



Records of the genus *Henricia* Gray, 1840 (Echinodermata: Asteroidea: Echinasteridae) from Chinese waters

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Abstract

Eight species and three subspecies of *Henricia* Gray, 1840 from Chinese waters are reported: *H. arcystata* Fisher, *H. aspera robusta* Djakonov, *H. densispina* (Sladen), *H. exigua* Hayashi, *H. leviuscula leviuscula* (Stimpson), *H. leviuscula spiculifera* (H.L.Clark), *H. ohshimai* Hayashi, *H. pacifica* Hayashi, *H. regularis* Hayashi, six of which are reported for the first time from Chinese waters. A key to Chinese species of *Henricia* and photos are provided. Species diversity of echinoderms in China seas is briefly discussed.

Key words: Echinodermata, Asteroidea, Echinasteridae, *Henricia*, taxonomy, Chinese waters, new records

Introduction

Henricia Gray, 1840 is a genus of commonly encountered asteroids in the family Echinasteridae Verrill, a group with a historically difficult classification history. Many authors have observed the high variability of morphological characteristics among species (Fisher 1911; Hayashi 1973; Clark & Downey 1992). Clark (1996) listed 76 species and 11 subspecies in the genus. *Henricia* is commonly encountered in cold to temperate waters and occur from the Arctic to the Antarctic (Clark & Downey 1992). Only *H. leviuscula leviuscula* (Stimpson), *H. leviuscula spiculifera* (H.L.Clark) and *H. aspera robusta* Djakonov have been previously recorded in Chinese waters (Chang 1948; Chang & Woo 1954; Chang *et al.* 1964; Xu 1994; Liao & Sun 1996; Liao 2008).

In this paper, eight species and three subspecies of *Henricia* are reported, based on the collections from coastal waters of mainland China by the National Comprehensive Oceanography Survey in 1958–1960 and East China Sea Continental Shelf Survey in 1975–1981. Six species, *H. arcystata* Fisher, *H. densispina* (Sladen), *H. exigua* Hayashi, *H. ohshimai* Hayashi, *H. pacifica* Hayashi, *H. regularis* Hayashi are recorded for the first time from Chinese waters.

The following abbreviations are used in the text: AT, Agassiz trawl; BT, Beam trawl; R, length from disc center to the tip of arm; r, length from disc center to interradial edge. Terms used for series of marginal plates follow that defined in the illustration of Madsen (1987: 206). In the systematic account, species are presented in alphabetical order.

All examined specimens were preserved in 70% ethanol or air dried and deposited at the Marine Biological Museum (MBM) Chinese Academy of Sciences, in Qingdao. Based on the collection data, the distribution of the species of *Henricia* from Chinese waters are illustrated in Figure 1–2.

Specimen photographs were taken using a Zeiss Stemi SV11 stereomicroscope, Zeiss AxioCam MRc 5 digital camera, and AxioVision 4 software for processing of images. SEM images were taken using a KYKY-2800B scanning electron microscope.