Morphological descriptions and morphometric discriminant function analysis reveal an additional four groups of *Scylla* spp

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ABSTRACT

There are four species of mud crabs within the genus *Scylla*, and most of them live sympatrically in the equatorial region. Apart from a report in Japan about the finding of a natural *Scylla* hybrid more than a decade ago after the division of genus *Scylla* into four species by *Keenan, Davie & Mann (1998)*, no subsequent sighting was found. Thus, this study investigates the possible natural occurrence of potential hybridization among *Scylla* species in the wild. A total of 76,211 individuals from mud crab landing sites around the Malacca Straits, South China Sea and Sulu Sea were screened. In addition to the four-purebred species, four groups (SH 1, $n = 2,627$; SH 2, $n = 136$; SH 3, $n = 1$; SH 4, $n = 2$) with intermediate characteristics were found, mostly at Sulu Sea. Discriminant Function Analysis revealed that all *Scylla* species, including SH 1 - 4, are distinguishable via their morphometric ratios. The most powerful discriminant ratios for each character and the top five discriminant ratios of males and females were suggested. The carapace width of SH 1 males and females were significantly smaller than pure species. Based on the discriminant ratios and the description of morphological characters, we hypothesize that the additional four groups of *Scylla* with intermediate characteristics could be presumed hybrids. Future work at the molecular level is urgently needed to validate this postulate.

Subjects Aquaculture, Fisheries and Fish Science, Biodiversity, Marine Biology
Keywords *Scylla*, Discriminant Function Analysis, Morphometric, Presumed Hybrids, Mud Crab

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