

BASIC KNOWLEDGE IN MARINE SCIENCES

Edited by

Normawaty Mohammd-Noor



IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011
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Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Normawaty Mohammd-Noor: Basic Knowledge in Marine Sciences

ISBN: 978-967-418-199-4

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

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Introduction

Bacteria are unicellular prokaryotic organisms which are classified by their structure (morphology), response to chemical stains, nutrition and metabolism. Most bacteria are single-celled organisms with several shapes such as bacillus (rod like), coccus (spherical or ovoid) and spiral (corkscrew or curved), but some bacteria are in forms of filaments, squares or star-shaped. Bacteria are distributed widely in nature such as in aquatic environments and decaying matter (Black, 2005). Coliform bacteria belong to the Enterobacteriaceae family which includes the species from the genera of *Escherichia*, *Klebsiella*, *Enterobacteria* and *Citrobacteria*. The definition of coliform is based on the common biological characteristics which is the ability to produce acid and gas from lactose. Coliform bacteria are fecal origin from the man and warm-blooded animals that entering the reservoirs from allochthonous sources. Commonly, fecal bacteria counts are lower in surface layer or reservoirs than in the inflow waters (Straskraba *et al.*, 1993).

Escherichia coli or *E.coli* is a vital species of fecal bacteria which live in the lower intestines of warm-blooded animals including birds and mammals that required for the proper digestion food. However, it is present in groundwater as a common indicator of fecal contamination. The name of *E.coli* is derived from the discoverer, Theodor Escherich. *E.coli* is grouped under coliform bacteria which defined as aerobic and facultative anaerobic, non-spore-forming, Gram-negative and rod-shaped bacteria that ferment lactose with the production of gas within 48 hours at 35 °C. It is used as an indicator of the water pollution level which means that