OCCURRENCE OF THREE ALEXANDRIUM SPECIES, *A. affine, A. tamutum* and *A. tamiyavanichii* IN KUCHING WATERS

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Abstract

A field survey was carried out in Kuching waters to monitor harmful microalgae in Kuching waters. Samples were collected fortnightly from Semariang Batu and Santubong estuaries during high tide. Live samples were used for culture establishment, while preserved samples were processed for morphological observation under epifluorescence microscopy. The occurrence of *Alexandrium affine, A. tamutum* and *A. tamiyavanichii* is reported for the first time in the coastal waters of Sarawak, with *A. tamutum* as a new record in Malaysian waters, which increased the number of *Alexandrium* species found to eight species. They are *A. affine, A. leei, A. minutum, A. peruvianum, A. tamarense, A. tamiyavanichii, A. tamutum* and *A. taylori*. This study has provided further information to the microalgae species inventory of the country.

Keywords: *Alexandrium affine*, *A. tamutum*, *A. tamiyavanichii*, Kuching.

1. INTRODUCTION

Since the first outbreak of harmful algal blooms (HABs) related shellfish poisoning event in 1976, paralytic shellfish poisoning (PSP) has caught the attention of researchers in the county. Besides the well-known PSP-toxin producer, *Pyrodinium bahamense* var*. compressum*, other PSP-toxin producing organisms, particularly species in the genus *Alexandrium* has become the main focus in local research (Usup et al., 2002a, b; Lim et al., 2003, 2004, 2005a, 2006, 2007; Lim and Ogata, 2005; Leaw et al., 2005). Previously seven species of *Alexandrium* had been reported from the coasts of Malasyia (Usup et al. 2002b, Lim et al. 2005). They were *A. affine*, *Alexandrium leei*, *A. minutum*, *A. peruvianum*, *A. tamarense*, *A. tamiyavanichii* and *A. taylori*. Distribution of each species is scattered, and not all species reported were present throughout the waters. *Alexandrium affine* was found in the northern and southern of the Straits of Malacca. On the other hand, *A. tamiyavanichii* was found only in the central to southern of the Straits of Malacca (Anton et al., 2000; Usup et al., 2002b). Two *Alexandrium* species were reported previously from Kuching waters, *A. peruvianum* and *A. taylori* (Lim et al., 2005). The occurrence of these toxic species in Sarawak will certainly pose a threat to the aquaculture industries and public health if blooms of these species occur. In this field survey, we aim to document the occurrence of this genus and to provide reference micrographs for country HAB monitoring purposes.

2. MATERIALS AND METHODS

2.1 Samples

Field samplings were undertaken fortnightly at two sampling sites in the estuary of Kuching, Sarawak. Qualitative plankton samples were collected using a 20 µm mesh size plankton net. Concentrated samples were preserved in Lugol's iodine solution. Live samples were collected for isolation and