The movement of Red tide components in electrodialysis using ion exchange membranes

Makoto Kogure, Toshio Sato, Tatsuo Tanaka
Department of Analytical Chemistry,
Showa college of Pharmaceutical sciences

Summary

The movement of Red tide components in electrodialysis and deposition to the ion exchange membranes have been investigated.

Red tide cell(Chattonella antigua)suspended in 0.05 $mol \cdot dm^{-3}$ NaCl aqueous solution were passed through the desalting chamber in the experimental apparatus at a flow rate of 3 $ml \cdot min^{-1}$, changing factor such as cell concentrations and current densities.

The cation and anion-exchange membrane consisting desalting chamber collected after 30 minutes beginning of the electrodialysis, limiting current density of each membrane was measured and classification of deposition matter was carried out.

It was clear that the deposition matter of cation-exchange membrane was mainly Polysaccharide and that of anion-exchange membrane was pigment and protein ,and that the limiting current density of cation-exchange membrane was not affected very much ,but that of anion-exchange membrane was cleary decreased. Especially ,the limiting current density of anion-exchange membrane has been remarkable influenced by deposition of pigment,was decreased by a little deposition.

These result suggested that the decreased of limiting currrent density in the electrodialysis system when the Red tide component inflow was due to decrease of limiting current density of anion-exchange membrane i.e., deposition of pigment and protein .