

First Record of Four Species of Sea Anemones (Cnidaria: Actiniaria) For Lebanese Coast, Eastern Mediterranean Sea

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Abstract

Four species of sea anemones of the order Actiniaria were reported for the first time along the Lebanese coast. *Anthopleura ballii* (Cocks, 1851), *Aulactinia rubripunctata* (Grube, 1840), *Aulactinia verrucosa* (Pennant, 1777), and *Cereus pedunculatus* (Pennant, 1777) were observed and photographed from the tidal pools of the vermetid reef of Saksakiyeh, south Lebanon. These species belong to three genera which have not been reported from this region before. Also, the family Sagartiidae is reported from Lebanese coast for the first time. This report discusses details of these new observations.

Keywords: *Anthopleura ballii*; *Aulactinia rubripunctata*; *Aulactinia verrucosa*; *Cereus pedunculatus*; Actiniidae; Sagartiidae; Lebanon; Eastern Mediterranean Sea

Introduction

Order Actiniaria Hertwig, 1882, includes about 1100 species worldwide and 51 species in the Mediterranean Sea. In the Levantine Sea, 18 species of sea anemones are known [1-4].

Along the Lebanese coast nine species belonging to five families of the order Actiniaria were reported until now: *Actinia mediterranea* (Schmidt, 1971), *Adamsia palliata* (Fabricius, 1779), *Aiptasia mutabilis* (Gravenhorst, 1831), *Anemonia viridis* (Forsskål, 1775), *Bunodeopsis strumosa* (Andrès, 1881), *Calliactis parasitica* (Couch, 1842), *Condylactis aurantiaca* (Delle Chiaje, 1825), *Hormathia alba* (Andrès, 1880) and *Telmatactis cricooides* (Duchassaing, 1850) [5-9]. However, Actiniaria species from the Lebanese coast remain insufficiently studied. This note reports four species of sea anemones recorded for the first time from this coast.

During many fieldworks done by one of us (A. Badreddine) along the coast of Saksakiyeh south Lebanon (33°43'9711"N; 35°27'4219"E) (Figure 1), four species of sea anemones new for this region were observed and photographed in the tidal pools of the large vermetid reef of the studied site. Many photos of each specimen were taken to confirm the identification. Date of observation and number of individuals of each species are provided in Table 1.

As result, four species of sea anemones were recorded for the first time along the Lebanese coast: the red speckled anemone *Anthopleura ballii* (Cocks, 1851), the gem anemone *Aulactinia rubripunctata* (Grube, 1840), *Aulactinia verrucosa* (Pennant, 1777), and the daisy anemone *Cereus pedunculatus* (Pennant, 1777). These species belong to three genera which have not been reported from this region before. Also, the family Sagartiidae is reported from Lebanese coast for the first time.

Systematics

Characters of the species

Anthopleura ballii is distinguished by its yellowish tentacles arranged into 5 circles with a brilliant green sheen. Its column covered by small warts arranged into longitudinal rows (Figure 2).

Remarks

Anthopleura ballii (Cocks, 1851) is an Atlantic-Mediterranean species, known in the Mediterranean Sea from its Western (including the Adriatic Sea) and Levantine basin [1, 3, 10-12].

Characters of the species

Aulactinia rubripunctata is characterized by its red tentacles, greenish oral disc, and distinguished yellowish column accompanied by a red spot on the verrucae (Figure 3).

Remarks

Aulactinia rubripunctata (Grube, 1840) is an Atlantic-Mediterranean species, known in the Mediterranean Sea from its

| Species | Date | Number of individuals | Photo |
|-----------------------------------------------|------------|-----------------------|-------|
| <i>Anthopleura ballii</i> (Cocks, 1851) | 23-09-2020 | One | Yes |
| | 25-12-2020 | Around ten | Yes |
| | 05-01-2021 | Around ten | Yes |
| | 24-04-2021 | Around ten | Yes |
| <i>Aulactinia rubripunctata</i> (Grube, 1840) | 23-09-2020 | One | Yes |
| | 25-12-2020 | Two | Yes |
| | 05-01-2021 | Two | Yes |
| | 24-04-2021 | Two | Yes |
| <i>Aulactinia verrucosa</i> (Pennant, 1777) | 05-01-2021 | One | Yes |
| | 24-04-2021 | Two | Yes |
| <i>Cereus pedunculatus</i> (Pennant, 1777) | 23-09-2020 | One | Yes |
| | 05-01-2021 | One | Yes |

Table 1: Records of the four sea anemones along the vermetid reef of Saksakiyeh.

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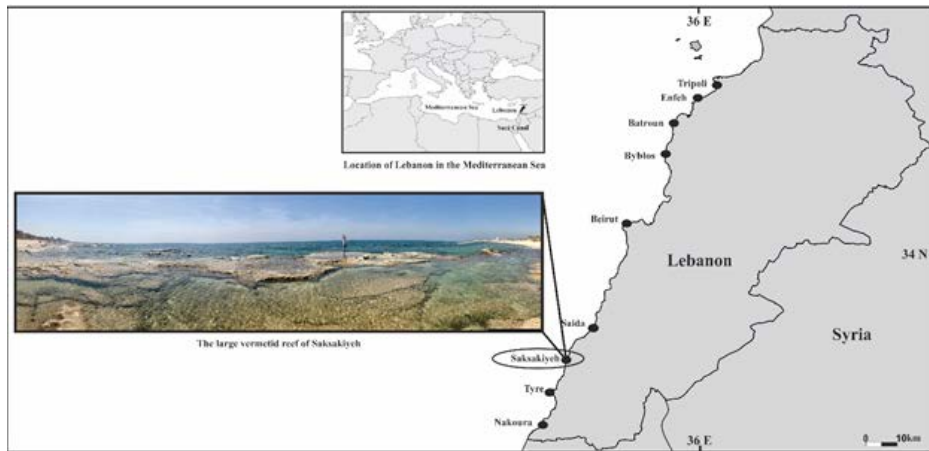


Figure 1: Location where the four sea anemones species were observed and photographed in Saksakiyeh, south Lebanon.

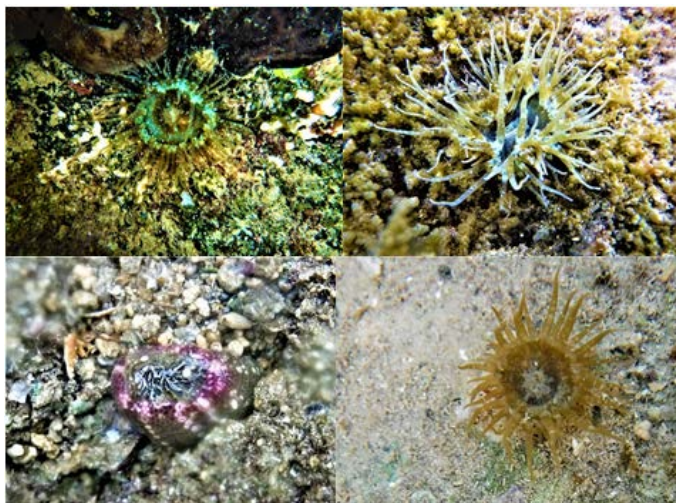


Figure 2: Four specimens of *Anthopleura ballii* Phylum Cnidaria Hatschek, 1888 Order Actiniaria Hertwig, 1882 Family Actiniidae Rafinesque, 1815 Genus *Anthopleura* Michelotti, 1860 *Anthopleura ballii* (Cocks, 1851).



Figure 3: Specimens of *Aulactinia rubripunctata* Genus *Aulactinia* Agassiz in Verrill, 1864 *Aulactinia rubripunctata* (Grube, 1840).

western (including the Adriatic Sea) and eastern (including the Aegean and Levantine Seas) [1, 3, 10, 11].

Characters of the species

Aulactinia verrucosa is easily distinguished by pink markings on the tentacles, greenish-olive oral disc, two small pink lines marking

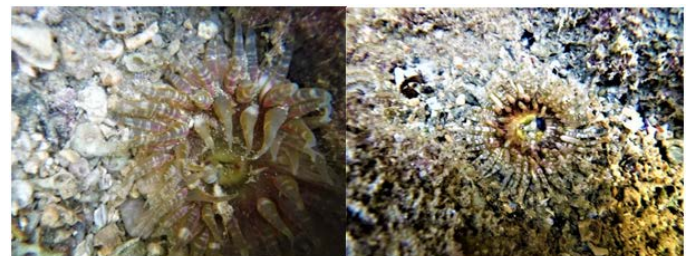


Figure 4: Two specimens of *Aulactinia verrucosa* *Aulactinia verrucosa* (Pennant, 1777).

siphonoglyphes on the corners of the mouth (Figure 4), and soft pink column (personal observation of A. Badreddine).

Remarks

Aulactinia verrucosa (Pennant, 1777) is an Atlantic-Mediterranean species. In the Mediterranean Sea, *A. verrucosa* was reported from its Western (including the Adriatic Sea) and Eastern (including the Aegean Sea) basins [1, 3, 10]. In the Levantine basin, *A. verrucosa* was reported from the Southern Levantine coast [13] and the Turkish waters [11].

Characters of the species

Cereus pedunculatus is easily distinguished by its numerous tentacles arranged in the form of a crown (Figure 5).

Remarks

Cereus pedunculatus (Pennant, 1777) is an Atlantic-Mediterranean species, well reported from different localities of the Mediterranean Sea, its western (including the Adriatic Sea), central and eastern (including the Aegean, Black Seas and Levantine basins) parts [1, 3, 10, 11].

Four other species of sea anemones are known to occur along the Lebanese coast in the tidal pools of the vermetid reefs and sometime in the first-meter depth: *Actinia mediterranea*, *Aiptasia mutabilis*, *Anemonia viridis* and *Condylactis aurantiaca* (Figure 6).

Conclusion

These new records of sea anemone species along the Lebanese coast complement the data from the Levantine Sea [1, 3, 11, 13]. Indeed, the records of this sea anemone species in the tidal pool of a vermetid reef confirm the importance of this biogenic formation, as ecosystems

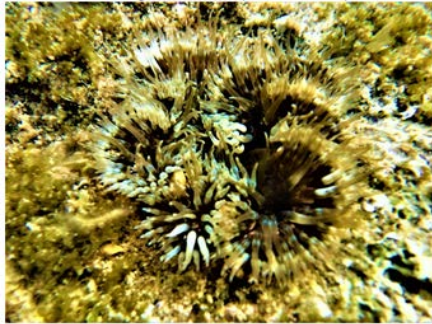


Figure 5: Specimen of *Cereus pedunculatus* Family Sagartiidae Gosse, 1858 Genus *Cereus* Ilmoni, 1830 *Cereus pedunculatus* (Pennant, 1777).

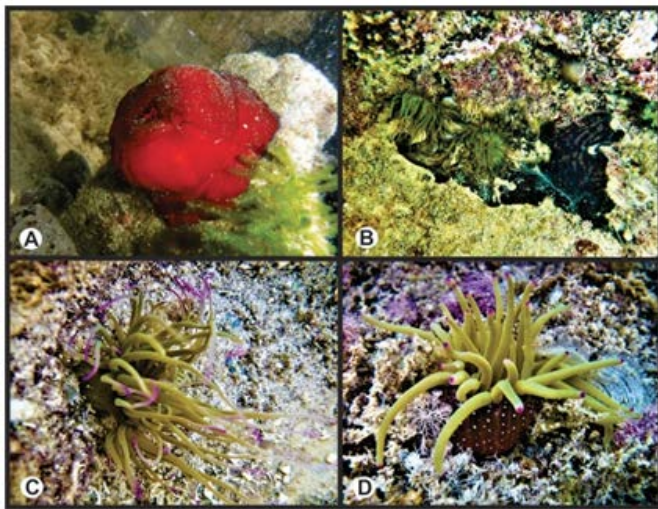


Figure 6: Sea anemones from the tidal pools of the vermetid reefs along the Lebanese coast **A.** *Actinia mediterranea*, **B.** *Aiptasia mutabilis*, **C.** *Anemonia viridis*, and **D.** *Condylactis aurantiaca*.

engineering regrouping a diverse fauna and flora, along the Lebanese coast [14]. It is therefore, of higher importance to protect such ecosystems and continue to investigate the fauna and flora associated with the vermetid reefs along the Lebanese coast. Finally, further research on sea anemone diversity along the Levantine coast, including the Lebanese coast, is required to monitor the existing species status and investigate the presence of new records.

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