First record of *Phylliroe bucephala* Péron&Lesueur, 1810 in the Ras-Ibn-Hani (Lattakia-Syria)

Hani Durgham*& Samar Ikhtiyar*

**Marine Biology Department, High Institute of Marine Research, Tishreen University, Lattakia& Biotechnology department, Faculty of Applied Science, Kalamoon University, DeirAtiyah, SYRIA*

Abstract:

This research led to identification of Phylliroe bucephala Péron&Lesueur, 1810 as a first record in Syrian Coast and easternmost of Mediterranean. During the cruise on March 21, some individuals of Juvenile Phylliroe bucephala, was found from a depth of 50-100m, accompaniment to hydromedusa Zancleacostata.

Keywords : *Phylliroe bucephala, Nudibranchia, Zancleacostata, Syrian coast, Mediterranean Sea, Levantine.*

I. INTRODUCTION

The coast is rocky in the north of Latakia, intermingled with sandy areas. In the majority of rocky regions the seabed changes to sand a few meters from the waterline. Although there are no deep areas immediately adjacent to the coast, the slope of the seabed is around 5% in the stretch between Rasibn Hani and Ras el Fasuri. This is also the only region of deep water offering shelter from the predominant SW winds. The shelf area (0 -200 m) is about 1160 km2, however only 40 km between Lattakia and Baniyas are trawlable, at a distance of 2–3 mile from the coast [1].

The studied area, opposite of Ras_Ibn_Hani, is opened and relatively far from pollution sources. Its depth exceeds 300 meters, 2 km from the land.

Phylliroe bucephala is a cosmopolitan species occurring in all the oceans , as Atlantic ocean "canary islands" [2], coast of Florida and Bermuda's [3], north eastern Atlantic water and near the African coast [4], Australia and New Zealand [5] [6] and West Atlantic Ocean [7].

There are a few recordings for *Phylliroe bucephala* in the Mediterranean, all of them in western and central part of it[8] [9].

The study area is located in the coastal water of Lattakia city, where a large number of species were recorded for the first time in Syrian coast. These species are mostly belonging to marine plankton as Cnidaria[10][11][12] [13][14] [15] [16] [17] [17][18] [19][20][27],Thaliacea[21]; Ichthyoplankton[22][30] and phytoplankton [23][26].

II. MATERIAL AND METHODS

Seasonal samples were collected from May 2018 to May 2019 at a fixed station(35° 35′16.45″N; 35° 41′ 53.58″ E) ~350m deep; about 1.5km in front of Ras_Ibn_Hani (fig. 1). The salinity and temperature are measured (to-100m) with a CTD cable connected to the temperature and salinity meter model WTW MULTYLIN P4. From depth 100m to 300m, water sampling device was used with a reversing thermometer to measure the temperature and salinity at depths of 150, 200m, 250m, and 300m.

Zooplankton samples were collected with a closing 200 µm net, towed vertically at 300-200m, 200-100m, 100-50m, 50-25m and 25-0m depths. The samples were preserved with 4% buffered formalin diluted in seawater.

Figure 1: Location of *Phylliroe bucephala*observed on the Syrian Coast (Lattakia-SYRIA)

III. RESULTS AND DISCUSSION

The values of water temperature during the cruise on March 21, 2019 ranged between 17.5°C at the surface and 16.3°C at a depth of 300 m, whereas the salinity range between 37.9‰ and 37.3‰.

During the cruise on March 21, Juvenile *Phylliroe bucephala*(fig.2), with body length about 1.8 cm,was found within the samples collected from a depth of 50 m- 100 m, where 5 individuals was in.

Phylliroe bucephala is a type of sea slug known as a nudibranch (Table 1), it is perfectly transparent, and the body is laterally compressed, elongate and fish- or leaf-like. The tail is long, more than 16% of the body length.

Phylliroe bucephala development goes through a larval stage which parasites a hydromedusa *Zancleacostata*, where they attach to the inner bell surface by their rudimental foot. They feed on the ring and radial canals and the manubrium of the coelenterate.

A young *Phylliroe bucephala* may increase its length from 1.6 to 11.0 mm in 10 days. When a young *P.bucephala*attains a size larger than that of the medusa and begins to swim actively, it consumes the tentacles and remaining parts of the manubrium of the Zanclea, adults also have been observed to feed on the medusa Aequorea[24].

Table 1 : Classification of *Phylliroebucephala*

Animalia (Kingdom)
Mollusca (Phylum)
Gastropoda (Class)
Heterobranchia (Subclass)
Euthyneura (Infraclass)
Ringipleura (Subterclass)
Nudipleura (Superorder)
Nudibranchia (Order)
Cladobranchia (Suborder)
Phylliroidae (Family)
Phylliroe (Genus)
Phylliroe bucephala (Species)Péron&Lesueur, 1810

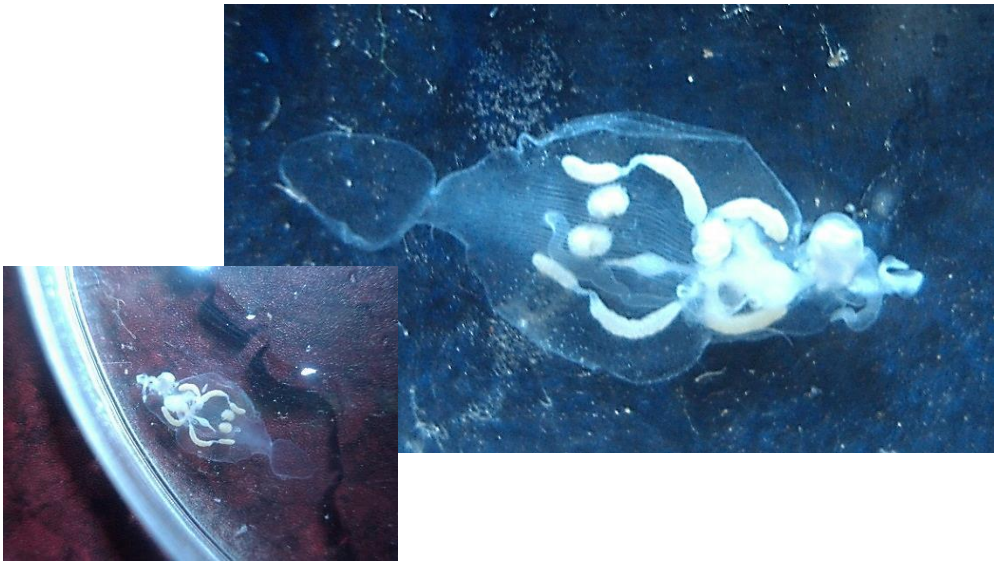

Fig. 2 Preserved specimen of *Phylliroe bucephala* (Péron&Lesueur, 1810) from Ras-Ibn-Hani (Image by H. Durgham)

Occurrence of *Phylliroe bucephala* in this paper was associated with the species *Zancleacostata*, where its abundance was estimated at 2 ind./m^3. *Zancleacostata* was first recorded in the coastal waters of BanyasIn 1996 [25].

Also, *Aequoreaforskalea* was recorded in 2011 in the coastal waters of Latakia near to studying place [13][28][29].

Recording of new species in the Levantine region are often explained by the hypothesis of their transportation from the Red Sea through the Suez Chanal or through the ballast water. However, the non-recorded of *Phylliroe bucephala* in the Red Sea and the its occurrence close to the Lattakia Ports, may suggest the hypothesis of the transportation of species *Phylliroe bucephala* and others through the ballast water.

IV. CONCLUSION

This research led to the identification of *Phylliroe bucephala* Péron&Lesueur, 1810 as a first record in Syrian Coast and easternmost of Mediterranean. From the point of view of authors, it is recommended to conduct a long term survey of the zooplankton and recording the new species in anticipation of the transformation of these species into invasive species that could affect negatively on local species along the Syrian coast.

ACKNOWLEDGEMENT

The authors would like to thank The Tishreen University, the High Institute of Marine Research, Lattakia, Syria, and the University of Kalamoon, Faculty of Applied Science, DayrAtiyah, Syria, for supporting.

REFERENCES

[1] FAO, Syrian Arab Republic Marine Aquaculture Development. Food and agriculture organization of the United Nations. Rome, 1983

[2] F. Hernandez & S. Jimenez . Nota Sobre La Presencia De PhylliroeBucephala (Mollusca, Opistobranchia, Nudibranchia, Phylliroidae) En Aguas De La Isla De El Hierro (Canarias). Acad. Canar. Cienc., VIII (Niims 2, 3 & 4), 173 - 181 (1996).

[3] Abbott, R.T. 1974. American Seashells. 2nd ed. New York: Van Nostrand Reinhold Co. 663 p.

[4] Van der Spoel, S. 1970. The pelagic Mollusca from the "Atlantide" and "Galathea" expeditions collected in the East Atlantic. Atlantide Report II: 99-139.

[5] SPENCER, H. G. & WILLAN, R. C. The marine fauna of New Zealand: Index to the Fauna 3. Mollusca . New Zealand Oceanographic Institute, 1995

[6] Powell A. W. B., New Zealand Mollusca, William Collins Publishers Ltd, Auckland, New Zealand 1979 .

[7] SPENCER, H. G., B. A. MARSHALL, R. C. WILLAN Checklist of New Zealand living Mollusca. Pp. 196–219. (2009) In: D. P. Gordon (ed.) New Zealand inventory of biodiversity, Volume one, Kingdom Animalia: Radiata, Lophotrochozoa, Deuterostomia. Canterbury University Press, Christchurch.

[8] Pruvot-Fol A. FAUNE DE FRANCE n° 58, MOLLUSQUES OPISTHOBRANCHES , Ed. P. Lechevalier, Paris, 460p. 1954.

[9] DURGHAM H.; IKHTIYAR S.; Ibraheem R. First record of Pelagianoctiluca (Forsskål, 1775) on the coast of Syria. Marine Biodiversity Records 9 (1), 2016, 39.

[10] Hani Durgham, Samar Ikhtiyar, R Ibrahim. Biodiversity and abundance of Planktonic Cnidaria (Siphonophorae) in LattakiaPort.Tishreen University Journal-Biological Sciences Series, 37 (5) 2019 , 197-218.

[11] IKHTIYAR S.; DURGHAM H.; BAKER M.; Contribution to the study of the scyphomedusaRhopilemanomadica in Syrian coastal waters. Journal of Union of Arab Biologists Cairo A Zoology, 2002, 227–244.

[12] IKHTIYAR S.; DURGHAM H. Contribution à l'étude du scyphoméduseRhopelimanomadicadans les eauxcôtièressyriennes

and biochemical composition. J Union Arab Biol Cairo A Zool, 2002.

[13] MAMISH S.; DURGHAM H.; AL MASRI M SAID. First record of AequoreaglobosaEschscholtz, 1829 (Cnidaria: Hydrozoa) in the coast of Syria. Mediterranean Marine Science ,2012,(2) 13, 261-259.

[14] MAMISH S.; DURGHAM H.; AL-MASRI MS. First record of the new alien sea jelly species MarivagiastellataGalil and Gershwin, 2010 off the Syrian coast. Marine Biodiversity Records,9 (1),2016,23.

[15] MAMISH S.; DURGHAM H.; IKHTIYAR S. First Record of Porpitaporpita LINNAEUS*1758* ,Cnidaria, Hydrozoa) on the Syrian Coast of the Eastern Mediterranean Sea. SRG International Journal of Agriculture & Environmental Science 6 (2), 2019, 47-49.

[16] MAMISH S.; DURGHAM H.; IKHTIYAR S. The first Pelagianoctiluca outbreak off the Syrian coast (the eastern Mediterranean Sea), five years after its first appearance. SSRG International Journal of Agriculture & Environmental Science 6 (3),2019, 72-75.

[17] NIR STERN, ALI BADREDDINE, GHAZI BITAR, FABIO CROCETTA, ALAN DEIDUN, BRANCO DRAGIČEVIĆ, JAKOV DULČIĆ, HANI DURGHAM, BELLA S GALIL, MOHAMMAD Y GALIYA, SAMAR IKHTIYAR, New Mediterranean Biodiversity Records (July 2019).Mediterranean Marine Science 20 (2), 2019, 409-426.

[18] SIOKOU, I., ATES, A., AYAS, D., BEN SOUISSI, J., CHATTERJEE, T., DIMIZA, M., DURGHAM, H. New Mediterranean Marine biodiversity records (June 2013). Mediterranean Marine Science .14 (1),(2013) 238-249.

[19] DURGHAM H.; IKHTIYAR S., First record of Discomedusalobata Claus,1877 (Cnidaria:Scyphozoa) in the coast of Syria. SSRG International Journal of Agriculture & Environmental Science 6 (2), 2019, 75-77.

[20] DURGHAM H. First records of Phyllorhizapunctata von Lendenfeld, 1884 (Cnidaria:Rhizostomeae) from the Mediterranean coast of Syria. International Journal of Oceans and Oceanography 5 (2), 2011, 153-155.

[21] MURAT BILECENOGLU, JOSE EF ALFAYA, ERNESTO AZZURRO, R BALDACCONI, YÖ BOYACI, V CIRCOSTA, LJV COMPAGNO, F COPPOLA, ALAN DEIDUN, HANI DURGHAM, FURKAN DURUCAN, D ERGÜDEN, FA FERNANDEZ-ALVAREZ, PAOLA GIANGUZZA, G GIGLIO, M GÖKOĞLU, M GÜRLEK, SAMAR IKHTIYAR, New Mediterranean marine biodiversity records (December, 2013). Mediterranean Marine Science. 14 (2), 2013, 480-463.

[22] DURGHAM H.; IKHTIYAR S.; LAHLAH M. Distribution of Ichthyoplankton and First Record of Larval CyclothoneBraueri in Lattakia Coastal Water (SYRIA). International Journal of Oceans and Oceanography 8 (1), 2014, 39-45

[23] DURGHAM H., IKHTIYAR S. First records of alien toxic algae Heterosigmaakashiwo(Raphidophyceae) from the Mediterranean Coast of Syria. The Arab Gulf Journal of Scientific Research 30, 2012, 58-60.

[24] Lalli, Carol M.; Gilmer, Ronald W. Pelagic Snails: The Biology of Holoplanktonic Gastropod Mollusks. Stanford University Press. (1989). ISBN 9780804714907.

[25] DURGHAM H. Study of zooplankton in coastal water of Banyas. M.Sc. theses Tishreen University. 1998, Lattakia- syria.181pp.

[26] Samar Ikhtiyar, Hani Durgham. A description one of blooming cases on the Syrian coast opposite of Lattakia. Tishreen University Journal for Research and Scientific Studies - Biological Sciences Series Vol. (14) No. (6), 2019, 27-41.

[27] SamerMamish, Hani Durgham, Samar Ikhtiyar. First record of Leucotheamulticornis (Quoy&Gaimard, 1824) off the Syrian coastal water, (eastern Mediterranean Sea). SSRG International Journal of Agriculture & Environmental Science. 6 (4), 2019, 1-4.

[28] MOHAMMAD SAID AL-MASRI, SAMER MAMISH, MOHAMMAD ABDEL-HALEEM, HANI HANI DURGHAM, 210Po and 210Pb concentration in zooplankton of the Syrian coastal waters (eastern Mediterranean Sea). Mediterranean Marine Science 20 (2), 2019, 320-325.

[29] MAMISH S.; AL-MASRI M.S.; DURGHAM H. Radioactivity in three species of eastern Mediterranean jellyfish. Journal of environmental radioactivity, 149, 2015, 1-7.

[30] M Lahlah, H Durgham, S Ightiyar. A Temporal and spatial Study of the variations of total abundance of values for Ichtyoplankton and zooplankton dynamics in Syrian northern coastal waters. Tishreen University Journal-Biological Sciences Series. 34 (2) , 2019, 69-86.