

The Living Fossil (Horseshoe crab)

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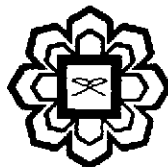
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Tachypleus gigas mortality due biomedical bleeding process

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Abstract

Horseshoe crabs provide the important biomedical product, LAL (*Limulus* Amebocyte Lysate) or TAL (*Tachypleus* Amebocyte Lysate), which is a distilled water extract of horseshoe crab blood cells (amebocytes). LAL is used to detect and quantify lipopolysaccharide (endotoxin), an important toxin of gram-negative bacteria. Horseshoe crabs are the sole source for LAL and their fishery for the production of LAL and for other purposes is of concern to the sustained management of the species. The present study has investigated the mortality of the Malaysian horseshoe crab (*Tachypleus gigas*) due to blood extraction, with the aim of providing a basis for the sustainable management of the local fishery of this animal. We show that the mortality rate of *T.gigas* due to the bleeding process is slightly higher than has previously been reported for its conspecific, the American horseshoe crab (*Limulus polyphemus*). Overall mortalities of bled horseshoe crabs were 17.8% (Male = 18.75%; Female = 17.2%) while mortality of unbled crabs was 3.5%. The quantification of the mortality due to the extent of bleeding commensurate with the commercial production of LAL/TAL provides a basis for the rational management of *T. gigas* in situations where harvest for LAL/TAL production is imposed on local populations of the animal.

Key words: Horseshoe crab fishery; Horseshoe crab bleeding process; LAL test; TAL test; Endotoxin quantification; Malaysian horseshoe crab.