

POSTER ES099

Morphology of Two Harmful *Prorocentrum* (Dinophyceae) from Malaysian Borneo

TOH-HII TAN, CHUI-PIN LEAW, KIENG-SOON HII AND PO-TEEN LIM*

Institute of Biodiversity and Environmental Conservation (IBEC), Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

**Corresponding email: ptlim@frst.unimas.my*

ABSTRACT

Prorocentrum lima and *P. rhathymum* are proro-centrales dinoflagellates that have been known to produce diarrhetic shellfish poisoning (DSP) toxins. Contamination of DSP toxins in commercial edible shellfish is known to cause human gastrointestinal syndromes. Although no fatality case was reported thus far, clinical experiments have proven that the lipophilic toxins are tumor promoters. In the present study, two toxic *Prorocentrum* species were isolated from the coasts of Malaysian Borneo and subjected to scanning electron microscopy (SEM) for detailed morphological investigation. *Prorocentrum lima* was isolated from seaweed samples in Kudat, Sabah. SEM observation revealed distinct morphological features of the species, particularly in the periflagellar area. Cells range in 34 μm – 38 μm long and 18 μm – 24 μm wide ($n = 11$). *Prorocentrum rhathymum* was isolated from plankton samples of Semariang, Sarawak. The species was distinguished by its surface pore, distinct cell shape and periflagellar collar which looks like an apical spine. Cell dimension is in the range of 23 μm – 29 μm in length and 18 μm – 29 μm in width ($n = 16$). These species are potential to cause DSP intoxication or tumor related disease in the country.

Keywords: *Prorocentrum lima*, *Prorocentrum rhathymum*, Malaysia, diarrhetic shellfish poisoning (DSP).

INTRODUCTION

In recent years, Malaysia has encountered several major events of harmful algal blooms (HABs) which have increased in their frequency and distribution (Lim *et al.*, 2010). Some of them caused economic losses in the fishery and aquaculture industries. Studies on harmful benthic dinoflagellates is rather scattered in the country, which mainly focused on the ciguatera related species, such as *Gambierdiscus* spp. (e.g. Leaw *et al.*, 2011), *Ostreopsis* spp. (e.g. Leaw *et al.*, 2001), and *Coolia* spp. (e.g. Leaw *et al.*, 2010).

Prorocentrum lima and *P. rhathymum* are proro-centrales dinoflagellates that have been known to produce diarrhetic shellfish poisoning (DSP) toxins (Murakami *et al.*, 1982; Pillet *et al.*, 1995; Sohet *et al.*, 1995; Caillaud *et al.*, 2010). Contamination of DSP toxins in commercial edible shellfish is known to cause human gastrointestinal syndromes, such as diarrhea, nausea, vomiting and abdominal pain (Yasumoto *et al.*, 1978; Cembella, 1989; Lee *et al.*, 1989).