The Living Fossil (Horseshoe crab)

Kamaruzzaman Yunus
Akbar John
Ahmed Jalal Khan Chowdhury
Zaleha Kassim

IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

The Living Fossil

(Horseshoe crab)

Editors,

Kamaruzzaman Yunus

Akbar John

Ahmed Jalal Khan Chowdhury

Zaleha Kassim

IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011

Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Kamaruzzaman Yunus
The Living Fossil (Horseshoe crab)
Kamaruzzaman Yunus
Include index
Bibliography: p.
ISBN

ISBN: 978-967-418-042-3

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN.BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan

Table of Contents

CHAPTER – 30

Methods for bacterial endotoxin quantification in reference to horseshoe crab blood studies

[1]Akbar John, B., [1]Kamaruzzaman, B.Y., [1]Jalal, K.C.A., [2]Zaleha, K

[1]Institute of Oceanography and Maritime studies (INOCEM), Kulliyyah of Science, International Islamic University Malaysia, Jalan Sultan Ahmad Shah, Bandar Indera Mahkota, 25200, Kuantan Pahang, Malaysia

[2]Institute of Tropical Aquaculture, University Malaysia Terengganu, 21030 Kuala Terengganu, Terengganu, Malaysia.

Abstract

There are number of methods has been established to determine/quantify the bacterial entotoxin level in biological samples including parenteral drugs. Due to the limitation of Rabbit Pyrogen Assay (RPA), researchers have explored the molecular mechanism of the clot formation of horseshoe crab blood and their by developed number of techniques to accurately quantify bacterial endotoxin level in various biologicals. Here we present the various techniques available to quantify the endotoxin concentration in biological samples using a compound from lysated amebocytes of horseshoe crabs.

Key words: liquid biologicals, horseshoe crabs, clot formation, RPA, LAL/TAL.

Introduction

There are three principal *Limulus* amebocyte test (LAL) methods are presently available to quantify bacterial endotoxin in biological. They are;

1. Gel-clot method
2. Turbidimetric method
    a. Endpoint Turbidimetric method
    b. Kinetic Turbidimetric method
3. Chromogenic substrate method
    a. Endpoint Chromogenic method