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Abstract

Revision of the genus *Latrunculia* du Bocage, 1869, has resulted in 27 of 36 species considered to be valid. Many species have been reassigned to genera in the poecilosclerid family Podospongiidae, in particular, and many have been transferred to other Latrunculiidae genera. *Latrunculia apicalis* var. *biformis* (Kirkpatrick 1908) and *Latrunculia apicalis* var. *basilis* (Kirkpatrick 1908) have been elevated to full and separate species status, as *L. biform*is Kirkpatrick and *L. basilis* Kirkpatrick. Two new species have been described, from New Caledonia (*L. novaecaledoniae* sp. nov.) and the northeastern Pacific (*L. austini* sp. nov.). This revision also formally recognizes the two morphological subgroups *triverticillata* and *spinispiraefera* hypothesized by Alvarez *et al*. (2002), as the new subgenera *Latrunculia* (*Latrunculia*) subgen. nov. and *Latrunculia* (*Biannulata*) subgen. nov.. The primary distinction between these two groups is the morphology of the anisodiscorhabd microscleres. The anisodiscorhabds of *Latrunculia* (*Latrunculia*) species have a basal whorl just above the manubrium in addition to two centralized whorls of projections. The anisodiscorhabds of *Latrunculia* (*Biannulata*) species lack this basal whorl. There is some indication that there are geographic and habitat differences between the two groups.

Key words: Porifera, sponge, *Latrunculia*, subgenus *Latrunculia*, subgenus *Biannulata*, Latrunculiidae, Poecilosclerida, taxonomy, new species

Introduction

Bocage (1869) first described *Latrunculia cratera* from Cape Verde in the Atlantic Ocean, distinguishing it from *Podospongia lovenii* (Family Podospongiidae) by the presence of a “distinct dermis of thorny microscleres” forming a “complete envelope around the sponge”. He named the species *cratera* but gave neither a generic diagnosis nor an opinion of the phylogenetic affinity of the sponge. Carter (1879) defined the thorny spicule as a ‘sceptrella’, or ‘little sceptre’, and described it as having spines or groups of spines on a shaft, which are transformed into circular plates with serrated margins. Dendy (1917) described the structure of the sceptrella more precisely and suggested that in future these

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underestimated worldwide. This is corroborated by the observation of several unpublished/ unidentified material in museums from which most of the new species were described (Samaai 2002; Samaai and Krasokhin 2002; Samaai and Kelly 2002).

The range of morphologies known within the genus *Latrunculia* has been extended with the descriptions of various new species (Alvarez *et al*. 2002, Samaai and Krasokhin 2002, Samaai *et al*. 2003), and by the rediscription of the known species within the genus *Latrunculia* (Samaai and Kelly 2002) A study of Kirkpatrick's (1908) type slide of *Latrunculia biformis* (BMNH 1908.2.5.70) revealed the presence of two categories of anisodiscorhabds, which renders the species unique among other *Latrunculia*. Remarkably, all the *Latrunculia* species studied except for *L. purpurea*, *L. oparinae* and *L. novaecaledoniae* sp.nov. possess smooth, hastate or fusiform anisostyle. *L. purpurea* possesses oxeas as megascleres and *L. oparinae* and *L. novaecaledoniae* sp. nov. have styles that are either coarsely or finely spined. A further two species of *L. oxydiscorhabda* and *L. microacanthoxea* possesses a second category of unrelated.

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References

Alvarez, B., Bergquist P. R. & Battershill C. N. (2002) Taxonomic revision of the genus *Latrunculia* du Bocage (Porifera: Demospongiae: Latrunculiidae) in New Zealand. *New Zealand Journal of Marine and Freshwater Research*, 36, 151–184.

Antunes, E. M., Beukes, D.R., Kelly, M., Samaai, T., Barrows, L. M., Marshall, K. M., Sincich, C and Davies-Coleman, M.T. (2004) Pyrroloiminoquinones from four South African latrunculid sponges. *Journal of Natural Products*, 67, 1268–1276.

Antunes, E. M., Copp, B. R., Davies-Coleman, M. and Samaai, T. (2005) Pyrroloiminoquinone and related metabolites from Marine sponges. *Natural Products Report*, 22, 62–72.

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Bocage, J.V. Barboza du. (1869) Éponges siliceuses nouvelles de Portugal et de l'île de Saint-Iago (archipel du Cap-vert). *Jornal de sciencias mathematicas, physicas e naturaes,* 2, 159–162, pls X–XI.

Boury-Esnault, N and Beveren, M. (1982) Les Demosponges du plateua continental de Kerguelen-Heard. *Comité National Français des Researches Antartiques,* 52, 1–176p., 21pls.

Bergquist, P.R. (1961) Demospongiae (Porifera) of the Chatham Islands and Chatham Rise, collected by the Chatham Islands 1954 Expedition. *New Zealand. Department of Scientific and Industrial Research Bulletin,* No. 139(5), 169–206, fig 1–6). [*New Zealand Oceanographic Institute Memoir* 13).

Bergquist, P.R. (1968) The marine fauna of New Zealand: Porifera, Demospongiae, Part 1 (Tetractinomorpha and Lithistida). *New Zealand department of Scientific and Industrial Research Bulletin* 188 [*New Zealand Oceanographic Institute Memoir*], 37, 105pp., 15 pls. (+ fsp. in colour).

Brondstead, H.V. (1924) Papers from Dr Th. Mortensen's Pacific Expedition, 1914–1916. Sponges from the Auckland and Campbell Islands. *Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening i Kjøbenhavn,* 75, 117–167.

Burton, M. (1929) Porifera. Part II. Antarctic sponges. *National History Reports of the British Antarctic "Terra Nova" Expedition, 1910, Zoology,* 6 (4), 393–458, pls. I–V.

Burton, M. (1932) Sponges. *Discovery report,* Vol. 11, pp. 237–392.

Burton, M. (1934a) Sponges. *Scientific Report of the Great Barrier Reef,* 4, 513–621 pls 1–2.

Burton, M. (1940) Las esponjas marinas del museo Argentino de ciencias naturales. *Anales del Museo Argentino de Ciencias Naturalles,* 6, 95–121, 9 pls.

Carter, H.J. (1879) Contribution to our knowledge of the Spongida. *Annals and Magazine of Natural History,* (5) 3, 284–304, 343–360, pls 25–29.

Carter, H.J. (1881) Contribution to our knowledge of the Spongida. *Annals and Magazine of Natural History,* (5) 8, 101–112, 118–120, 241–259, pl. 9.

Dendy, A. (1917) The chessman spicule of the genus *Latrunculia*; a study in the origin of specific characters. *Journal of the Quekett Microscopical club,* vol XIII, 1–18.

Dendy, A. (1921) The tetraxonid sponge spicule: a study in evolution. *Acta Zoologica,* 1921, 95–152.

Dendy, A. (1922) Report on the Sigmatotetraxonida collected by H.M.S. Sealark in the Indian Ocean. In: Reports of the Percy Sladen Trust Expedition to the Indian Ocean in 1905. Vol.7. *Transactions of the Linnean Society of London, Zoology,* 18, 1–164, pls 1–18.

Dendy, A. (1924) Porifera: part 1. Non-Antartic sponges. *Natural History Report. British Antartic "Terra Nova" Expedition, 1910. Zoology,* 6(3), 269–392, 15 pls.

Hajdu, E. (1994) Macroevolutionary patterns within the demosponge order Poecilosclerida. *An integrated approach to biogeography of the marine realm, with new data from the cosmopolitan demosponge genus Mycale*. Ph.D thesis, University of Amsterdam. Centrale drukkerij, Universiteit van Amsterdam.

Hentschel, E. (1914) Monaxone Kieselschwämme und Hornshwämme der Deutschen Südpolar-Expedition 1901–1903. *Deutsche Südpolar-Expedition 1901–1903,* 15(Zool. 7), 35–141 pls 4–8.

Hiemstra, F & van Soest, R.W.M. (1991) *Didiscus verdensis* spec. nov. (Porifera: Halichondrida) from the Cape Verde Islands, with a revision and phylogenetic classification of the genus Didiscus. *Zoologische Mededelingen, Leiden,* 65 (4), 39–52, figs 1–5, pl. 1–2, table 1.

Hinde, G.J. & Holmes, W.M. (1892) On the sponge-remains in the lower Tertiary Strata near Oamaru, Otago, New Zealand. *Journal of the Linnean Society. Zoology,* 24, 177–262.

Hooper. J. (1986) Revision of the marine sponge genus *Axos* Gray (Demospongiae: Axinellida) from Northwestern Australia. *The Beagle, Occasional Papers Of the Northern Territory*

Museum Of Arts and Sciences, 3(1), 167–189 pl.1.

Hooper, J.N.A. (1996) Revision of the Microcionidae (Porifera: Poecilosclerida: Demospongiae), with description of Australian species. *Memoirs of the Queensland Museum*, 40, 1–626.

Hooper, J.N.A and Wiedenmayer, F. (1994) Porifera. *In*: Wells, A. (ed.) *Zoological Catalog of Australia*. volume 12. Melbourne, CSIRO Australia, xiii, 624 pp.

Kelly-Borges, M & Vacelet, J. (1995) A revision of *Diacarnus* Burton and *Negombata* de Laubenfels (Demospongiae: Latrunculiidae) with descriptions of new species from the west central Pacific and the Red sea. *Memoirs of the Queensland Museum*, 38(2), 477–503.

Kelly, M. & Samaai, T. (2002) Suborder Latrunculina. *In*: Hooper, J. N. A., & R. W.M. Soest, Van (eds). *Systema Porifera. Guide to the supraspecific classification of sponges and spongiomorphs (Porifera)*. Plenum, New York, pp. 707

Kelly, M. & Samaai, T. (2002) Family Podospongiidae. *In*: Hooper, J. N. A., & R. W. M. Soest, Van (eds). *Systema Porifera. Guide to the supraspecific classification of sponges and spongiomorphs (Porifera)*. Plenum, New York, pp. 649–702

Kirkpatrick, R. (1902) Descriptions of South African sponges. *Marine Investigation of South Africa*, 1, 219–232.

Kirkpatrick, R. (1903a) Descriptions of South African sponges. *Marine Investigation of South Africa*, 2, 171–180.

Kirkpatrick, R. (1903b) Descriptions of South African sponges. *Marine Investigation of South Africa*, 3, 233–264.

Kirkpatrick, R. (1908) Porifera (Sponges). II. Tetraxonida, Dendy. *National Antarctic Expedition, 1901–1904 Natural History*, 4(2), 1–56.

Koltun, V.M. (1964) Sponges of Antarctic, Part I. Tetraxononida and Cornacuspongida. Biological Reports of the Soviet Antarctic Expedition (1955–1958). *Acedemy of Sciences of the U.S.S.R., Zoological Institute* Vol 2, Pp. 6–116, 428–433, pls 1–15, Moscow.

Laubenfels, M. W., DE. (1936) A discussion of the sponge fauna of the Dry Tortugas in particular, and the west Indies in general, with material for a revision of the families and orders of the Porifera. *Carnegie Institute of Washington (Tortugas Laboratory Paper No. 467)*, 30, 1–225, 22 pls., 1 map.

Lévi, C. (1973) Systematique de la classe de Demospongiaria (Demospongiae). Pp. 577–631. In: Grassé. P.-P. (Ed.), *Traité de Zoologie. Anatomie, Systematique, Biologie. Spongiares*, 3(1), 577–631.

Lévi, C. (1964) Spongiares des Zones bathyale, abyssale et hadale. *Galathea Report. Scientific results of the Danish Deep-Sea Expedition Round the World*, 1950–52, 63–112, pls II–XI.

Lévi, C. (1993) Porifera Demospongiae: Spongiaires bathyaux de Nouvelle-Calédonie, récoltés par le Jean Charcot Campagne BIOCAL, 1985. In Crosnier, A. (ed.) Résultats des Campagnes MUSORSTOM, Volume 11. *Memoires du Museum National d'Histoire Naturelle, Paris*, 158, 9–88.

Miller, K., Alverez, B., Battershill, C.N.P. and Parthasarathy, H. (2001) Genetic, morphological and chemical divergence in the sponge genus *Latrunculia* (Porifera: Demospongiae). *Marine Biology*, 139, 235–250.

Samaai, T. & Kelly, M. (2002) Family Latrunculiidae. *In*: Hooper, J. N. A., & R. W. M. Soest, Van (eds). *Systema Porifera. Guide to the supraspecific classification of sponges and spongiomorphs (Porifera)*. Plenum, New York, pp. 708–719.

Samaai, T. (2002) *Systematics of the Family Latrunculiidae Topsent (Porifera: Demospongiae) and consideration of the diversity and biogeography of shallow-water sponges of western South Africa*. Volume 2. Ph.D Thesis.. University of the Western Cape, unpublished.

Samaai, T. & Krasokhin, V. (2002) *Latrunculia oparinae* sp.nov. (Demospongiae, Poecilosclerida, Latrunculiidae) From The Kurile Islands, Sea of Okhotsk, Russia. *Beaufortia*, 52 (8), 95–101.

 © 2006 Magnolia Press

Samaai, T., Gibbons, M.J., Kelly, M & Davies-Coleman, M. (2003) South African Latrunculiidae (Porifera: Demospongiae: Poecilosclerida): descriptions of new species of *Latrunculia* du Bocage, *Strongylodesma* Lévi, and *Tsitsikamma* Samaai & Kelly. *Zootaxa,* 371, 1–26

Samaai, T. Govender, V and Kelly, M. (2004) *Cyclacanthia* n.g. (Demospongiae: Poecilosclerida: Latrunculiidae *incertea sedis*), a new genus of marine sponges from South African waters, and description of two new species. *Zootaxa,* 725, 1–18.

Ridley, R. S and Dendy, O. (1886) Preliminary report on the Monaxonida collected by H.M.S. 'Challenger.' Part II. *Annals and Magazines of Natural History,* series 5, 18, 119–121

Ridley, S.O. & Dendy, A. (1887) Report on the Monaxonida collected by H.M.S. 'Challenger' during the years 1873–1876. Report on the Scientific Results of the Voyage of H.M.S. 'Challenger', 1873–1776. *Challenger Report Zoology,* 20 (59), 1–453.

Stephens, J. (1915) Atlantic sponges collected by the Scottish National Antarctic Expedition. *Transactions of the Royal society of Edinburgh,* Vol L 2(15), 423–467.

Tanita, S. (1959) Sponges. *Biological results of the Japanese Antarctic researchexpedition,* 1, 1–10.

Tanita, S. (1968) Sponge fauna of the Ariake Sea. *Bulletin of the Seikai Regional Fisheries Research Laboratory,* 36, Pg. 53–54, Pl. 11, Fig. 11, text-Fig. 14.17.

Topsent, E. (1905) Spongiaires des Açores. *Résultats Des campagnes scientifiques accomplies par le Prince Albert I, Monaco,* 25, 1–280, pls 1–18.

Topsent, E. (1922) Les mégasclères polytylote des Monaxonides er la parenté des Latrunculiines. *Bulletin de l'Institut Océanographique, Monaco,* 415, 1–8.

Topsent, E. (1928) Spongiaires de l'Atlantique et de la Méditeranée provenant de croisières du Prince Albert ler de Monaco. *Résultats Des campagnes scientifiques accomplies par le Prince Albert I, Monaco,* 74, 376 pp., 11 pls.

Vacelet, J. (1969) Éponges de la Roche du Large et de l'étage bathyal de Méditerranée (récoltes de la Soucoupe plongeante Cousteau et gragages). *Mémoires du Museum national d'Histoire Naturelle (A, Zoologie),* 59(2), 145–219.

Urban, S., Hickford, S.J.H., Blunt, J.W. and Munro, M.H.G. (2000) Bioactive Marine Alkaloids. *Current Organic Chemistry,* 4(7), 779–821.

Uriz, M.J. (1988) Deep-water sponges from the continental shelf and slope off Namibia (south-west Africa): Classes Hexactinellida and demospongia. *Monografías de Zoología Marina,* 3, 9–157.

Weerdt, W.H. De. (1986) Marine Shallow-water Haplosclerida (Porifera) from the South-Eastern part of the North Atlantic Ocean. *Zoologische Verhandelingen Leiden,* 225, 1–49.

Weerdt, W.H. De. (1989) Phylogeny and vicariance biogeography of north Atlantic Chalinidae (Haplosclerida, Demospongiae). *Beaufortia,* 39 (3), 55–87.

Wiedenmayer, F. (1994) Contributions to the knowledge of post-Palaeozoic neritic and archi-benthal sponges (Porifera). The stratigraphic record, ecology, and global distribution of inter-mediate and higher taxa. *Schweizerische Paläontologische Abhandlungen,* 116, 1–147.

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