Figure S1. Sampling locations of marine sponges from the Gulf of Aqaba, Jordan, where (1-8) indicates the stations of sample collection sites.

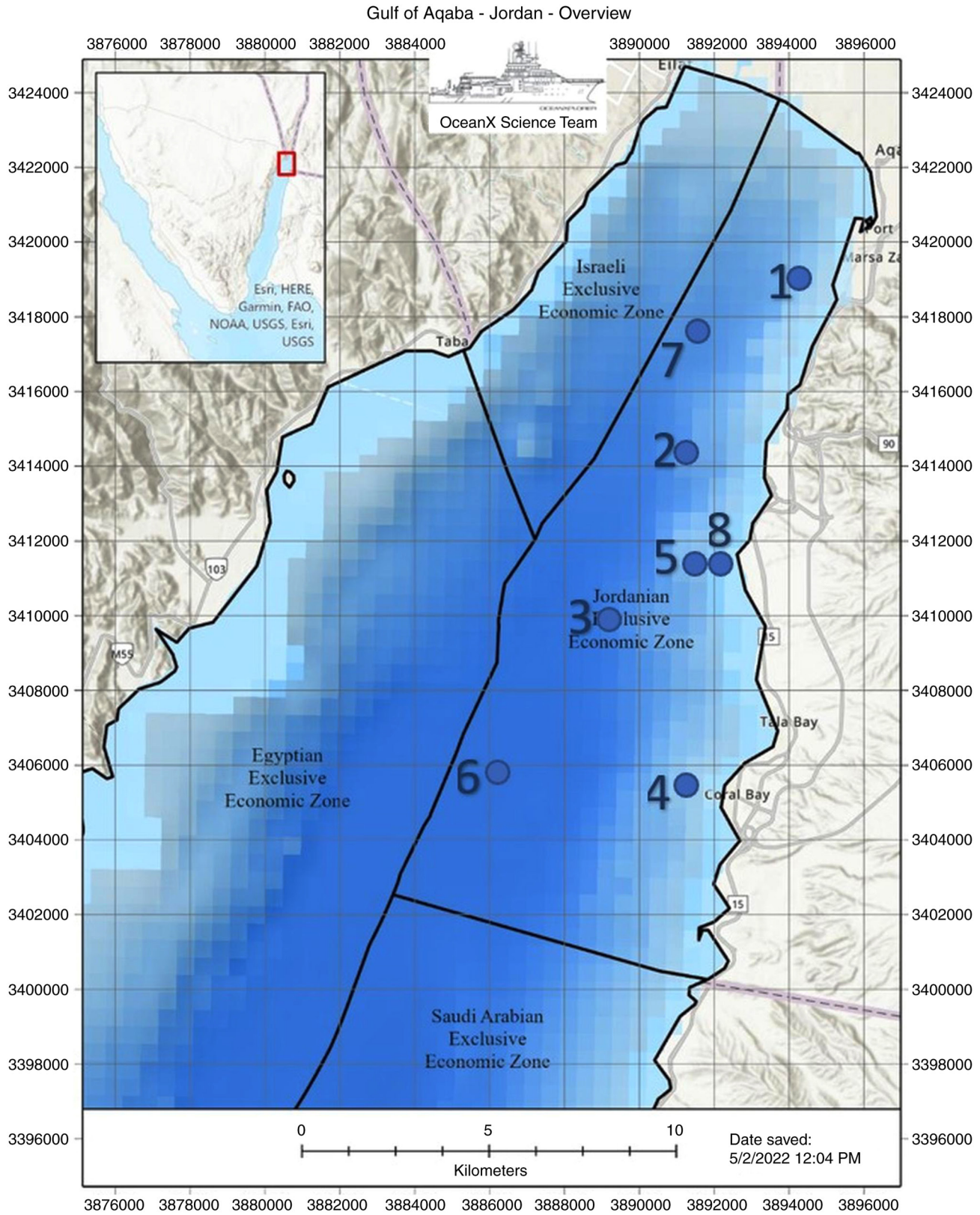

Figure S2. Morphological view of *Stelletta sp*. (corresponding to specimen 1 in Table SI). The image shows the external morphology and surface texture used to support taxonomic identification.

Figure S3. Morphological view of *Dactylospongia cf. elegans* (corresponding to specimen 2 in Table SI). The image illustrates the sponge's characteristic massive form and color pattern as recorded during sampling.

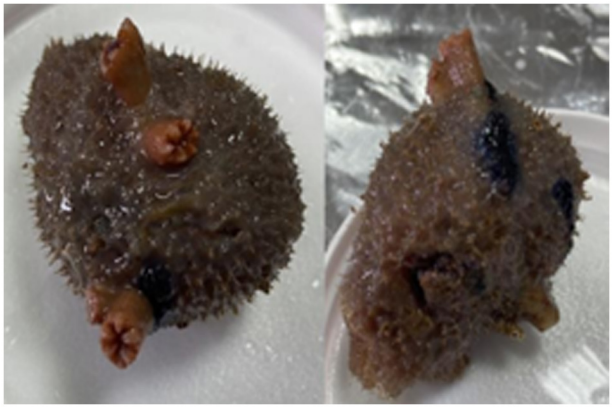

Figure S4. Morphological view of *Axinella sp*. (corresponding to specimen 3 in Table SI). The figure displays the branching morphology and skeletal structure features relevant to its identification.

Figure S5. Agarose gel electrophoresis of 28S rRNA PCR products in three sponge samples: This demonstrates the PCR amplification patterns of the 28S rRNA gene in three sponge samples. The wells were loaded with 3 μl of PCR products. Lane 1 is the negative control, Lane 2 is Sponge 1, Lane 3 is Sponge 2, Lane 4 is Sponge 3, and Lane 5 is the 1 Kb molecular marker to ascertain size.

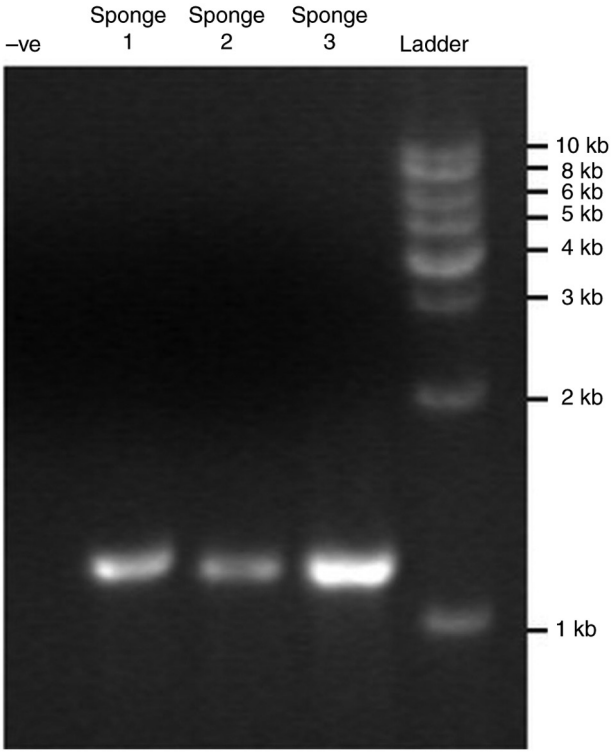

Figure S6. Chromatogram of sponge 2 ethanolic extract: 40 peaks were found, each representing a different molecule that eluted at different retention durations. The chromatogram's intricacy suggests a varied chemical makeup that most likely includes a range of secondary metabolites with possible bioactive characteristics. Subsequent chemical identification and biological activity evaluation are based on this profile.