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On sand-bearing myxillid sponges, with a description of *Psammochela tutiae* sp. nov. (Poecilosclerida, Myxillina) from the northern Moluccas, Indonesia

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Abstract

Sand-bearing sponges belonging to the suborder Myxillina are mainly observed in South Australia. Recent biodiversity surveys in Indonesia yielded several of these sand-bearing sponges belonging to three different genera, *Chondropsis*, *Desmapsamma* and *Psammochela*. These sponges are distributed across three different families and the ecological and evolutionary implications for the incorporation of sand and detritus in the skeleton remain unresolved so far. In the present paper *Psammochela tutiae* sp.nov. (Poecilosclerida: Myxillina: Myxillidae) is described from the northern Moluccas, Indonesia. The new species is compared with all other (five) *Psammochela* species occurring in the Indo-West Pacific. The new species differs from the other species by overall morphology, absence of polydentate chelae and presence of thin strongylote megascleres. The current position of *Psammochela* within the Myxillidae and its relation to other arenaceous Myxillina are discussed here, and an identification key to all known species of *Psammochela* is given.

Key words: Porifera, Myxillidae, sand-sponges, Indo-West Pacific, new species

Introduction

Scientific museum collections are ideal tools for detecting long-term changes in biodiversity, especially if the specimens are well-curated and accompanied by reliable documentation on locality and time of collecting (Hoeksema *et al.*, 2011). At present such specimens can be important as reference material for historical studies of marine biota, especially in relation to the mortality and possible local extinction of coral reef species as an effect of the El Niño Southern Oscillation (ENSO) events. For the recognition of global change signals and rational choice of indicator taxa, a solid historical baseline is needed (Hoeksema & Koh, 2009; van der Meij *et al.*, 2010; de Voogd & van Soest, 2010; Hoeksema *et al.*, 2011). This may be achieved by the compilation of reliable and validated Indonesian biodiversity data as far back in time as possible. Some Indonesian coral reefs were extensively studied during the past 125 years, especially during expeditions covering major animal and plant groups. One of those collections was made a little bit over a century ago by the German professor Kükenthal who sailed the Moluccas seas and collected about 100 sponges near the island of Ternate. The collection was described by Kieschnick (1896) and revised by Thiele (1900, 1903). These papers are still the most important works on sponge taxonomy from Indonesia, with a total of 51 new species (de Voogd & van Soest, 2010). Some of these species can be found around the coral reefs of the Indonesian archipelago and beyond (i.e. *Petrosia strongylata, Penares sollasi*), while others have never been reported since their descriptions. In 2009 a marine biodiversity survey was done during which I was able to investigate the reefs around Ternate. This effort yielded a collection of over 300 specimens, many of which were not observed during the earlier collections by Kükenthal.

An interesting sand-bearing sponge was observed at three different sites near the island of Ternate which bears affinities to *Chondropsis* (Chondropsidae), *Desmapsamma* (Desmacididae) and *Psammochela* (Myxillidae). Sand-bearing sponges are distributed across different sponge orders (Haplosclerida, Poecilosclerida, Dictyoceratida), but they are most striking in the order Poecilosclerida where foreign debris partially replaces siliceous spicules. It is especially common within the suborder Myxillina, where it is observed in almost all families, however, the importance of sand incorporation cannot be used as a discriminating character above genus level (van Soest, 2002).

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