

Confirmation record of the spot fin cardinal fish *Jaydia queketti* (Gilchrist, 1903) (Teleostei: Apogonidae) in the Syrian marine waters

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Abstract

The Mediterranean Sea is substantially a biodiversity hotspot for marine species; this is mainly due to climate changes and human activities. The spotfin cardinal fish *Jaydia queketti* (Apogonidae), which originally exists in the tropical and subtropical water, had been recorded previously in the Syrian marine waters and represented only by one individual. This study presents that new alive individuals of *J.queketti* were caught from Banyas coast. This existence may indicate population enlargement of *J.queketti* in the Syrian marine waters.

Keywords: Mediterranean, Apogonidae, *Jaydia queketti*, climate changes, Syrian marine waters.

I. INTRODUCTION

The Mediterranean Sea is substantially a biodiversity hotspot for marine species [1, 2]; this is mainly due to climate changes and human activities [3-5]. These can be considered as the major reasons for the new species to reach new areas far from their native habitats [6, 7]. Some of these species take advantage of the appropriate environmental conditions in the new area, begin to widen their spread, and become invasive ones. Such species typically harm native species through predation, habitat degradation and competition for food and space [8, 9]. Thus, confirmation records of such new species may help revealing the species establishment [10, 11]. Apogonidae family contains 353 small species, which exist in the tropical and subtropical waters [12]; nine of them occur in the Mediterranean Sea [13, 12]. The spot fin cardinal fish *Jaydia queketti* (Gilchrist, 1903) (Apogonidae) is a Lessepsian fish species that had been recorded for the first time in the eastern Mediterranean during 2006 [14]. In March 2019, only one individual had been recorded for the first time in the Syrian marine waters [15], filling the gap in its distribution along the eastern Mediterranean. This study presents that new alive individuals of *J.queketti* were caught from Banyas coast. This

existence may indicate population enlargement of *J.queketti* in the Syrian marine waters.

II. MATERIALS AND METHODS

On 9/7/2019, a field trip was executed in the marine waters facing Banyas city, Syria (N: 35°14'35.11", E: 35°55'12"; Fig.1). Fish samples were collected using fixed gillnet (18mm mesh size, 3m height, 200m length: with duplicates), with assistance of fishing boat (9.5m, 19HP). The fish specimens were identified according to [16]. The morphometric measurements (length to the nearest mm, weight to the nearest g), and meristic counts were recorded. They were then photographed, preserved in 7% formaldehyde, and placed at the Biological Laboratory of the High Institute of Marine Research (Tishreen University - Lattakia, Syria) as reference samples (unnumbered yet).

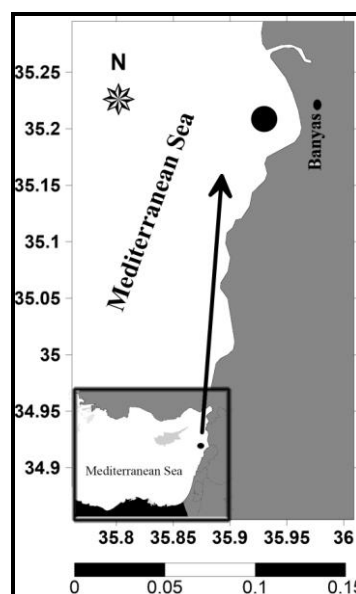


Fig1. A map showing the collection site of *J.queketti* specimen from the Syrian marine waters.

III. RESULTS AND DISCUSSION

Eight specimens of *J.queketti* (Fig.2) were caught at ~55m water depth. They had an ovate to elongate body with two separate dorsal fins. The caudal fin was round, and the eye diameter was longer than the snout. The body colour was light golden yellow, with six clear yellowish brown stripes. The first dorsal fin had a dark ocellus, and the margins of the second dorsal, anal and caudal fins were black. The meristic formula was: D,VII+I+8;A,II+8;P,15;V.I+5;C,16. These features of *Jaydia queketti* are in full agreement with [16]. The morphometric measurements are shown in Table 1.



Fig 2. *J.queketti* specimen, were caught from the Syrian marine waters, Banyas city.

Table 1.Morphometric measurements (mm,g, N=8) of *J.queketti*, were caught from the Syrian marine waters.

Features	Min	Max	Mean	SD
Total length	81	95	89	0.5
Standard length	70	80	75	0.4
Body depth	26	29	28	0.13
Head length	24	27	26	0.12
Eye diameter	6	7	6.5	0.04
1 st dorsal fin length	15	15	15	-
2 nd dorsal fin length	15	15	15	-
Pectoral fin length	14	16	15	0.09
Pelvic fin length	15	15	15	-
Caudal fin length	17	20	18	0.12
Anal fin length	9	12	10	0.12
Pre-dorsal length	25	30	27	0.19
Pre-pectoral length	26	26	26	-
Pre-pelvic length	25	25	25	-
Pre-anal length	44	49	48	0.16
Total weight	11	15	13	1.3

These records provide further evidence of the environmental changes in the eastern Mediterranean water [3, 4, 17, 18], that becomes more able to accommodate the tropical species [7, 19]. On the other hand, this species is not profitable for the local fishermen; because of its small size, it easily gets through the usual mesh size of the fishing gears. Such features, in fact, favors population growth of *J.queketti* in the area. In fact, recording these individuals in the Syrian marine waters is not sufficient to state that *J.queketti* is substantially established in the area and, to prove its establishment, more work should be done on its reproduction and growth behaviours. The feeding habit of this species

(zooplankton feeder) may favor food competition with many other local fish species [20] and thus is threatening the local fish stocks. Thus, investigations on the economic (and environmental) consequences related to *J.queketti* presence in the area are rapidly needed. This calls for effective and strong regional and international steps to control such alien species in the area[3,4] in order to protect local fish populations [21-24]

CONCLUSION

This study reveals that the spot fin cardinal fish *Jaydia queketti* occur in the Syrian marine waters, where it was caught on two successive times. The presence of this species in the area may lead to serious economic and environmental consequences, which necessitate continuous monitoring of the activity of such foreign species.

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