

Lipid and fatty acid contents in red tides from tropical fish ponds of the coastal water of South China Sea

ABSTRACT

Microplanktonic red tide blooms (dominated by dinoflagellates) were observed in brackish water fish ponds of Terengganu between March 1992 to January 1993. The first short-lived bloom (2-3 days) occurred in October 1992 while the second long-lived bloom (6-7 days) occurred in January 1993. The dominant dinoflagellate species comprised of *Peridinium quinquecorne* (>90% total cell count) with considerable proportion of *Protoperidinium excentricum*. Ciliophora consisting of *Tintinopsis* sp. and *Favella* sp. were also present during the bloom period. The total ash, chlorophyll, phaeopigment, lipid and fatty acid content of the microplankton were studied. Considerable amounts (6-11% of the total fatty acid) of the polyunsaturated fatty acid 18:3w3 (linolenic acid) were present in the microplankton. However, high amounts of 20:5w3 (eicosapentanoic acid) and 22:6w3 (docosahexaenoic acid) were present with variable but usually high amounts of 22:4w6 and 22:5w6 acids. The latter microplankton bloom contained higher amounts of 20:5w3 and 22:6w3 acids than the earlier bloom. Lipid content were three to five times higher than chlorophyll a. There was an increase with successive day after bloom outbreak in the relative proportion of total C18, C20, and C22 fatty acid components. The algae microplankton contained the w3-polyunsaturated fatty acids (PUFAs) probably needed for the growth and survival rate of grazing pond animals.

Keyword: Bloom; Fatty acid; Fish pond; Lipid; Red tide