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STUDY ON WATER QUALITY AND BIODIVERSITY OF SURFACE MICROLAYER IN FRESH WATERS

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Abstract

To explore the water quality and biodiversity of surface microlayer (SML) in fresh waters, we investigated the water status of SML and subsurface water (SSW) of three fresh waters in China during April to August of 2010, by chemical and biological monitoring methods. The results showed that the indexes such as total nitrogen (TN), total phosphorus (TP), chemical oxygen demand (COD) exceeded the national III or IV level of surface water quality, and the contents of indexes of SML were much higher than those of SSW ($P<0.05$, ANOVA). The SML and SSW in the three waters were eutrophic, and the eutrophication of SML was more serious. It was found out the SML in three waters could seriously enrich to P, N and Chlorophyll a. Moreover, the species richness and distribution of phytoplankton of SML in three waters were obviously higher than those of SSW, and *Chlorophyta, Bacillarophyta* and *Cyanophyta* became predominant ones. This research shows that SML has the capability of enrichment to plankton and pollutants such as N, P, which might cause the water quality of SML to be more serious than the SSW. Meanwhile, higher species richness in SML would not only be regarded as one of indexes of water quality assessment, also provide a new idea to extract qualities of beneficial micro-biological resources from SML in waters.

Key words: biodiversity, enrichment factor, eutrophication, fresh water, surface microlayer (SML)

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