

PA-003:

High abundance of heterotrophic nanoflagellates in the oxic-anoxic interface of meromictic Lake Suigetsu, Japan

Mukherjee, Indranil¹, Okamura, Takahiko², Nakano, Shin-ichi¹, Kondo, Ryuji⁴

¹Center for Ecological Research, Kyoto University, ²Graduate School of Biosci. and Biotech., Fukui Pref. Univ., ³Center for Ecological Research, Kyoto University, ⁴Department of Marine Bioscience, Fukui Prefectural University

Vertical distributions of heterotrophic nanoflagellates (HNF) were studied in the meromictic Lake Suigetsu, Japan. HNF are generally studied as a whole, whereas the knowledge about the ecology of individual groups or species remain unknown. To study the abundance of a ubiquitous group and a facultative anaerobic species of HNF in a meromictic lake, Catalyzed Reporter Deposition-Fluorescence In Situ Hybridization (CARD-FISH) was used. CARD-FISH species-specific probe PLA1241 was constructed targeting a species (*Suigetsumonas clinomigrationis*) of HNF isolated from Lake Suigetsu. Group-specific probes (KIN516 and Euk516 competitor) targeting kinetoplastid flagellates were also used. Vertical sampling from 5 depths was conducted in October 2014. Abundance of total flagellates was found to be in the range of $1-4 \times 10^4$ cells ml⁻¹, with maximum abundance of heterotrophs in the oxic-anoxic interface layer. The abundance of kinetoplastids were relatively high in the oxic surface waters but were found to be less abundant in the anoxic waters. However, highest abundance (1.2×10^3 cells ml⁻¹) of kinetoplastids were recorded from the interface. The abundance of *S. clinomigrationis* was also found to be the highest (7.8×10^2 cells ml⁻¹) in the interface, whereas low abundance was detected from the surface waters. Their abundance in the anoxic water was slightly higher due to their facultative lifestyle. The highest abundance of kinetoplastids, *S. clinomigrationis* or total HNF were recorded from the interface waters that allow the growth of various HNF species living in freshwater and marine and also aerobic and anaerobic environments.

keywords:Heterotrophic nanoflagellates,CARD-FISH,Suigetsumonas clinomigrationis,Kinetoplastid flagellates,Lake Suigetsu