

Basic Water Quality and Phytoplankton Community Structure in a Weir Reach of Yangsan Stream (1993~1996)

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Physico-chemical characteristics and phytoplankton community dynamics in a weir reach of the lower Yangsan stream were investigated from April 1993 to February 1997. Yangsan Stream is a typical 4th order agricultural/urban stream and hydrology is strongly controlled by a series of weirs. The weir reach was in the range of eutrophic state (chl *a*,  $37.0 \pm 72.6 \mu\text{g/l}$ ). The physico-chemical parameters at the weir reach were highly fluctuating by loading of untreated industrial wastewater and agricultural runoff (water temperature, 4~31.7°C; turbidity, 4.4~28.1 NTU; DO, 4~14.9 mg/l; conductivity, 82~1820  $\mu\text{S/cm}$ ; alkalinity, 11~222 mg/l; pH, 6.3~9.0; TP, 54~1155  $\mu\text{g/l}$ ; TN, 2.0~18.3 mg/l). There was a strong periodicity of phytoplankton during the study period; co-dominance of cryptomonads, small centric diatom and euglenoids in winter whereas green algae in summer. High loading of organic pollutants and sediment-water interaction possibly caused green and euglenoid dominance.

Comparative Study on the Periphyton Community Dynamics in an Urban and Mountain Stream (Yangjae and Sagimak stream)

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The seasonal changes of periphyton biomass and epilithic diatom community structure in an urban and mountain stream were compared from March 1996 to October 1998 on monthly basis. Water quality parameters indicated that the Yangjae stream was a typical urban stream with high organic pollutants and inorganic nutrients. Forest and agricultural field dominate watershed of Sagimak and concentrations of nutrients were low. Among the total of 56 diatom taxa, saprophilous taxa *Navicula subminuscula* and *Nitzschia palea* were most frequently observed at the Yangjae stream. At the Sagimak stream, saproxenous taxa *Achnanthes convergens* and indifferent taxa *Cymbella minuta* were dominant species among the total of 41 diatom taxa. The periphyton biomass(chl. *a*) at the Yangjae stream was about 4 times higher than that of the Sagimak stream(mean chl. *a*, 62mg/m', 17mg/m', respectively). The DAIPo of the Yangjae stream was higher than that of the Sagimak stream. The saprobic level was  $\alpha$ -mesosaprobic degree at the Yangjae stream and  $\beta$ -oligosaprobic degree at the Sagimak stream.