

Sexual Polymorphism in a Population of *Strombus canarium* Linnaeus, 1758 (Mollusca: Gastropoda) at Merambong Shoal, Malaysia

Zaidi Che Cob^{1,*}, Aziz Arshad², Mohd Hanafi Idris², Japar Sidik Bujang², and Mazlan Abd Ghaffar¹

¹School of Environmental and Natural Resource Science, Faculty of Science and Technology, National University of Malaysia, 43600 Bangi, Selangor, Malaysia

²Department of Biology, Faculty of Science, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

(Accepted November 13, 2007)

Zaidi Che Cob, Aziz Arshad, Mohd Hanafi Idris, Japar Sidik Bujang, and Mazlan Abd Ghaffar (2008)

Sexual polymorphism in a population of *Strombus canarium* Linnaeus, 1758 (Mollusca: Gastropoda) at Merambong Shoal, Malaysia. *Zoological Studies* 47(3): 318-325. Various morphometric parameters of *Strombus canarium* Linnaeus, 1758 from Merambong Shoal, Malaysia, were measured and analyzed. The parameters include shell length, body whorl length, shell width, shell depth, shell lip thickness, aperture length, animal weight and shell weight. The population showed sexual polymorphism, and in addition to normal males and females, a 3rd morph composed of abnormal females with imposex characters were present. The latter (imposex females) accounted for 35.71% of the total adult female sub-population. Comparisons between males and normal females showed that the former had a significantly larger, heavier, and more-elongate shell than the latter. The male shells also had a significantly thicker lip with a higher degree of posterior and lateral lip flaring. Conversely, females allocated more energy into tissue production than shell deposition relative to males. The 3rd imposex morph had a significantly larger and heavier shell, and a higher degree of thickening and flaring of the lip compared with both male and normal female shells. Imposex females also allocated less energy to gonad production relative to tissue production compared to normal females. <http://zoolstud.sinica.edu.tw/Journals/47.3/318.pdf>

Key words: Dog conch, Allometric analysis, Polymorphism, Imposex.

The conch *Strombus canarium* Linnaeus, 1758 is a highly prized seafood in Malaysia and other areas within the region (Chuang 1961, Amini and Pralampita 1987, Erlambang and Siregar 1995, Cob et al. 2005). The species is usually abundant wherever it occurs, and is normally associated with sandy mud bottoms and seagrass beds (Abbott 1960, Amini and Pralampita 1987, Erlambang and Siregar 1995, Cob et al. 2005). It was the most abundant herbivorous mollusc within the study site and possibly contributes to the maintenance and well being of the seagrass bed ecosystem (Cob et al. 2005).

Gastropods within the genus *Strombus*

are dioecious, exhibiting some degree of within-species sexual dimorphism (Abbott 1949 1960). Preliminary observations of *S. canarium* populations found wide variations in shell size and shape. Among the highly variable characters were shell length (variations in anterior siphonal canal development), shell depth, shell width (variations in lateral flaring of the shell-lip), aperture length (variations in posterior flaring of the shell-lip), and lip thickness, forming important morphometric characteristics of this species. There might be some variation between sexes, but this has never been studied before. Therefore the main objectives of this study were to determine the morphometric

*To whom correspondence and reprint requests should be addressed. Tel: 60-3-89215238. Fax: 60-3-89253357. E-mail:zdcc@ukm.my