First Record of the Broadbanded cardinalfish Ostorhinchus fasciatus (White, 1790) from the Syrian Marine Waters (Eastern Mediterranean)

Firas Alshawy[1] , Amir Ibrahim[1] , Chirine Hussein[1] and Murhaf Lahlah[2]

[1]*Department of Marine Biology, High Institute of Marine Research, Tishreen University, Lattakia, Syria*
[2]*Department of Public Health and Preventive Medicine, Faculty of Veterinary Medicine -Hama University, Hama, Syria*

Abstract

Currently, marine species in the Mediterranean Sea is on increase; as a consequence, the Mediterranean Sea becomes a biodiversity hotspot. Apogonidae family contains 353small colourful species, which exist in the tropical and subtropical waters. On 21/3/2019,a field trip was performed in the marine waters facing Banyas city, Syria. Two specimens of the Broadbanded cardinalfish Ostorhinchus fasciatus (White, 1790) were caught, and this species has been recorded for the first time in the Syrian marine water.

Keywords: *Ostorhinchus fasciatus ,Broadbanded cardinalfish, Syrian marine waters, Eastern Mediterranean.*

I. INTRODUCTION

Currently, marine species in the Mediterranean Sea is on increase [1], where new species are being continuously added to the fish checklist [2]. Human activities and climate changes have led aquatic biota to reach new habitats too far from their native ones [3],[4],[5],[6]. As a consequence, the Mediterranean Sea becomes a biodiversity hotspot [7]. Most non-indigenous species in the Mediterranean Sea have entered through the Suez Canal, where it is one of the most important waterways for those species [8[,[9],[10]. Apogonidae family contains 353small colourful species, which exist in the tropical and subtropical waters[11]. Yet, there are nine Apogonidae species in the Mediterranean Sea [6, 11]. The Broadbanded cardinal fish *Ostorhinchus fasciatus* (White, 1790) (Apogonidae), has been recorded for the first time in the Mediterranean Sea at Ashdod coast in 2009 [12], at Iskenderun Bay in 2010 [13], and at Cypriot coasts in 2014 [14]; It has not been recorded in the central and western parts of the Mediterranean Sea yet ([11], [15]). This paper reveals that the Broadbanded cardinalfish*Ostorhinchus fasciatus* (White, 1790), has been recorded for the first time in the Syria marine water; this represents the fourth record in the eastern Mediterranean**.**

II. METHODS AND MATERIALS

On 21/3/2019,a field trip was performed 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 [17].

III. RESULT

Two specimens of the Broadbanded cardinalfish *Ostorhinchus fasciatus* (White, 1790) (Fig2) were caught at 40-60 m water depths. They had the following identical morphological characteristics: the body was ovate to elongate, with two separated dorsal fins, the eye was bigger than the snout and the caudal fin was lightly emarginated. The body was pale brown, with two dark stripes. The first lower stripe, which runs from the snout to the end of caudal fin, passes through the eye but the upper stripe runs from post-temporal bone to the end of the second dorsal fin. The meristic formula was: D,VII+I+9;A,II+8;P,15;V.I+5;C,20. These features of *O. fasciatus* are in full agreement with[16].

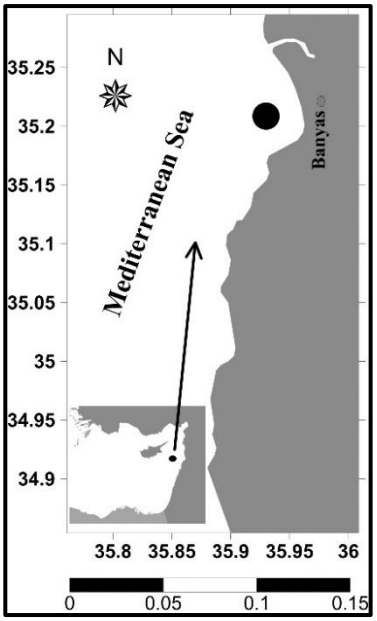

Fig 1: A map showing the collection site of *O. fasciatus* from the Syrian marine waters.

Fig 2:The two*O.fasciatus* specimens caught on 21-3-2019 from the marine water of Syria.

The morphometric measurements of the two specimens were very close to each other and thus were expressed as mean values, and presented in Table (1).

Table (1): Morphometric and biometric characteristics of *O. fasciatus* caught from the marine water of Syria.

Characteristics	Mean of the 2 values (mm or gr)	(% SL)
Standard length(SL)	69	
Total length	84	
Body depth	25	36.23
Head length	18	26.09
Eye diameter	8	11.59
snout length	5	7.25
1st dorsal fin length	9	13.04
2nd dorsal fin length	11	15.94
Pectoral fin length	17	24.64
Pelvic fin length	14	20.29
Caudal fin length	19	27.54
Pre-dorsal length	27	39.13
Pre-pectoral length	26	37.68
Pre-pelvic length	24	34.78
Pre-anal length	45	65.22
Total weight	11	

IV. DISCUSSION

The Broadbanded cardinalfish *Ostorhinchus fasciatus* (White, 1790) had entered the Mediterranean Sea across the Suez Canal [12], and recorded for the first time from south-eastern Mediterranean (Ashdod coast; [12], from north-eastern Mediterranean (Iskenderun Bay; [13]), and then from Cypriot coast [14]. This study reports the first record of this fish in the Syrian marine waters. The lack of scientific research in the study area [18], and fishermen ignorance to this species due to its small size (Max length 12.6 cm; [19] may had led this species not to be recorded previously in the area. This record fills the gap of *O.fasciatus* distribution along the eastern coast of the Mediterranean, between Iskenderun and Ashdod coasts. More work should be done to provide evidence of the species establishment in the area, and reveals the ecological and economic consequences in regards of its effects on the marine biodiversity and on the native fish populations in the area. The species long root of introduction pathway necessities the collaboration between Red Sea and Mediterranean countries to manage species migration ([20], [21],[22]).

V. CONCLUSION

The Broadbanded cardinalfish *Ostorhinchus fasciatus* (White, 1790)has been recorded for the first time in the Syrian marine water after five years from the last one, several factors led to this record, and the important of them is the Syrian marine water become more comfortable for new species.

ACKNOWLEDGEMENT

The authors thank Tishreen University, the High Institute of Marine Research, who provided financial and logistic supports to this work.

REFERENCES

[1] GALIL, B., BOERO, F., CAMPBELL, M. L., CARLTON, J. T., COOK, E., FRASCHETTI, S., GOLLASCH, S., HEWITT, C. L., JELMERT, A. & MACPHERSON, E.,(2015).'Double trouble': the expansion of the Suez Canal and marine bioinvasions in the Mediterranean Sea.*Biological Invasions*,17(4),973-976.

[2] MANNINO, A. M., BALISTRERI, P. & DEIDUN, A. 2017. The marine biodiversity of the Mediterranean Sea in a changing climate: the impact of biological invasions. *Mediterranean Identities-Environment, Society, Culture*. IntechOpen.

[3] Izdihar Ammar, Razan Maaroof,(2019). First Record of the Squid Sepioteuthis Lessoniana Férussac, 1831 in the Syrian Coastal Water. *SSRG International Journal of Agriculture & Environmental Science* 6(1), 52-55.

[4] ALDO DRAGO, T AARUP, A ABDELBAKI, A ABUISSA, H AWAD, MB AWAD, C BEKEN, S BESIKTEPE, AF BOARGOB, G BRUNDRIT, M CAPARI, A CARLIER, B CERMELJ, G CASAZZA, FS CIVILI, Y COHEN, T CHRISTOS, H DAHLIN, M DALLA COSTA, P DRAKOPOULOS, NC FLEMMING, J FONT, G. F., I GERTMAN, A HARZALLAH, G HERROUIN, A IBRAHIM & KABBARA, N.,(2004).MEDGOOS-Building a strong regional partnership for operational oceanography in the Mediterranean Rapports et proces verbaux des réunions-*Commission internationale pour l'exploration scientifique de la mer Méditerranée*,37(158.

[5] IBRAHIM, A., LAHLAH, M., KASSAB, M., GHANEM, W. & OGAILY, S.,(2010).Signatus javus, a new record from the Syrian waters, with reference to growth and feeding of two Lessepsian fish *Rapport de la Commission international de la Mer Méditerranée*,39(544).

[6] ALSHAWY, F., IBRAHIM, A., HUSSEIN, C. & LAHLAH, M.,(2019).First Record of the Blacktip Cardinalfish *Apogon atradorsatus* Heller & Snodgrass, 1903 from Syrian Marine Waters (Eastern Mediterranean) *International Journal of Advanced Research in Science, Engineering and Technology*,6(3),5.

[7] MEDAIL, F. & QUEZEL, P.,(1999).Biodiversity hotspots in the Mediterranean Basin: setting global conservation priorities Conservation biology,13(6),1510-1513.

[8] Samer Mamish, Hani Durgham and Samar Ikhtiyar,(2019). First Record of Porpita porpita LINNAEUS, 1758 (Cnidaria, Hydrozoa) on the Syrian Coast of the Eastern Mediterranean Sea. *SSRG International Journal of Agriculture & Environmental Science* 6(2), 47-49.

[9] GALIL, B., BOERO, F., FRASCHETTI, S., PIRAINO, S., CAMPBELL, M., HEWITT, C., CARLTON, J., COOK, E., JELMERT, A. & MACPHERSON, E.,(2015).The enlargement of the Suez Canal and introduction of non- indigenous species to the Mediterranean Sea *Limnology and Oceanography Bulletin*,24(2),43-45.

[10] ALSHAWY, F., LAHLAH, M. & HUSSEIN, C.,(2016).First record of the Berber ponyfish *Leiognathus berbis* Valenciennes, 1835 (Osteichthyes: Leiognathidae) from Syrian marine waters (Eastern Mediterranean*) Marine Biodiversity Records*,9(1),4.

[11] FROESE, R. & PAULY, D. 2019. *Fishbase www. fishbase. org* [Online]. Available: www.fishbase.org.

[12] GOREN, M., GALIL, B. S., DIAMANT, A., GAYER, K. & STERN, N.,(2009).First record of the Indo-Pacific cardinal fish Apogon fasciatus (White, 1790) in the Mediterranean Sea Aquatic Invasions,4(2),409-411

[13] TURAN, C., YAGLIOGLU, D., ERGUDEN, D., GURLEK, M. & SONMEZ, B.,(2010).First record of the broad-banded cardinal fish Apogon fasciatus (White, 1790) from Turkey *Mediterranean Marine Science*,11(2),369-372.

[14] IGLESIAS, S. & FROTTE, L.,(2015).Alien marine fishes in Cyprus: update and new records *Aquatic Invasions*,10(4),425-438.

[15] BEAREZ, P., PRUVOST, P., FEUNTEUN, E., IGLESIAS, S., FRANCOUR, P., CAUSSE, R., DE MAZIERES, J., TERCERIE, S. & BAILLY, N.,(2017).Checklist of the marine fishes from metropolitan France *Cybium*,41(4),351-371.

[16] GON, O. & RANDALL, J. E.,(2003).A review of the cardinalfishes (Perciformes: Apogonidae) of the Rea Sea

[17] ALSHAWY, F., IBRAHIM, A., HUSSEIN, C. & LAHLAH, M.,(2019).First Record of the Oceanic Puffer *Lagocephalus lagocephalus* (Linnaeus, 1758) from the Syrian Marine Waters (Eastern Mediterranean) *Marine Biodiversity Records*,In Press

[18] ALSHAWY, F. A., LAHLAH, M. M. & HUSSEIN, C. S.,(2017).First Record of the Lessepsian Migrant Smith's Cardinalfish *Jaydia smithi* Kotthaus, 1970 (Pisces: Apogonidae) from Syrian Marine Waters.*Basrah Journal of Agricultural Sciences*,30(2),45-49.

[19] ERGUDEN, D., ERGUDEN, S. & GURLEK, M.,(2015).Length–weight relationships for six fish species in Iskenderun Bay (Eastern Mediterranean Sea coast of Turkey) *Journal of applied ichthyology*,31(6),1148-1149.

[20] ZENETOS, A., DOSI, A., ABATZOPOULOS, T., TRIANTAFYLLIDIS, A., BEJAOUI, N., SOUFI, E., AMMAR, I., IBRAHIM, A. J. S. G. O. B. & OTHER SHIP VECTORS ICES/IOC/IMO, C., ITALY,(2004).Study to investigate an invading bioindicator in the Mediterranean, *Pinctada radiata* (Leach, 1814) 376

[21] VALLERGA, S., DRAGO, A., AARUP, T., ABDELBAKI, A., ABUISSA, A., AWAD, H., AWAD, M., BEKEN, C., BESIKTEPE, S., BOARGOB, A., BRUNDRIT, G., M CAPARI, A. C., CERMELJ, B., CASAZZA, G., CIVILI, F., Y COHEN, C TZIAVOS, H. D., COSTA, M. D., P DRAKOPOULOS, N. F., J FONT, G. F., I GERTMAN, G. G., HARZALLAH, A., HERROUIN, G., IBRAHIM, A., KABBARA, N., KLJAJIC, Z., KOUYOUMJIAN, H., LEGRAND, J., JL LOPEZ-JURADO, MAGNI, P., A MAHMOUD, AL-SHEIKH, MAILLARD, C., MALACIC, V., GMR MANZELLA, MARCHAND, P., MOROVIC, M., PISSIERSSENS, P., PINARDI, N., K NITTIS, D. R., SUMMERHAYES, C., RIBOTTI, A., REED, G., SELENICA, A., SALIHOGLU, I., SAMMARI, C., SAUZADE, D., SILVESTRI, C., SNOUSSI, M., SORGENTE, R., UMGIESSER, G., VARGAS, M., VUCIJAK, B., WOODS, J., ZAVATARELLI, M. & ZODIATIS, G. 2003. MAMA—Towards a new paradigm for ocean monitoring in the Mediterranean. *Elsevier Oceanography Series*. Elsevier.

[22] ALSHAWY, F., LAHLAH, M., & HUSSEIN, C. (2016). First record of the Berber ponyfish *Leiognathus berbis* Valenciennes, 1835 (Osteichthyes: Leiognathidae) from Syrian marine waters (eastern Mediterranean). *Marine Biodiversity Records*, *9*(1), 98.