The Occurrence of Brassicasterol in the Diatoms, *Cyclotella nana* and *Nitzschia closterium*

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Very little information has been reported about the sterol in diatoms. In this paper, the sterol composition of the marine diatoms, *Cyclotella nana* and *Nitzschia closterium* was investigated.

The sterols from *Cyclotella* and *Nitzschia* gave the melting point of 148°C and the molecular weight of 398 (mass spectrum). In gas-liquid chromatography on four different columns, this algal sterols were found to be composed of only one component identified as brassicasterol. Infrared absorption spectra and mass spectra analyses also supported the structure of brassicasterol.

On the occurrence of sterols in the algae, many reports have been presented up to the present^{1,2)}. However, very little information has been reported about the diatoms. HEILBRON³⁾ suggested that *Nitzschia closterium* contains fucosterol. It has also been reported by LOW⁴⁾ that the principal sterol of *Navicula pelliculosa* is a Δ^7 -stenol, provisionally identified as chondrillasterol.

The authors have been studied on the sterol metabolism in marine invertebrates⁵⁻¹⁰⁾. In the course of these investigations, it has been demonstrated that some sterols occurring in marine crustaceans may originate from diets. The diatoms are generally good diet for the larvae of marine animals. Hence, the authors intended to clarify the sterol composition of diatoms. In the present investigation, the sterol composition of the marine diatoms, *Cyclotella nana* and *Nitzschia closterium* has been examined.

Materials and Methods

Diatoms. *Cyclotella nana* and *Nitzschia closterium* were kindly supplied by Dr. H. TAKANO and Mr. O. UMEBAYASHI of Tokai Regional Fisheries Research Laboratory.

The diatoms were grown on the TA-medium¹¹⁾ with the following solutes: NaCl, 11.75 g; MgCl₂·6H₂O, 5.30 g; Na₂SO₄·10H₂O, 4.45 g; CaCl₂·2H₂O, 0.073 g; KCl, 0.33 g; NaNO₃, 300 mg; K₂HPO₄, 10 mg; NaHCO₃, 200 mg; Na₂SiO₃, 100 mg; EDTA, 10 mg; Vitamin B₁₂, 0.015 µg; FeSO₄·7H₂O, 3 mg; Citric acid, 3 mg; H₃BO₃, 1.5 mg; MnCl₂·4H₂O, 1 mg; ZnSO₄·7H₂O, 22 µg; CuSO₄·5H₂O, 79 µg; (NH₄)₆Mo₇O₂₄·4H₂O, 15 µg; NH₄VO₃, 23 µg; CoCl₂·6H₂O, 15 µg per liter; pH 7.6. The culture was incubated in 1 liter Erlenmeyer flasks containing 700 ml of the incubation medium at 23°C under the

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