



Distribution and burrow morphology of three sympatric species of *Thalassina* mud lobsters in relation to environmental parameters on a Malayan mangrove shore



Heng Hing Moh^a, Ving Ching Chong^{a,b,*}, A. Sasekumar^a

^a Institute of Biological Sciences, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia

^b Institute of Ocean & Earth Sciences, University of Malaya, 50603 Kuala Lumpur, Malaysia

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ABSTRACT

Three sympatric species of mud lobsters are spatially distributed along the mangrove shore of Langat estuary, occurring in combinations of *Thalassina anomala* with either *Thalassina kelanang* or *Thalassina gracilis*. The aim of the study was to investigate how these species are distributed in relation to the environmental variables. Environmental and biotic samplings were made from the lower to upper shore at three study sites located on the coast and upper estuary. Spatial partitioning of these species is strongly driven by environmental factors such as tidal inundation, salinity and substrate characteristics. Competitive exclusion is hypothesized with the more aggressive species *T. kelanang* on the lower shore and *T. anomala* on the upper shore. *T. gracilis* genetically closest to *T. kelanang* is spatially partitioned from the former by its greater tolerance to high salinity fluctuations in the mid-estuary where it occupies a similar elevation as *T. kelanang*, and similarly coexisting with *T. anomala* living on higher ground. *T. anomala* may prefer more silty and organically rich substrates. This preference and its physiological requirements to survive in drier exposed substrates may explain *T. anomala*'s simpler and deeper burrow to reach the water table, while the frequent need to feed on less organically rich, sandy-mud substrates by *T. kelanang* and *T. gracilis* results in more complex network of burrows near the surface.

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* Corresponding author at: Institute of Biological Sciences, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia. Tel.: +60 3 7967 4220; fax: +60 3 7967 4178.
E-mail address: chong@um.edu.my (V.C. Chong).