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Recent record of *Mexichromis mariei* (Crosse, 1872) from Gulf of Kachchh, Gujarat, India

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ABSTRACT

Mexichromis mariei (Crosse, 1872) was recorded the first time by Rudmen (1971) near Adatra Reef, approx 50 nautical miles from the present sighting. Present sighting, from Jindra Reef, is one of the most recent re-edition, after 41 years of its first discovery, in the diversity of Ophistobranch fauna of Gujarat, India.

Key words: *Mexichromis mariei* (Crosse, 1872), Jindra Reef, Gujarat

INTRODUCTION

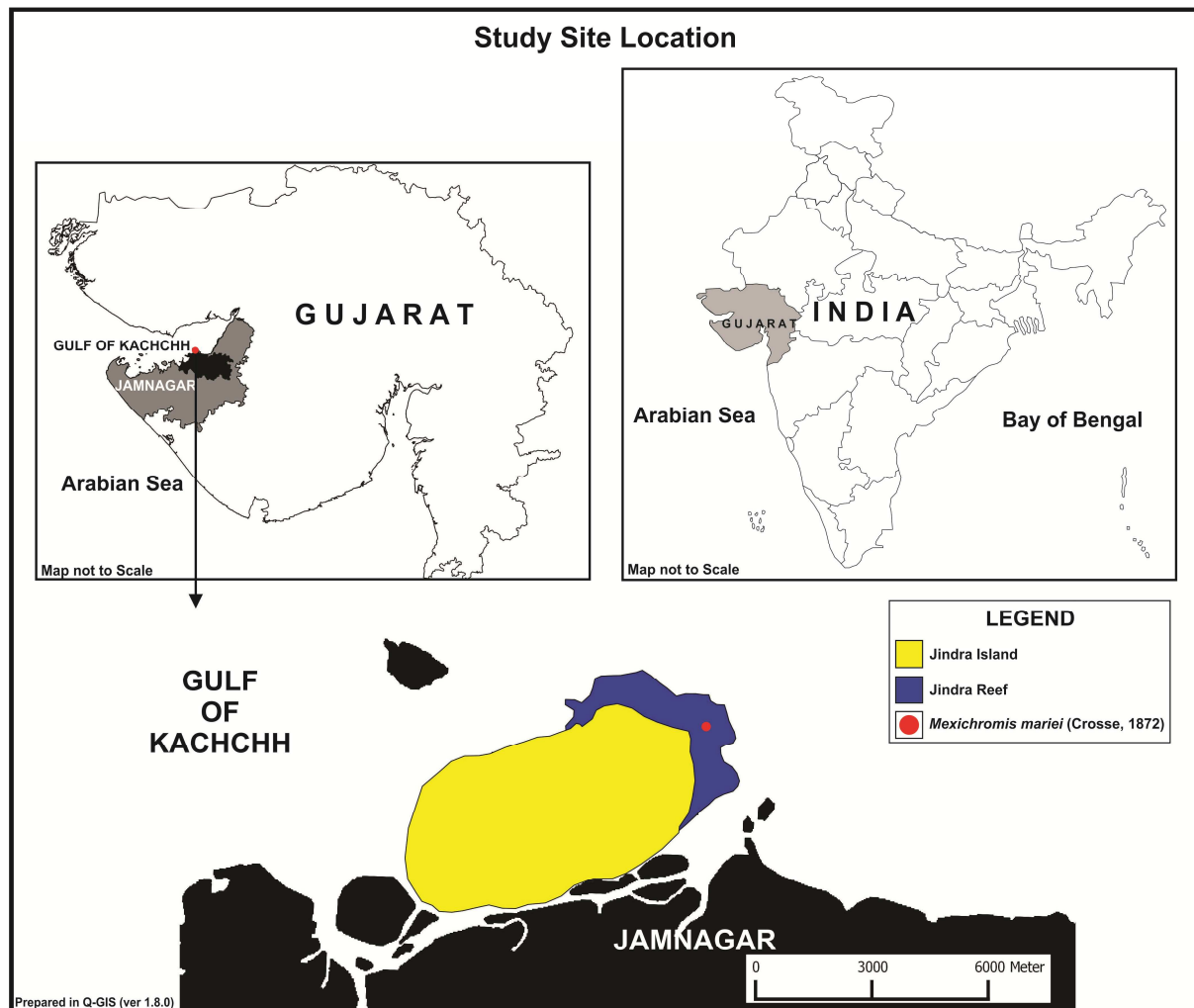
The subclass Opisthobranchia, of the class gastropod are solely marine and having approximately 2,000 species recorded till date. Opisthobranchia, is one of the least studied group.

Along the Gujarat coast most of the studies on opisthobranchs are confined to the Gulf of Kachchh. [1] was the first to study opisthobranchs of this region. Subsequently [2], [3] and [4] carried out study of opisthobranchs in the area. A very comprehensive work was carried out by [5] and [6]. The most recent and comprehensive work done by [7] and reported 21 new records to Gujarat which include 13 new records to India.

Mexichromis mariei (Crosse, 1872), placed in Class Gastropoda; Subclass Ophistobranchia; Order Nudibranchia; Superfamily Doridoidea; Family Chromodorididae and Genus *Mexichromis*, was first described from New Caledonia situated in the southwest Pacific Ocean. Subsequently the species were also recorded from Saukin, (Sudan) by [8], Red Sea by [9] and Japan and South Korea by [10]. In India, the species were first reported from the Gulf of Kachchh at Adatra Reef, roughly 50 nautical miles from the present sighting, by [8] based on the collections he made in this area in May 1971. At that time Rudman collected 5 specimens of this species. The species was not reported thereafter till the time authors collected it from the Zindra Island in the Gulf of Kutch in 2010. The species was thus reported after a gap of 41 years thus assumes significance.

Jindra island, 22°34'33.44"N and 70° 1'46.55"E, is one of the 42 islands of the Marine National Park and just 30 minutes from Rozi Bandar of Jamnagar by boat. This large island is spread over 27 Km² and area of reef is 5 Km². The Island provides good and undisturbed habitat. It is mostly dominated by coral reef, sandy shores and mud flats. Coral fauna is dominated by genus *Favia* and *Favitis*.

Map 1: Study Site Location



MATERIALS AND METHODS

Direct search method was used in the field collections. Opisthobranchs were searched during low tides under coral boulders as well as shallow pools. The specimen was relaxed using Menthol before fixing it in 90% Ethyl Alcohol. Digital images of the live specimen were taken to record true colors. All samples were duly labeled with species name, date, GPS reading, collector name, and location name and storage media.

RESULTS AND DISCUSSION

Synonyms Taxa

- Chromodoris mariei* (Crosse) (Crosse, 1872a; Crosse 1872b)[11],[12]
Chromodoris sannio (Bergh) (Bergh, 1890; Eliot, 1905)[13],[14]
Doridopsis mariei (Crosse) (Risbec, 1928)[15]
Glossodoris mariei (Crosse) (Risbec, 1953; Allan, 1947)[16],[17]
Goniodoris mariei (Crosse) (Rudman, 1973)[18]

Materials Examined: One specimen of *Mexichromis mariei* (Crosse, 1872) (20 mm) collected by Bhavik Patel on 21/03/11 from Jindra Island (22°34'33.44"N & 70°10'46.55"E) was preserved in Formaline and deposited to Collection department of BNHS with Voucher no of BNHS-opistho-684.

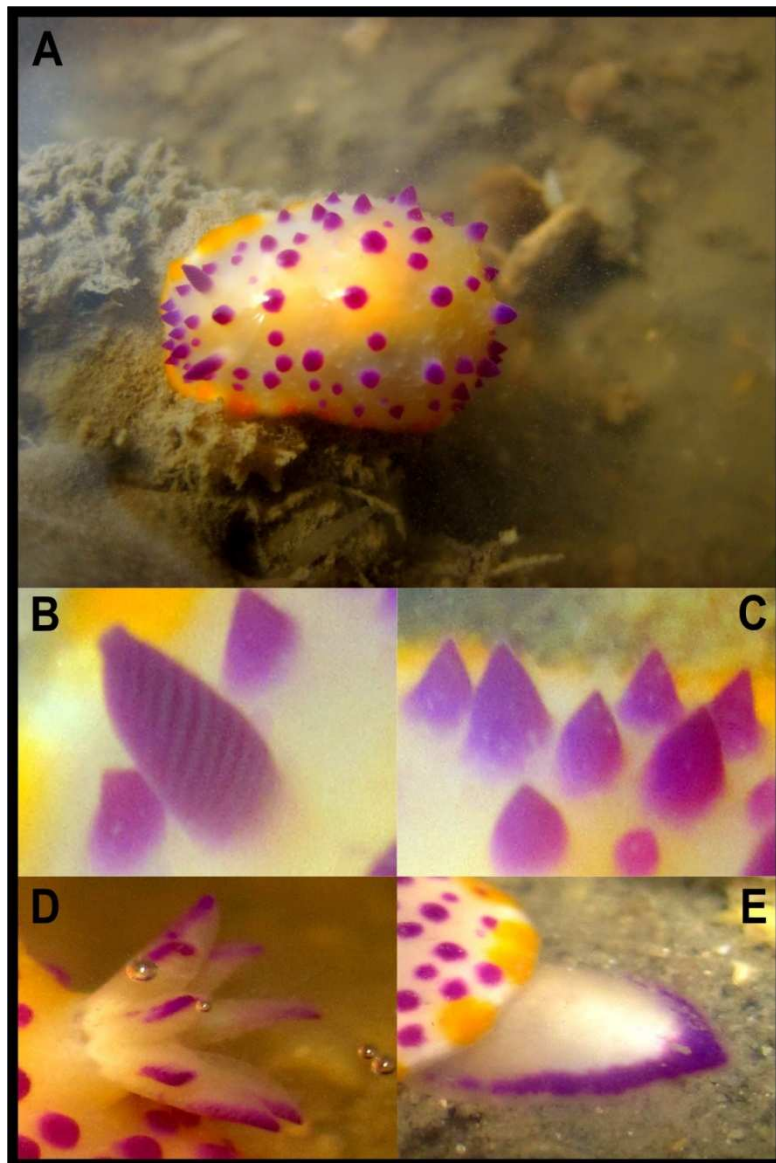
Morphology: [8] described external morphology of *Mexichromis mariei* (Crosse, 1872) in detail. The observed specimen has oval shape white to the yellow color body as per described by [8]. There are numbers of low but distinctive rounded (at base) and Conical tubercles on the dorsum [8]. Mantle edge has patches of yellow color which are discontinuous. We have not observed purple rim around the rhinophore as mentioned by [8]. The

rhinophores club have roughly 12-15 notches and of purple color. There are eight gill filaments with purple colored apical margin. The present specimen has 8-9 gills which are white with a purple lining along the upper half of the rachis. The foot, which extends some distance posterior behind the end of the mantle, is broad with the deep purple sub marginal band [8].

Buccal armature: After observing we calculate the formula of our specimen which is $40.0.40X85(\pm 5)$ while according to observation of [8] the redula formation is $27.0.27X55(+3)$. There is also slight thickening at the central line which is not observed by Rudman. The innermost tooth on both side of central thickening has a long pointed median cusp and up to three large dentils at the base on the inner side [8].

As *M. mariei* appeared similar with other species of Genus *Mexichromis*, like *M. katalexis* (Yonow, 2001), the comparative statement of species fall into this genus in Table 1 is given.

Plate 1: *Mexichromis mariei* (Crosse, 1872)



A - *Mexichromis mariei* (Crosse, 1872)
 B - Purple Rhinophore, C- Purple Conical Pustules
 D - Gills, E- Portion of extended Foot and Yellow dotted Margin.

There are a few records of this species from deep waters of Western Australia [19] . However we found this specimen in the inter-tidal area at the depth of 5 cm.

The present finding is the first record after 41 years of this species from India. It is a valuable addition to the Opisthobranch fauna of India as well as Gujarat state.

Table 1: Comparison between *M. mariei* and *M. katalexis*

No.	Characters	<i>M. mariei</i>	<i>M. katalexis</i>
1	Body Colour, Shape and Size	Pale yellow to off white with domed Shape solid body. Size is 38 mm. Scales type growth present on the surface.	The body is solid and doomed, variations in ground colour from dirty yellow to dirty beige, Size is 24-27 mm.
2	Foot	Semi transparent foot with two "V" shape purple colour notches on anterior part of the rim	--
3	Mouth	Two "V" shaped purple notches on the front rim of the mouth	--
4	Pustular/ tubercles	Only single and Conical in shaped with all purple colour, i.e. from tip to bottom, tubercles present	Single and compound tubercles, and these are creamy white; the terminal nipple of each is purple
5	Marginal Band	Continue, mostly on anterior part, and some time broken but not as evenly band of yellow colour	Evenly Broken Marginal band of orange colour
6	Rhinophers	Club-shaped, Base is creamy white with purple rim on top, Total 20-22 "V" shaped notches out of which top 15-17 are purple in colour	Base is creamy white with purple brim on top
7	Gills	8-9 gills are arranged in a ring And held upright in an open shaped flowers with creamy white base and purple rim. An Opening is not covered with tubercles	The rim of the gills has small single tubercles around the opening. The 9-11 gills are arranged in a ring and held upright in a tulip-shaped bell
8	Radula	85(±5) x 40.0.40	51(+11) x 40.0.40
9	Finding Depth	Found just 5 cm below water surface	Found at a range of 1-30 meters depth

CONCLUSION

The present discovery of *Mexichromis mariei* (Crosse, 1872) will act as a valued addition in the database of Gujarat's opisthobranch diversity. The re-discovery of the species after 41 years and from the 50 nautical mile far from the old location indicate that the species have widely spread in the area but more work is still needed to fill lacunae of knowledge.

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