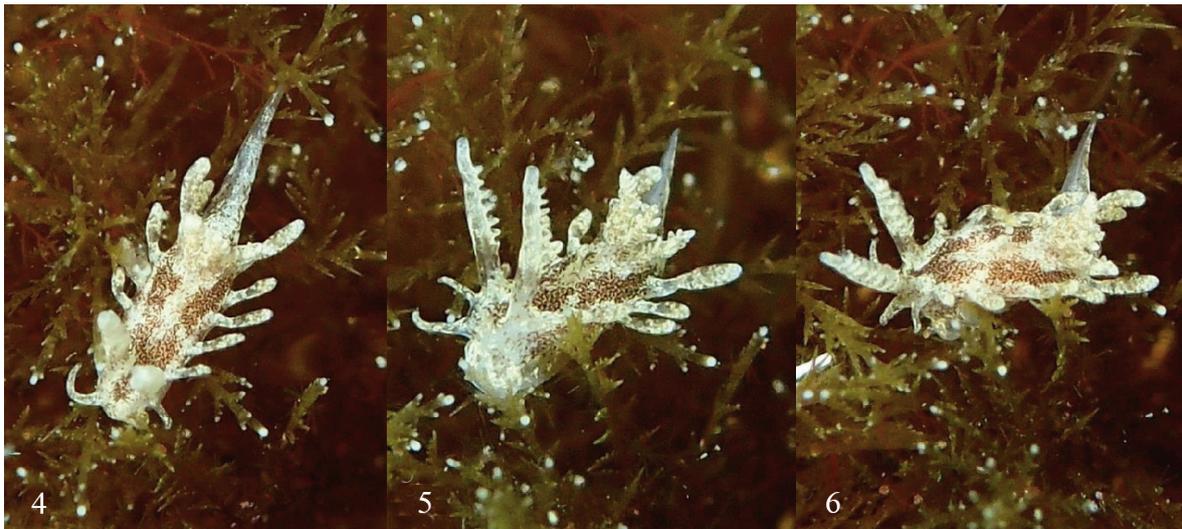
The second specimen (Figs. 4–6) was seen on 19th May 2019 near the Lido Bellatrix, at 14.5 mt depth. This individual was found above a stone covered by *H. scoparia*. This specimen was similar to the one found near Ognina, except for two characteristics: the brown pattern which continued beyond the notum, up to half of the sides of metapodium; the absence of one of the last two papillae behind the gills on the left side of the body. Both specimens were photographed “*in vivo*” and had the same main characteristics of the individuals described by Pola et al. (2019) for *O. problematica*.

## DISCUSSION

These two reports represent the first record of *O. problematica* for Sicily (Ionian Sea, Italy). Both individuals were found in nearby areas, that are strongly anthropized. Moreover, both specimens were seen almost at the same depth and were both on the same substratum, characterized by the alga *H. scoparia*. Therefore, we believe that *O. problematica* is an euriecia species, tolerating polluted



Figures 1–3. Specimen found near Ognina (Catania, Italy). Fig. 1: dorsal view. Fig. 2: lateral left view. Fig. 3: posterior view (photos by A. Lombardo).



Figures 4–6. Specimen found near Lido Bellatrix (Catania, Italy). Fig. 4: dorsal view. Fig. 5: anterior view. Fig. 6: lateral left view (photos by A. Lombardo).

waters with a high rate of sedimentation, due to the proximity of the harbor and the coastal exploitation. In fact, we have never found this species in areas of the Ionian coasts of Sicily that are less polluted. Moreover, the other specimens reported in Pola et al. (2019) were found in areas close to cities, which host big harbors. In the previous reports, *O. problematica* was always found in the infralittoral zone (Schmekel, 1979; Schmekel & Portmann, 1982; Templado, 1982; Valdés & Ortea,

1995; García-Gómez et al., 2011; Ballesteros et al., 2016; Pola et al., 2019). Even the specimens seen by us were found in the infralittoral zone on a rocky bottoms covered by *H. scoparia*. We think that on this seaweed could live bryozoans which could represent the source of food of *O. problematica*. Finally, we feel that probably this species were already present along the coasts of Sicily, but its cryptic appearance has always making its findings difficult.

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