



***Heteromolpadia joyceae*, a new species of sea cucumber from New Zealand, with a key to New Zealand Molpadiidae (Echinodermata: Holothuroidea: Molpadiida)**

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Abstract

Heteromolpadia joyceae, new species, has been collected from depths of 258–632m off the east coast of New Zealand. It is distinctive in having a tough, leathery skin, gray with scattered red spots. Tables in body wall 100µm in diameter with three larger perforations; tail ossicles with 15–20 perforations, a three-pillared spire, and an average length of 300µm. A key to the eight species of Family Molpadiidae now known from the New Zealand region is provided.

Key words: *Heteromolpadia joyceae*, Holothuroidea, Molpadiida, New Zealand

Introduction

Molpadiid holothurians are distinctive, having a plump sausage-like body, a flat oral disc with a circle of 15 short tentacles, a conspicuous tail, and (usually) no tube feet, papillae, or tubercles. Many molpadiids are light to dark red, due to the presence in the body wall of masses of so-called phosphatic deposits. During growth of the animal, the calcite ossicles in the body wall gradually, and mysteriously, become transformed into light to dark red so-called phosphatic deposits. Thus as the animal grows, the body wall color may change from grayish to dark red as the calcite ossicles are supplanted by phosphatic deposits (Pawson, Donnay and Hey, 1975; Pawson, 1977). Chemical analysis has shown that phosphatic deposits consist mainly of ferric phosphate and ferric hydroxide (Mörner, 1902). The only ossicles that remain unaffected are those in the tail. In contrast, several molpadiid species lack phosphatic deposits, and the body remains grayish through the life of the animal.

The new species described here brings to eight the number of species now known from the New Zealand region (Pawson, 1963, 1965a, 1965b, 1970, 1977; McKnight *et al.*, in press; Pawson, Vance and Davey, in preparation). In order to assist in identification of recently-collected New Zealand molpadiids, a key to the species is presented here. A monograph of the New Zealand holothurians (Pawson, Vance and Davey, in preparation) will include more details on all of the New Zealand molpadiid species.

Abbreviations used in the text: NIWA, National Institute of Water and Atmospheric Research, New Zealand (formerly NZOI, the New Zealand Oceanographic Institute); NMNZ, Museum of New Zealand Te Papa Tongarewa (formerly National Museum of New Zealand).

Order Molpadiida Haeckel, 1896

Remarks: The New Zealand region has a diverse fauna of molpadiids. This may reflect an intense collecting effort rather than indicating the region is especially well suited to colonization by molpadiids. Elsewhere,