

First record of *Hyalascus* (Hexactinellida: Rossellidae) from the Indian Ocean, with description of a new species from a volcanic seamount in the Andaman Sea

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A new species of *Hyalascus* is described from the volcanic crater seamount of Andaman Back Arc Basin, Indian Ocean. The genus was previously known in the Pacific Ocean only.

Hyalascus was established by Ijima in 1896 for a sponge from Sagami Bay (Japan). The genus comprised eight doubtless species until now: *H. baculifer* (Schulze, 1886); *H. stellatus* (Schulze, 1886); *H. sagamiensis* Ijima, 1896; *H. giganteus* Ijima, 1898; *H. similis* Ijima, 1904; *H. attenuatus* Okada, 1932; *H. anisoactinus* Tabachnick & Levi, 2004; *H. pinulohexactinus* Tabachnick & Levi, 2004; all occurring in the Pacific Ocean only. *Hyalascus hodgsonii* Kirkpatrick, 1907 from the Antarctic Ocean appears to be a doubtful representative of the genus due to the presence of two types of microdiscohexasters; one with numerous secondary rays, and another possessing a reduced number of these rays. The transfer of this species to *Scyphidium* by Tabachnick & Lévi (2004) appears reasonable since presence of two types of discoidal microscleres is the diagnostic character for *Scyphidium* (Tabachnick, 2002). The assignment by Koltun (1964) of *Hyalascus attenuatus* Okada, 1932 to the synonymy of *Aulosaccus schulzei* Ijima, 1896 was rejected later (Tabachnick, 2002). Koltun found two specimens, identified by him as *Hyalascus attenuatus*, with large spherical discohexasters. As a consequence, these specimens should be regarded as representatives of *Aulosaccus* Ijima, 1896. In part, Ijima's decision was derived from the observation that hypodermal pentactins were absent in *Aulosaccus* (cf. Ijima, 1904). Nevertheless, Okada (1932) noticed that this trait does not seem to be important, as opposed to the large discohexasters, judged a more reliable diagnostic character for *Aulosaccus*. Some hypodermal pentactins may be present in the latter. Following this argument, later inadvertently supported by Tabachnick (2002), *A. mitsukurii* Ijima, 1898 (1904, 1928) from Sagami Bay (Japan), was referred to *Hyalascus*. This was a mistaken

decision nevertheless, as this species has two distinct types of discoidal microscleres and should finally be considered a doubtless representative of *Scyphidium* Schulze, 1900.

Hyalascus is defined as Rossellinae with saccular body and only one type of discoidal microscleres – the smallest ones microdiscohexasters. Dermalia are pentactins and stauractins, hypodermal pentactins (if present) have orthotropical tangential rays (Tabachnick, 2002).

Order Lyssacosida Zittel, 1877

Family Rossellidae Schulze, 1885

Genus *Hyalascus* Ijima, 1896

***Hyalascus andamanensis* sp. nov.** (Figures 1-2)

Material examined: Volcanic seamount, Andaman Back Arc Basin, Andaman Sea: R.V. 'SONNE', stn. TVG-9, 25.XI.2007, 7°56.036' N 94°03.026' E, 705 m.

Holotype, NIO/BOD /3/2010, stored in alcohol. IORAS i1, slide.

Etymology, The species name is derived from its place of collection.

Description, Body: The sponge has a white cylindrical body, about 13 mm long and 6 mm in diameter; the osculum is 4 × 3 mm in diameter, the walls are very thin 0.5 -1 mm . Prostalia lateralia are hypodermal pentactins which protrude at about 300 µm above the dermal surface (Fig. 1).

Spicules (Fig. 2): The choanosomal skeleton is composed of diactins 700 – 3800 µm in length and 4 – 15 µm in diameter; they have rounded, rough outer ends and stout, smooth shafts. Hypodermal pentactins have orthotropical tangential rays about 800 – 1700 µm in length and 8 – 24 µm in diameter, the proximal ray is more than 1400 µm in length. Some of the tangential rays are smooth, the others have rough surface; the outer ends are conically pointed. Dermalia are stauractins, rarely tauactins and pentactins, sometimes they have 1 – 2 rudimental tubercles instead of the reduced rays. The rays of dermal stauractins are rough with rounded or conically pointed outer ends, have 59 – 111 µm in length (n=25, avg=93, std=12) with a diameter of about 5 µm. Atrialia are hexactins, their rays directed inside the atrial cavity are 67 – 215 µm in length (n=23, avg=161, std=36), tangential rays are 74 – 200 µm in length (n=24, avg=146, std=30), ray directed inside the body is 41 – 207 µm in length (n=22, avg=138, std=36). The rays are 5 – 7 µm in diameter, their surface is rough and outer ends are rounded or conically pointed.

Microscleres are oxyhexactins together with some oxyhemihexasters and oxyhexasters and microdiscohexasters. Oxyhexactins are 67 – 141 μm in diameter (n=25, avg=103, std=3). Oxyhemihexasters and oxyhexasters are 74 – 141 μm in diameter (n=10, avg=98, std=20) with primary rosette 7 – 10 μm in diameter (in the latter). Microdiscohexasters are spherical, 18 – 25 μm in diameter (n=7, avg=22, std=3) with primary rosette 4 – 7 μm in diameter (n=7, avg=6, std=1).

Remarks: Most species of *Hyalascus* have dermal spicules predominately in the form of pentactins: *H. baculifer*, *H. giganteus*, *H. similis* and *H. stellatus*. In one species, they are mostly hexactins: *H. sagamiensis*. Four species, including the new one, have mostly stauroactins: *H. andamanensis* sp. nov., *H. anisoactinus*, *H. attenuatus* and *H. pinulohexactinus*. The new species differs by the smallest size of microdiscohexasters, 18 – 25 μm in diameter, while in all other species, these spicules are larger (25 – 72 μm in *H. anisoactinus*; 25 – 65 μm in *H. pinulohexactinus*) and even notably larger in some species (about 117 μm in *H. baculifer* and about 63 μm in *H. stellatus*).

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Legend to the text Figures:

Figure 1. *Hyalascus andamanensis* sp. nov.: (A) upper part of type specimen with osculum and (B), its' lateral view showing the basal broken part.

Figure 2. *Hyalascus andamanensis* sp.nov., spicules of the holotype. A, dermal stauractin. B, atrial hexactin. C, hypodermal pentactin. D, E, fragments of tangential rays of hypodermal pentactins. F, choanosomal diactin. G, oxyhexactin. H, oxyhemihexaster. I, oxyhexaster. J, K, microdiscohexasters.

Figure 3. Map showing the distribution of *Hyalascus* in the world Oceans. A, *H. anisoactinus* Tabachnick & Lévi, 2004; B, C, D, *H. pinulohexactinus* Tabachnick & Lévi, 2004; E, F, *H. attenuatus* Okada, 1932; G, *H. sagamiensis* Ijima, 1896 and *H. giganteus* Ijima, 1998; H, *H. similis* Ijima, 1904; I, *H. baculifer* (Schulze, 1886); J, *H. stellatus* (Schulze, 1886); K, *H. andamanensis* sp.nov.

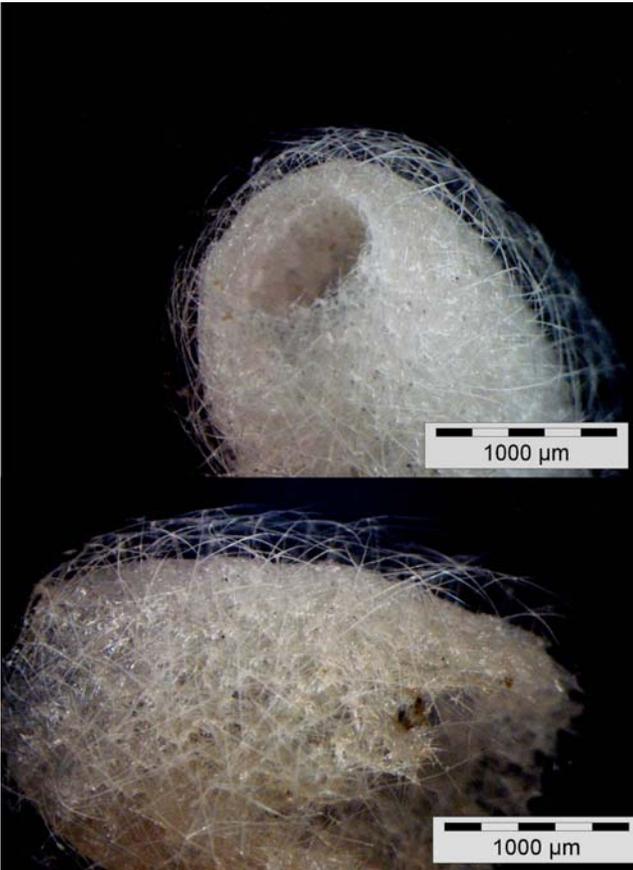


Figure 1

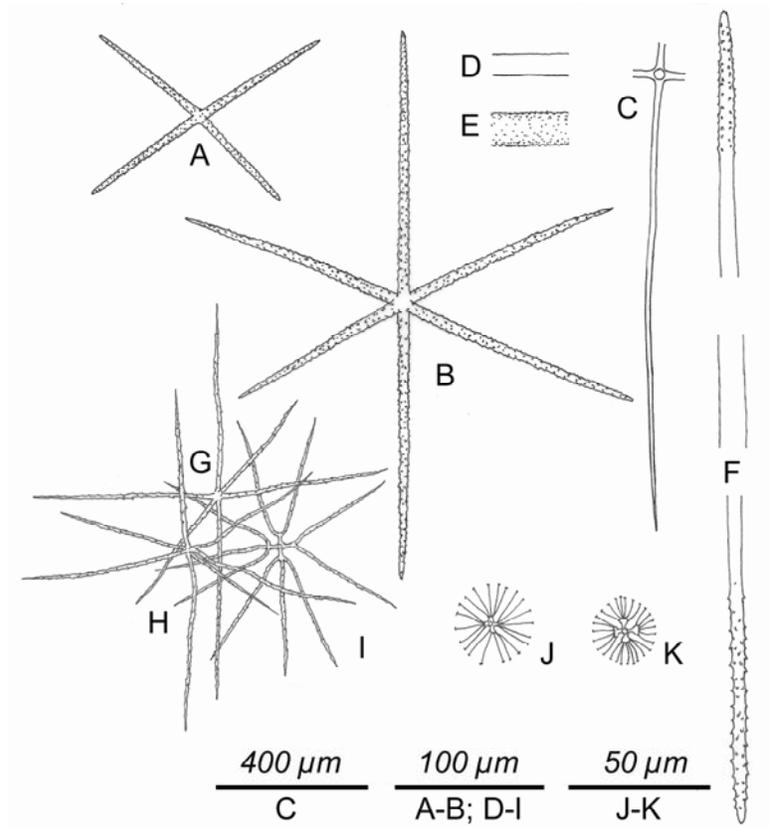


Figure 2



Figure 3