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Two new species of *Eunice* Cuvier, 1817 (Polychaeta, Eunicidae) from the coral reefs of Hainan Island with a key to 16 species of *Eunice* from China seas

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Abstract

A taxonomic study of *Eunice* species based on material deposited in the Marine Biological Museum of the Chinese Academy of Sciences (MBMCAS) including recently collected specimens from coastal regions of Hainan Island, yielded two new species: *Eunice hainanensis* **n. sp.** and *E. carrerai* **n. sp.** Both species were collected from dead coral rocks in the reefs of the coastal region of Hainan Island, northern South China Sea. *Eunice hainanensis* has translucent bidentate subacicular hooks and branchiae present over an extensive region of the body. Within the *Eunice* group possessing these characters, the new species highly resembles *E. schizobranchia* Claparède, 1870 in having a numerous chaetigers and a very late start of branchiae (348–570 chaetigers with branchiae from chaetigers 69–72 vs. 731 chaetigers with branchiae from chaetiger 67). However, the two species differ by the presence of the maxillary plate VI (MxVI) in the new species (vs. absent in the latter). Besides, *E. hainanensis* is much smaller (1.7–1.9 mm vs. 5 mm in maximal width). *Eunice carrerai* belongs to the *Eunice* group that has dark bidentate subacicular hooks and branchiae present over an extensive region of the body. It can be distinguished from similar congeners that have the branchiae starting from chaetigers 3–4 and prostomial appendages with moniliform articulations by a combination of characters such as the presence of MxVI, notopodial articulations limited to anterior chaetigers, peristomial cirri articulated and extending to anterior edge of first peristomial ring. A key to 16 species of *Eunice* identified from China seas in the material examined with notes on their distribution is provided. The major characters of these species are briefly summarized.

Key words: Annelida, taxonomy, Eunicida, *Eunice hainanensis*, *Eunice carrerai*, coral reef

Introduction

Eunice is a well-known genus of the polychaete family Eunicidae Berthold, 1827 for its high species richness and worldwide distribution. Members of *Eunice* inhabit all kinds of marine environments and play important roles in coral reef communities (Fauchald 1992). So far, more than 200 species have been described since Cuvier (1817) established the genus (e.g. Hartman 1944; Fauvel 1953; Day 1967; Fauchald 1970, 1992; Miura 1977a, b, 1979, 1986; Orensanz 1990; Carrera-Parra & Salazar-Vallejo 1998, 2011), which is currently known to be paraphyletic (Zanol *et al*. 2007).

Eunice species from China have been studied by a number of authors. Wu *et al.* (1975) described six species of *Eunice* from Xisha Islands, South China Sea. Yang & Sun (1988) summarized the polychaetous annelids commonly seen from Chinese waters and included nine species of *Eunice* in their monograph. From then on, Meng *et al.* (1994) recorded six species from Hainan Islands, and Sun (1998) recorded six species from Nansha Islands and neighbouring waters. To date, only 14 species of *Eunice* have been reported from Chinese waters. This is merely a very small fraction of the world diversity. Moreover, a lot of confusions exist in the species identifications and most of them need to be re-investigated.

Based on material deposited in the Marine Biological Museum of the Chinese Academy of Sciences, as well as specimens collected recently from Hainan Island, we conducted a taxonomic study on *Eunice* from Chinese waters and examined hundreds of eunicid worms, in which 16 species of *Eunice* have been identified, including two yet undescribed species. Both species were collected from the dead coral rocks in the reefs of Hainan Island and herein

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