

PERIODICITY OF PHYTOPLANKTON IN A WATER RESERVOIR IN NORTHERN TAIWAN

TAIWANIA

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Abstract: The inter-annual periodical change in the species and composition of phytoplankton in a pond situated in northern Taiwan were studied for three years (1988-1990). The physico-chemical factors in the pond and the phytoplankton were taken into account to elucidate the relation of them in the variation in phytoplankton composition. The maximum phytoplankton biomass increased in spring, peaking during the study period. This was due to the decline in growing pressure. The maximum phytoplankton biomass in the pond peaked toward summer. The phytoplankton composition in the pond was more conservative than in the reservoir. The results from the analysis of water quality and from the indicator species of phytoplankton indicated hypereutrophication and of the level had increased in the reservoir. High nutrient concentrations in the pond and mild temperature in winter were regarded to be the main factors resulting in the inter-annual periodical change in phytoplankton community.

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It is a well known phenomenon that phytoplankton show a periodical change in qualitative as well as in quantitative composition in response to seasonal cycle. The type of change varies in different geographical zone and in different aquatic environments of the same zone. The characteristics of the seasonality of freshwater phytoplankton in different geographical zones had been well revised by Munawar and Taylor (1962).

The seasonality of phytoplankton is controlled by that of climate. In the past, the majority of studies were conducted in north-temperate zone. Taiwan is an island situated in north-southern zone. Few information about the seasonality of freshwater phytoplankton was known in this island. Shen (1961) had reported phytoplankton populations and their seasonal succession in some fishponds of a southern area of Taiwan. Little more about the ecological characteristics of phytoplankton has been studied in this island. In order to get better knowledge about the phytoplankton in aquatic ecosystem, a study for a period of three years was conducted in a pond which serves as water reservoir for rice field and, in the meanwhile, as a pond for fish culture.

MATERIAL AND METHODS

Phytoplankton samples in a pond (denoted as ED) situated at Hsistau, Taiwan

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