

Seasonal variation of fatty acid content in natural microplankton from the Tumpat Coastal waters of the South China Sea

ABSTRACT

In the search for better understanding on the nutritional quality of natural tropical plankton, samples were collected from shallow coastal waters facing the South China Sea during the dry monsoon (May-September) and the wet monsoon (November-April) seasons from March 1993 to July 1994. The total fatty acid content of the predominantly phytoplankton communities (25-200 μm sieve nets) varied four to fivefold with the lowest value occurring during the dry monsoon when blue-green became predominant. Saturated fatty acid content (SAFA), polyunsaturated fatty acid (PUFA) and total $\omega 3$ ($\Sigma\omega 3$) showed the same seasonal pattern as the total fatty acid with high values in October to December 1993. When species of the dinoflagellate *Peridinium* and *Ceratium* were present in considerable amount, the docosahexaenoic acid DHA content was high, especially from March to May 1993. The maximum content of eicosapentaenoic acid EPA, total $\omega 3$ fatty acid, PUFA and $\Sigma\omega 3$ in phytoplankton occurred during the pre-monsoon period (October and November 1993) when the diatoms were present in large amounts. The larger fraction sample ($> 200 \mu\text{m}$ sieve nets) which consisted predominantly of zooplankton had high amounts of PUFA from September to November 1993.

Keyword: Coastal waters; Fatty acid; Plankton; South China Sea