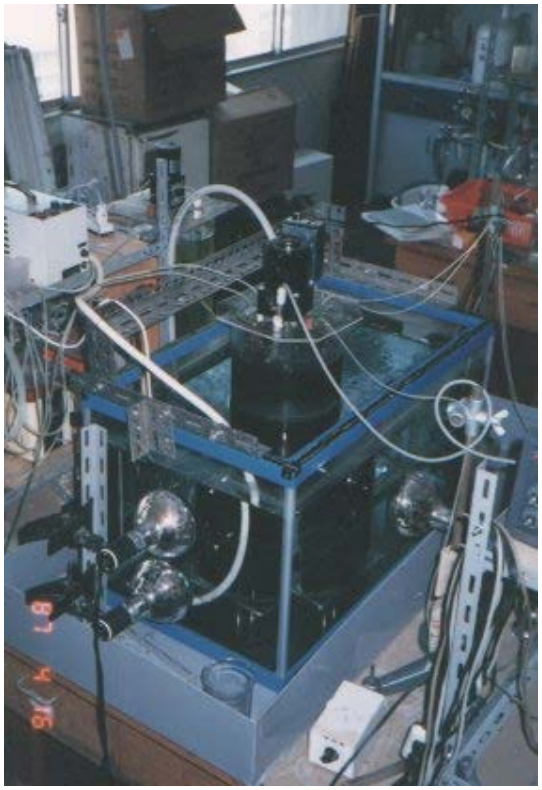
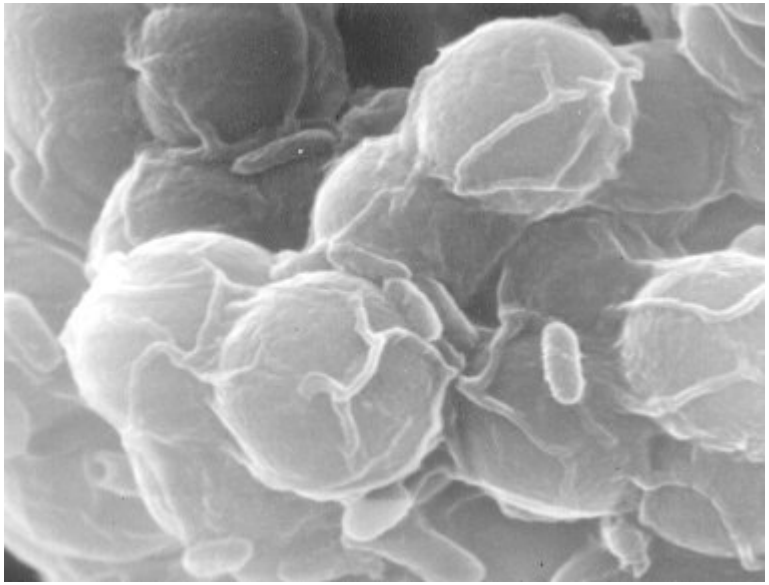
Algal Open Culture without Contamination

The research was carried out to establish the cultivation of a single species of alga not in closed system but in open one which is able to be applied to practical works in the field where the cultivation is exposed to various kinds of biological contaminations. In this system a gravitational settler, as an example that was costly effective processing, was attached to the cultivator to separate and keep a single species of alga preventing it from contaminations by the other species of algae.

A full view of algal continuous-cultivation equipment with a nutrient salts feeder, illuminators, a separator which is set at the leftist side, and controllers.



An algal cultivation vessel.

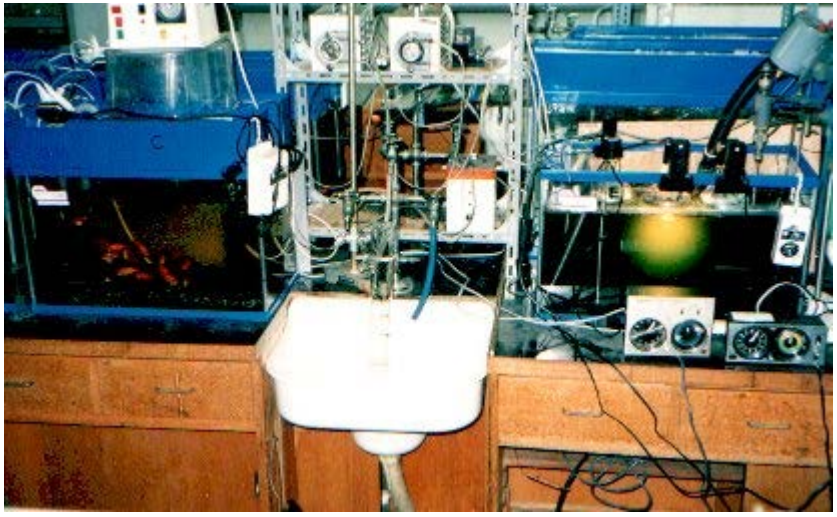


A ten thousand-fold-expanded electron-microscopic view of alga, Chlorococcus sp. cultivated in this system.

Closed Fish Cultivation

The research was carried out to establish an closed fish-culture system without emission of any material except for oxygen and carbon dioxide, where the water was purified through the food chain among microbes, alga, protozoa and fishes: microbes decompose excreta from fishes into inorganic salts to be taken up by alga which would be feed to protozoa and finally to be eaten by test fishes.

"Hibuna", Carassius auratus, as a test fish.



A full view of a closed fish-culture system with Chlorococcus sp. as an alga.

"Oikawa", Zacco platypus, as another test fish.