Studies on the characteristics of free-living species of *Ulva* from different coasts of Japan.

Masahiro Notoya

Laboratory of Applied Phycology, Tokyo University of Fisheries

Summary

Morphological and physiological characteristics of free-living species of *Ulva* from four different coasts of Yokohama, Kochi, Nagasaki and Kagoshima were investigated. Morphological data on the blade color, denticulation at blade margin, pyrenoid number per cell, blade thickness, cell shape, and cell size were observed and compared with each other. *Ulva* spp. from different coasts of Japan were similar to *Ulva pertusa* in Yokohama, *U. lactuca* in Kochi, and *U. scandinavica* in both of Nagasaki and Kagoshima, respectively. But, the species could not be identified exactly because of the lack of the basal part and the reproductive cells in these blades, and the data of cell size and pyrenoid number per cell changed with the culture conditions. From these reasons, it is considered that molecular data is needed for identification of the *Ulva* spp.

All the species of *Ulva* from four sites of the coasts of Japan grew at wide range of temperature (5-30℃), seawater concentration (50-200%) and nutrient concentration (0-40 times) under laboratory culture conditions. The optimum conditions of high growth rate in all species of *Ulva* were shown at temperatures of 20-25℃, seawater concentrations of 50-15% and nutrient concentrations of 4-10 times. Uptake rate of both nutrients on NO_3-N and total P was observed at the temperatures of 10-25℃. High uptake rate of N and P in these species was shown at 20℃ and 20-25℃, respectively. *Ulva* sp. from Yokohama shows the highest uptake rate of N and P among the four species. It is considered that the characteristics of *Ulva* spp. can be used in the bio-remediation for reducing high content of nutrient water at the eutrophicated shallow coastal area with high temperatures during summer seasons. Hereafter, the researches of materialization for water purification and of some useful contents for the utilization by the propagated *Ulva* blades will be needed.