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Scientific note

Rediscovery of *Okenia impexa* Marcus 1957 on the Brazilian coast: the first image of a living specimen from Brazil

(Mollusca, Nudibranchia)

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The genus *Okenia* Menke, 1830 comprises about 50 species, three of which have been reported for Brazil: *O. zoobotryon* (Smallwood, 1910), *O. evelinae* Marcus, 1957, and *O. impexa* Marcus, 1957. *Okenia impexa* was originally described based on specimens from four places of the coast of São Paulo state (São Sebastião Island; Guarujá, 10 km east of Santos; Porchat Island, Bay of Santos; and near Ubatuba), and a holotype and a specific type locality were not designated in the publication (Marcus 1957). In Brazil it was found among algae on rocks in the upper littoral (Marcus 1957). It was later recorded in the North Atlantic and Mediterranean Sea, generally in association with bryozoans or among algae (e. g. Valdés & Ortea 1995). In the western South Atlantic, the single record of *O. impexa* is restricted to the original description, which lacks detailed information and images of living specimens. The single specimen reported herein (Fig. 1a–b; supplementary video: https://youtu.be/ctTBLxV-Qwo) was collected at Ilhabela (= São Sebastião Island; 23°46'24"S, 45°21'20"W), São Paulo state, associated to a mix of the arborescent ctenostomatous bryozoans *Amathia verticillata* (delle Chiaje, 1822) (= *Zoobotryum verticillatum*) and *Amathia vidovici* (Heller, 1867) (Fig. 1c–d); it was anesthetized with magnesium chloride in seawater, preserved in ethanol 70 %, and deposited at the Museu de Zoologia, Universidade de São Paulo (MZSP 122713, 04/xi/2015). The specimen resembles the original description, the background colour is white with a net of superficial brown pigment on the back, but it lacks the light yellow colour at the tips of the dorsal papillae as described by Marcus (1957). It was approximately 4.5 mm long alive (3 mm fixed); the papillae are characteristically claviform, pointed, and with a continuous axial bundle of spicules; there is only one papilla between the rhinophores and gill, and there are 3–5 papillae on each side of the pallial ridge; it seems the animal lost 3 lateral papillae on one side and 1 papilla on the other, as the bases of them are still present. The last papillae on each side are bifurcated. Marcus' specimens are 3–7 mm long and have 6–8 lateral papillae on each side. In the laboratory, the nudibranch spawned on *A. vidovici*; the egg mass is cylindrical, translucent, with white eggs, similar to the spawn of other *Okenia* species.

Although these bryozoan species (as well as the brown algae *Sargassum* spp.) have been extensively collected in the region for more than three years, *O. impexa* was not found before the present record. In addition, except for the type-material (MZSP 118004 – slides of syntypes) and 7 other specimens collected apparently after the original description and identified by Marcus [MZSP 25338, from São Sebastião Island, 1958; MZSP 76224, species name handwritten (identified as Marcus's handwriting), no locality or date given], no other material of *O. impexa* is deposited in the two main zoological collections from Brazil (MZSP and Museu Nacional, Universidade Federal do Rio de Janeiro). These facts may indicate that the species is either rare or has become uncommon due to environmental changes in São Sebastião Channel (SSC) during the last half century. After the 1960's this area has become a growing tourist hub and a busy commercial harbor and oil terminal (Marques et al. 2013). Nonetheless, the SSC comprises several areas of preservation and its biodiversity is among the best known in Brazil (Marques et al. 2013), and therefore we do not think that *O. impexa* might be overlooked for so long if it was common in the region. In Brazil and elsewhere it was found among algae, which are usually associated with various species of encrusting bryozoans that could be potential food items. It was also recorded on the cheilostomatous bryozoan *Margaretta cereoides* (Ellis & Solander, 1786) (see Templado 1982), a species quite distinct in colony morphology from the ones reported herein. We herein present for the first time: (i) colour photos of a living Brazilian specimen; (ii) bryozoans as host for *Okenia impexa* in the Brazilian coast; (iii) species of the genus *Amathia* are recorded as host of this nudibranch.

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Fig. 1. *Okenia impexa* (4.5 mm long) and its hosts, Ilhabela (= São Sebastião Island), São Paulo, Brazil: **a.** *Okenia impexa*, dorsal view; **b.** *Okenia impexa* associated to *Amathia vidovici*, lateral view; **c.** *Amathia verticillata*; **d.** *Amathia vidovici*.

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