

Diatom 22: 35-47 (英文)

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Abstract

Japan has numerous irrigation ponds, however, few studies have investigated the diatom flora in them. Irrigation ponds are vulnerable to agricultural activity and urbanization because of their site location and small size. For these reasons, diatom communities in ponds might be affected strongly by recent anthropogenic influences. In this study, to clarify the diatom flora in the ponds and the historical changes in diatom communities, we investigated the diatom remains collected from sediments during the few past centuries in three irrigation ponds in Osaka Prefecture, Japan : Sayama-ike, Hataô-ike and Kodera-ike Ponds. Diatom remains were found in all samples throughout the sediment cores obtained from each pond. Altogether, 46 genera and 176 diatom taxa (species, variety and forma) of the three ponds were identified. Among them, in particular in common with all ponds we identified three centric species, *Aulacoseira subborealis*, *Cyclotella stelligera* and *C. pseudostelligera*, which became dominant after the 1950s in Sayama-ike and Hataô-ike Ponds, although in Sayama-ike Pond *A. subborealis* had been temporarily dominated even before the 1950s. Meanwhile in Kodera-ike Pond, where eutrophication had progressed earlier than in the other two ponds, *A. subborealis* became predominant earlier before the 1950s, and *C. pseudostelligera* dominated both before and after the 1950s. Furthermore, in Sayama-ike and Kodera-ike Ponds, two common centric species, *Aulacoseira granulata* and *Cyclotella meneghiniana*, were identified. The latter species appeared commonly in the three ponds as a result of recent environmental changes during the 20th Century.

Key index words : anthropogenic perturbation, centric diatom, diatom remains,

eutrophication, irrigation pond