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**First record of *Bugula neritina* (Bryozoa: Bugulidae), in the mediolittoral zone of Ibn Hani Lattakia, eastern Mediterranean sea (Syria)**

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**Key Words:**

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**Abstract** - The species *Bugula neritina* (Linnaeus, 1758) of the Bugulidae family was observed on the artificial reefs at a depth of 15 meters, (from February to May 2021) in the mediolittoral waters of Ibn Hani site (north Lattakia City, Syria). The morphological and characteristics have been used to confirm the new Bryozoa. It is the first record of this species in the Syrian marine waters. *B. neritina* colonies abundance are 3 colonies in 1200cm<sup>2</sup>, and they were found with coralligenous macroalgae, *Codium sp* (green algae), *Polysiphonia sp.* (red algae), Balanus and Tunicates, attached to hard substrate (artificial reefs), in salinity 39‰.

**التسجيل الأول للنوع (*Bugula neritina* (Bryozoa: Bugulidae))، في المنطقة الشاطئية الوسطى لشاطئ ابن هاني اللاذقية، شرق البحر الأبيض المتوسط (سورية)**

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**المستخلص:** تمت ملاحظة النوع *Bugula neritina* التابع لعائلة Bugulidae على الشعاب المرجانية الاصطناعية عند عمق 15 متراً، (خلال الفترة من شهر شباط حتى شهر أيار 2021) في المياه الساحلية في موقع ابن هاني (شمال مدينة اللاذقية، سورية). تم استخدام الخصائص المورفولوجية لتشخيص النوع المسجل لأول مرة في المياه البحرية السورية. كانت غزارة مستعمرات *Bugula neritina* هي 3 مستعمرات ضمن مساحة 1200 سم<sup>2</sup>، وقد تم العثور عليها مع الطحالب الكبيرة المرجانية *Codium sp.* العائدة لمجموعة الطحالب الخضراء وكذلك النوع *Polysiphonia sp.* العائد لمجموعة الطحالب الحمراء بالإضافة إلى Balanus و Tunicates، المرتبطة بالركيزة الصلبة للشعاب المرجانية الاصطناعية، في مستوى ملوحة بلغت 39 psu.

**الكلمات المفتاحية:** النوع *Bugula neritina*، شعبة Bryozoa، Bugulidae، شرق المتوسط، الأحياد الاصطناعية.

## Introduction

Bryozoa are the marine ecosystem engineers that constitute the basic and main base for the formation of benthic communities in the littoral zone (Cocito, 2004), for their role in increasing the diversity of habitats and species for both invertebrates and fish. *B. neritina* larvae are eaten by fish, and some nudibranchs feed on adult colonies. (Cocito, 2004). They act as ‘bafflers’ reducing current velocity on the framework surface, enhancing sediment deposition and cavity filling within the framework (Cocito, 2004). In the Mediterranean, bryozoans make up about 9.6 % of the world's biodiversity of bryozoans (Rosso and Di Martino, 2016). Researches on Bryozoa were few, but in recent years there has been an increase in research that added important information about the biodiversity of bryozoans (Koçak and Aydın Önen, 2014; Harmelin *et al.*, 2016; Bailly *et al.*, 2016; Gerovasileiou and Rosso, 2016). Bryozoans. *B. neritina* was first described from the Mediterranean Sea (Linnaeus, 1758). Since then, it has been identified as a species of tropical-warm-temperate origin. This species was found in Lebanon coast by (Harmelin *et al.*, (2016) throughout 1999- 2003.

Because of the climatic changes a lot of species can introduce new habitats and success in breeding and making changes in the native bio diversity ( Ammar and Arabia, 2018; Zarghami *et al.*, 2019)

*B. neritina* was first reported on the Pacific Coast ranging from southern California to Monterey Bay in 1905 (Robertson, 1905) and it was a known immigrant to southern Britain and northern France (Brest and St-Malo) in the mid-20th century (Ryland 1960; Prenant and Bobin 1966). Then it has been reported as an invasive species in the world (Ryland *et al.*, 2011).

There are eight species of Bryozoa belonging to six families recorded on the Syrian coast *Carbasea papyrea*, *Cryptosula pallasiana*, *Hincksinoflustra octodon*, *Margaretta cereoides*, *Retepora jermanensis*, *Idmonea serpens*, *Hippodiplosia foiacea*, *Hornera frondiculata*, *Tubulipora flabellaris* (Ammar, 1995, 2002; Arabia, 2011; Ammar, 2013)

The aim of this paper is recording *B. neritina* species of Bryozoa for the first time on the Syrian coast.

## Materials and Methods

Artificial square-shaped cement reefs were installed at a depth of 15 m in Ibn Hani station (35°35'44.7"N 35°45'15.8"E) fig1 in spring 2021. The samples were collected 6 months later (from February to May 2021) with hand by free diving. The samples were preserved in a 4 % formalin-seawater solution in marine lab of High Institute of Marine Researches (Latakia, Syria).

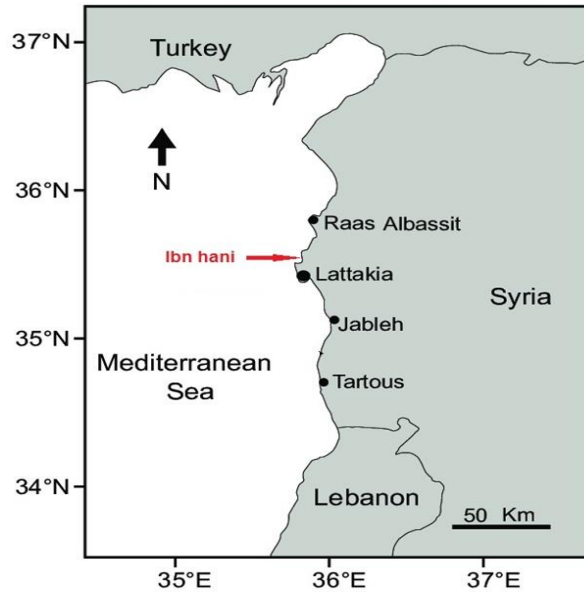


Figure 1. Map of the sampling site

## Results

The specimens identified as *B. neritina* (Linnaeus, 1758) According to the following references (Gordon and Mawatari, 1992; Mackie et al., 2006; Vieira et al., 2012)

### Species Description:

Brown bryozoan

Kingdom Animalia

Phylum Bryozoa

Class Gymnolaemata

Order Cheilostomata

Family Bugulidae

Genus *Bugula*

Species: *B. neritina* (Linnaeus, 1758)

*B. neritina* is Flexible dense colonies, 7 cm high, pinkish-brown, branched in pairs. Zooids are white, spherical, and has a pointed outer corner. Zooids average 0.90 x 0.25 mm (Figs. 2, 3, 4).



Figure 2. *B. neritina* colony



Figure3. *B. neritina* colony on the artificial reef

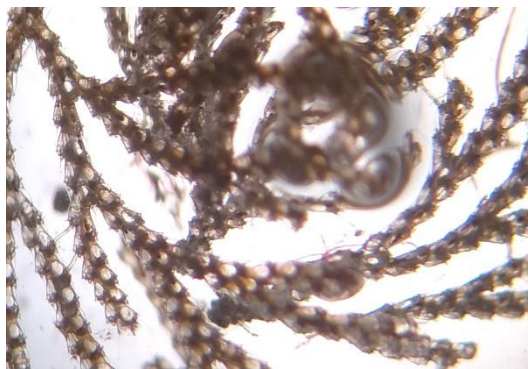


Figure 4. Zooids of the *B. neritina* colony

### Discussion

The difference between the species *B. neritina* and other species for the same genus is the absence of avicularia and spines.

*B. neritina* is found with coralligenous macroalgae, *Balanus* and Tunicates, *Codium* sp (green algae) in 15 m, attached to hard substrate (artificial reefs), in salinity 39 psu.

*B. neritina* has a widespread distribution in warm temperate water. It can stick to oyster shells and to the sides of ballast tanks or on floating material inside the ballast tanks (Cohen, 2005; Mackie, 2006; Ryland, 2011).

Bryozoan *B. neritina* has an important environmental role because of the filter feeding, it works to purify the water and filter it from the fine particles suspended in it, in addition to its important medical value in the production of different anticancer Bryostatins (Davidson and Haygood, 1999).

Other researches indicated that it was located in the oil terminal port to the north of Tartus (under publication), which means that it is endemic to the Syrian coast, and it may have been some time since it entered the Syrian marine environment and was not revealed until later.

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