PD-8

Morphological Identification of *Alexandrium tamarense* and *A. catenella* (Dinophyceae) from Korean Coastal Waters

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Introduction

Taxonomic studies of HAB species have been hindered by paucity of informative morphology, phenotypic variation under different environmental influences, lack of knowledge on their sexual reproduction. In Korea, two PSP incidents resulting in human deaths after eating contaminated mussels broke out in 1985 (Chang *et al.* 1987) and 1996 (Lee *et al.* 1997).

The present study was carried out for taxonomy of toxigenic *Alexandrium tamarense* (Lebour) Balech and *A. catenella* (Whedon *et* Kofoid) Balech established from various parts of Korean coasts and as a step to elucidate genetic population biogeography and possible dispersal mechanisms of the taxa.

Material and Methods

Clonal cultures were established from natural water samples or sediment resting cysts according to Kim *et al.* (1993). Thecal plates were observed after dissecting a theca using the 5% sodium hypochlorite and staining with the Imamura and Fukuyo's solution (Yuki and Fukuyo 1992).

Results and Discussion

Twenty-eight clonal cultures established from Korean coastal waters were

identified and classified according the criteria of Fukuyo (1985) and Balech (1995). All isolates' thecal formula and the detailed shape of thecal plates were typical of *Alexandrium tamarense* (Lebour) Balech *A. catenella* (Whedon et Kofoid) Balech. According to the presence or absence of a ventral pore, all our isolates established from Korean coasts were identified as *A. tamarense*, and only Dino-6 as *A. catenella* because of its consistent absence. In the case of SJW0007-7 and 8, and SOW0004, both cells having and lacking a pore cooccurred within each clonal culture. Whether its possession is really a good trait to be used for species designation belonging to "the tamarensis complex" is open to further discussion.

When we shift the emphasis on the sp, sulcal widening and the 2"", *A. tamarense* isolates are divided into two types, though we have to admit that the detailed features are phenotypic and such division is rather subjective. In spite of bringing about much more taxonomic confusion of *A. tamarense* and *A. catenella* we documented their existences from three major coasts of Korea. In this study, the occurrence of *A. tamarense* vegetative cells are first reported off the coast of the South Sea, and there is a possibility that the populations can occur as a bloom-forming unit at the frontal region of the South Sea and the Yellow Sea after germination from resting cysts.

References

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