

Diatom 5: 91-109 (英文)

墨田 勉彰：北陸河川の有機汚濁に対する付着珪藻群集の種組成分析による考察 (1)

Michiaki Sumita : A study on the organic water pollution of rivers in Hokuriku District based on the analysis of species components of epilithic diatom assemblages (1)

Abstract

In this study, 474 samples were obtained in 58 rivers in the Hokuriku District from 1974 to 1988. Using these 474 samples, the structures of epilithic diatom assemblages were investigated. The main points to be examined in this study are as follows.

1) In each sample of epilithic diatom assemblage, the first four taxa with the highest values of relative abundance were chosen.

Those 4 taxa were labeled 1st, 2nd, 3rd, 4th grade species according to the degrees of the values of relative abundance. All diatom assemblages can be classified as different types of assemblage by the combination of the four species most abundant in each assemblage.

2) A pollution spectrum was made using 55 1st grade species. This pollution spectrum was compared with that of Watanabe et al. (1988) which mainly showed the degrees of water pollution on the Pacific side of Japan, also using 55 dominant species.

In Hokuriku District the number of taxa of Indifferent species was greater than those of Saproxenous, or Saprophilous species. Twenty-five taxa were common in these two pollution spectra. Most of them were about equal in the range of appearance, though several taxa showed different tendency. This fact seems to suggest that the water quality of rivers in Hokuriku District is slightly different from that of rivers on the Pacific side of Japan.

3) The first grade species in each diatom assemblage can be regarded as representing the contact-type of the assemblage. Three different types of contact to the substrate were identified (I) Total contact, (II) Point contact and (III) Stalk contact-types.

In clean water areas both I and II types were found to be about equal in number, but in polluted water areas the number of I type was by far the greatest.

Key index words

numerical diatom assemblage index (DAI_{po}), 1st-4th grade species, pollution spectrum, contact-type of diatom.

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