

BASIC KNOWLEDGE IN MARINE SCIENCES

Edited by

Normawaty Mohammd-Noor



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Introduction

Microalgae or phytoplankton are known to cause harmful algal blooms (HABs) under certain given conditions. To date, there are about 60-80 toxic marine microalgae globally and dinoflagellates make up 75% of all HAB species (Smayda, 1997). Apart from dinoflagellates, diatoms, ciliophora and blue green algae (genus *Lyngbya*, *Oscillatoria*, *Phormodium* and *Trichodesmium*) also have the ability to form blooms (Shamsudin, 1997).

Effects of Toxic Microalgae on Public Health

At least three quarter of the world's population live within 10 miles from the sea, one reason being dependence to seafood (Clark *et al.*, 1999). Seafood, unfortunately, are associated with various types of toxins, among them toxins produced by microalgae. Marine microalgae are responsible for 60,000 poisonings per year worldwide (van Dolah, 2000).

It is not necessary for toxic microalgae to bloom before they can harm human health. In some cases such as with the benthic dinoflagellate *Gambierdiscus*, it accumulates up the food chain before posing dangers to top predators, including humans (Heimann, *et al.*, 2011). In some types of microalgae poisoning, common symptoms such as diarrhea and vomiting are experienced and therefore they go unnoticed as poisonings of microalgae. In more severe cases, short-term memory loss can occur (domoic acid produced by diatoms causes amnesic shellfish poisoning), or worse, death (Horner & Postel, 1993). The table below shows symptoms of intoxication of marine microalgae, the causative microalgae and the biotoxins produced (Clark *et al.*, 1999; Landsberg *et al.*, 1999; van Dolah, 2000; Usup *et al.* 2002).