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Epilithic diatom flora of Ai River, Osaka, west-central Japan, and its relationship to the river environments

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Abstract

We studied epilithic diatom assemblages and their association with the environments of the Ai River, a subsidiary stream of the Yodo River, in west central Japan. Diatom samples were collected in August and December, 2009. *Melosira varians* that tends to be grazed by aquatic animals was usually dominant, especially in the lower parts of the river. In the upper parts of the river, sessile diatoms such as *Achnanthydium minutissimum* and *Planothydium lanceolatum* were abundant in summer, while *Diatoma vulgare* and *Nitzschia dissipata* were abundant in winter. *Rhoicosphenia abbreviata* which firmly adheres to the substrata by a short stalk was dominant at the site with the highest stream gradient. *Luticola ventricofusa* was dominant in the lowest part of the river, suggesting tidal influences. DA_{Ipo} (Diatom Assemblage Index to water pollution) was higher in the upstream to midstream parts than in the headwater. This pattern significantly corresponded to the river gradient.

Key index word: Ai River, DA_{Ipo}, epilithic diatom, grazing, *Melosira varians*, river gradient