



Cercicladia australis, a new carnivorous sponge with novel chelae from the Tasman Basin and the Argentine Patagonian Margin (Porifera, Cladorhizidae)

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Abstract

Recent expeditions around New Zealand have revealed a surprising diversity of carnivorous sponges (Demospongiae, Poecilosclerida, Cladorhizidae). This is especially true for the Macquarie Ridge to the southwest of New Zealand, with high numbers of new species recently recorded. In this work we describe a new genus and species of Cladorhizidae Dendy, 1922 from the Macquarie Ridge, *Cercicladia australis* **gen. nov. sp. nov.**, which has also, surprisingly, been found in the deep Atlantic off the coast of Patagonia. In addition to the mycalostyles and sigmancistras typical of Cladorhizidae, this presumably carnivorous species is characterized by the presence of toxas, microxeas, and a new type of spicule termed 'cercichelae' hereafter. The new genus *Cercicladia* **gen. nov.** has been named for these spicules, which resemble the shuttle-shaped chelae of *Cercidochela lankesteri* Kirkpatrick, 1907, now synonymised with *Isodictya* Bowerbank, 1864. The specimens from these disjunct locations are almost identical, except for the presence of acanthosubtylostyles in a few specimens from Patagonia.

Key words: Porifera, *Cercicladia australis* **gen. nov. sp. nov.**, Macquarie Ridge, southern New Zealand, southern Atlantic, new species

Introduction

Recent studies have shown that carnivorous sponges display an unexpected diversity, especially in the deep Pacific (Vacelet 2006; Vacelet *et al.* 2009; Kelly *et al.* 2009; Kelly & Vacelet 2011). These new species are not only diverse in terms of their morphology, but also in terms of their unique spiculation. The taxonomy of these sponges utilizes the general organization and their external shape, but relies mainly on the microsclere complement. New forms of these microscleres are still being discovered; most recently Kelly & Vacelet (2011) described new spicule forms that link the species with Guitarridae Dendy, 1924, in one instance, and with desma-bearing lithistid demosponges, in another.

Here we describe a new species that is presumably also carnivorous due to its characteristic shape, but which is devoid of the (an)isochelae considered to be typical of the Cladorhizidae. The species, which possesses an unprecedented type of microsclere, toxas, and microxeas, is tentatively allocated to the family Cladorhizidae. While most carnivorous sponge genera have been traditionally classified in the poecilosclerid family Cladorhizidae (Hajdu & Vacelet 2002) our results confirm that several species share potential affinity with other poecilosclerid families, including Guitarridae and Esperipsidae Hentschel, 1923. With the discovery of this new genus and species, affinity is also now indicated, at least superficially, with the Isodictyidae Dendy, 1924. A further problem is that many of the taxa with unique spiculation are represented by only a single specimen, and a phylogenetic systematics approach would prefer at least two species to establish a genus. However, the presence of cercichelae, their combi-