Diversity of marine sponges and associated organisms in the coastal waters of Allaipiddy, Velanai Island, Sri Lanka

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In addition to their habitat building capacity, marine sponges have been studied for their bioactive compounds in recent years. However, data on diversity of sponges in the coastal waters of Northern Sri Lanka is scant. Therefore, the present study was carried out to identify the diversity and distribution of marine sponges and associated organisms from the coastal waters of Allaipiddy (9.613011°N, 79.966529°E), Velanai Island of Sri Lanka. The sampling area was limited to 20 m from the coast line and samples were collected from 20 x 20 m transect by hand picking method during April 2021. Sponge species identification was performed based on morphological characteristics, spicule preparations and histological sectioning with the aid of available taxonomic keys and were validated against World Porifera Database. In the present study, eight species of Class: Demospongiae were recorded representing five orders, eight families and eight genera. Identified species were *Haliclona caerulea*, *Callyspongia diffusa*, *Tedania anhelans*, *Dysidea fragilis*, *Gelliodes incrustans*, *Amorphiniopsis fenestrata*, *Mycale tenuispiculata* and *Spheciospongia inconstans*. Observations revealed that all the sponge species showed close association with sea grass species such as *Enhalus acoroides* and *Thalassia hemprichii* and algae species *Padina pavonica*, *Sargassum polycystum* and *Jania* sp. Sponge – algae and sponge-sea grass associations in the form of sponge encrusting on algae and sea grass also recorded. Macro invertebrates such as brittle star species: *Ophiactis savignyi* and *Ophiothela* sp.; sea cucumber: *Synaptula recta*; polychaetes: *Sabella* sp. and *Nereis* sp.; amphipods; and a diatom *Coscinodiscus* sp. were recorded from the spongocoel as well as on the outer surface of most of the sponge species. A sponge species *T.anhelans* showed sponge-sponge association with other sponges *H.caerulea*; and *C.diffusa.* Results indicate that, *S. inconstans* is the most common sponge species. The results from the present study indicate the ecological significance of marine sponges in Allaipiddy as they support the life of many other organisms.

Keywords: algae, Demospongiae, encrusting sponge, macro invertebrates, sea grass

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