# Article

**ZOOTAXA**

# Taxonomic revision of *Leucascus* Dendy, 1892 (Porifera: Calcarea) with revalidation of *Ascoleucetta* Dendy & Frederick, 1924 and description of three new species

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## Abstract

Sponges of the genus *Leucascus* are frequently recognised as possessing anastomosed tubes with choanocytes, and cortical and atrial membranes with pinacocytes. In the last years, five species of other genera were transferred to *Leucascus*, and several other species were suggested but not formally included in this genus. In the present work, all these species accepted or suggested as *Leucascus* were revised. According to our results, *Leucascus* is now composed of nine species: *L. clavatus*, *L. leptoraphis* comb. nov., *L. lobatus*, *L. neocaledonicus*, *L. protogenes* comb. nov., *L. roseus*, *L. simplex* (type species), *L. albus* sp. nov., and *L. flavus* sp. nov. The presence of spines in the apical actine of the tetractines had never been observed in *Leucascus*, but it was found in all species with tetractines in their skeletons. Some species were transferred from *Leucascus* to the genus *Ascoleucetta*, which is revalidated here based on important differences in the cortex. Modifications are also proposed in the definition of both genera. Based on our results, the family Leucascidae is now composed of *Ascaltis*, *Leucascus* and *Ascoleucetta*.

**Key words:** Calcinea, Leucascidae, solenoid, sponge, systematics, taxonomy

## Introduction

The genus *Leucascus* Dendy, 1892 is composed of sponges of the family Leucascidae Dendy, 1892 with a true atrium, *i.e.* a cavity surrounded by pinacoderm and supported by a specific skeleton. The body is formed by anastomosed tubes, with differentiation between cortex, choanosome and atrium. The presence of anastomosed tubes with choanocytes and atrium with pinacocytes resulted in the recent description of a new type of aquiferous system: the solenoid system (Cavalcanti & Klautau 2011). The cortical skeleton of these sponges is formed by triactines and/ or tetractines organised in a membrane of pinacocytes that covers the cormus, while the choanoskeleton is restricted to the wall of the choanocyte tubes, which are usually ramified and anastomosed (Borojevic *et al.* 2002).

The genus *Leucascus* was erected by Dendy (1892) to include two species: *L. simplex* and *L. clavatus*, both from the Australian coast. *Leucascus simplex* was later designated as the type species of the genus by Dendy and Row (1913) and they also included a third species - *L. insignis*, based on an unpublished manuscript of Row. Nevertheless, this species was later published as a *Leucetta* (Row & Hôzawa 1931). Therefore, *Leucascus* remained comprising only *L. simplex* and *L. clavatus* during a long time. In this period, new records of *L. simplex* were made from New Zealand (Kirk 1897), the Indian Ocean (Dendy 1913), other regions of Australia (Row & Hôzawa 1931), and Brazil (Borojevic & Peixinho 1976; Muricy *et al.* 1991). The distribution of *L. clavatus* was also extended with a record from New Zealand (Brøndsted 1926).

During the last decade three new species of the genus *Leucascus* were described: *Leucascus neocaledonicus* Borojevic & Klautau, 2000, from New Caledonia; *L. lobatus* Rapp, 2004, the first species of the genus originally described from the Atlantic Ocean (Greenland); and *L. roseus* Lanna, Rossi, Cavalcanti, Hajdu & Klautau, 2007 from Brazil. Beyond these five species originally described as *Leucascus*, five more species have been included in