new records included, the up-to-date calcarean fauna of the eastern Mediterranean consists of 32 species (40% of the Mediterranean Calcarea) belonging to 16 genera, 13 families, and 4 orders. Calcaronea is the richest subclass, with 23 species, while Calcinea is represented with 9 species. The most diverse genus was Sycon (8). Most species were recorded in the Levantine Basin (17), North Aegean (12), and South Aegean Sea (6). Our review showed that most calcarean records from the eastern Mediterranean Sea were included in old publications and that the calcarean species found to date exclusively in the eastern Mediterranean make up 25% of its total calcarean fauna. This and the fact that recent research effort in the Aegean Sea yielded 6 new species indicate that further research could increase our knowledge on the calcarean diversity of the Mediterranean.

Three new and four poorly known species of *Plakina* (Porifera, Homoscleromorpha)

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Plakina is among the most representative genera of the class Homoscleromorpha, with 29 valid species occurring in subtidal hard substrates, mostly ceilings and walls of dark or semi-dark habitats. The genus is widely distributed around the world, although the regions of the Mediterranean Sea (8 spp.) and Caribbean Sea (5 spp.) record the highest species richness. Two Mediterranean species, *Plakina monolopha* and *P. trilopha,* are allegedly cosmopolitan but most records from outside the Mediterranean need revision, including the Brazilian record of *P. trilopha* (Muricy *et al*., 1998, Domingos *et al.*, 2016). In the present study, we describe three new species of *Plakina* and redescribe four others from different regions (Central Pacific, Aegean Sea, Antarctic, and Southwestern Atlantic). *Plakina* sp. nov. 1 from the Marquises Island, Central Pacific, is distinguished by its lophose calthrops exclusively trilophose and with all actines terminally spined. *Plakina* sp. nov. 2 from Greece is massive, orange to red-pink with whitish borders *in vivo*, and has trilophose and tetralophose calthrops with very irregular shapes. *Plakina monolopha var. antarctica* Topsent, 1917 from Petermann Island, Antarctica, has monolophose calthrops with the basal actines bifurcated and the lophose actine ramified in a complicated 1m, 2d, ts pattern. Furthermore, its spicules are larger than those of Mediterranean *P. monolopha* (cf. Muricy *et al*., 1998). We thus propose to rename it as a new species, provisionally called *Plakina* sp. nov. 3. We also revised other four poorly known species of *Plakina* and added the following new characters to their descriptions: to *P. crypta*, the irregular shape and rare trilophose calthrops; to *P. weinbergi* details of spicule shape (regular and irregular, with blunt and microspined tips); to *P. bowerbanki* the presence of a marginal canal, circular oscules and basal cavities, and SEM analysis of spicules; and to *P. coerulea* the presence of a marginal canal, basal cavities and rare mono-, di- and trilophose calthrops. The geographic distribution of *P. crypta* from SW France is extended to the Aegean Sea, with its first record for Greece. The distribution of the Tropical Southwestern Atlantic species *P. coerulea* is extended from Maceió to Fernando de Noronha oceanic archipelago and to Cabo Frio, in SE Brazil. These preliminary results indicate that the genus *Plakina* is more diverse and that its species are more widely distributed than previously thought.

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Calcareous Sponges From Palau And The Great Barrier Reef, Australia

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Calcareous sponges are composed of calcium carbonate spicules that can be diactines, triactines, tetractines, and/or polyactines. Their aquiferous system is very diverse, being asconoid, syconoid, syllebid, leuconoid or solenoid. Currently there is a dearth of taxonomists and knowledge in calcarea taxonomy in Australia. As part of acquiring taxonomic knowledge and updating the calcareous sponge collections from Queensland Museum, a set of 21 vouchered samples from Palau and the Great Barrier Reef were examined at the first calcareous workshop conducted at the South Australian Research Development Institute (SARDI) Aquatic Sciences, Adelaide, South Australia. Four specimens were from Palau while the remaining specimens were from the Queensland coast with 12 specimens exclusively from the Great Barrier Reef. Eighteen species were identified as calcareous sponges, of which, 12 species were from the subclass Calcinea and five from Calcaronea. Order Clathrinida (Calcinea) was represented by the genera: *Arthuria*, *Ascandra, Ascoleucetta*, *Clathrina*, *Leucaltis*, *Leucetta* and *Levinella.* Whilst the subclass Calcaronea was represented by the genera *Grantia*, *Leucandra*, *Sycettusa* and *Sycon.* Of these, the widespread dominant genera were *Leucetta*, followed by *Ascoleucetta.* New species are expected from this collection for Australia and Palau.

Divergence between molecular and morphological data in Brazilian *Arenosclera* sponges (Haplosclerida, Demospongiae)

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Arenosclera has six accepted species in the Indo-Pacific (5): Australian (3), New Caledonia (1), Red Sea (1) and West Atlantic: Brazil (1). Recent expeditions to the Amazon reefs yielded three specimens assignable to *Arenosclera*, but seemingly quite distinct from the sole species this far known from Brazil, namely *A. brasiliensis*. The rich chemistry known from *A. brasiliensis* caught our attention about relationships among these species and inspired us to perform a phylogenetic analysis to verify if *Arenosclera* is monophyletic. We integrated morphological and metagenome derived molecular analyses (28S). Morphology was studied as usual, and metagenomes were extracted according to (1), and then sequenced with Illumina MySeq technology. A 28S Genbank database was compiled with sequences ≥80% similar to the complete 28S of *A. heroni* (type species of *Arenosclera*). Metagenomes were compared with this database using BLASTN and only 28S-like sequences were saved. Following, we used CAP3 and SPADES to assemble sequences in contigs, and selected the largest contig for the phylogenetic analysis. The latter also used additional haplosclerid 28S sequences collected from Genbank. Sequences were aligned with MAFFT 7 and the Maximum likelihood phylogeny obtained with RAxML. The Amazon species feature delicate oxeas and sand in the fibers (carbonatic in one, siliciclastic in the other), with soft consistency and beige color. Additional differences between both species are the structure of their callyspongiid skeleton and morphology of the oxeas. Aside their arborescent habit, these species are very similar to other *Arenosclera* spp. However, the phylogeny retrieved shows that not only Amazon reef species, as well as *A. brasiliensis* do not form a monophyletic group with *A. heroni*. Brazilian species appear in a distinct clade, suggesting that these species represent a new genus. The confused systematics of the Haplosclerida hinders the objective classification of this new clade for now. Additional studies using other Haplosclerida and molecular markers are necessary to better define this group.

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