

Bacteria on the body surface and in the stomach of krill (*Euphausia superba* Dana) (BIOMASS III)

The average number of free living bacteria in Antarctic waters is of the order of $0.21 \cdot 10^8$ cells $\cdot 1^{-1}$ (Zdanowski 1985) and $3 \cdot 10^8$ cells $\cdot 1^{-1}$ (Kogure, Fukami and Simidu 1985). More bacteria were found near the islands than in the pelagic waters (Delille 1987). According to Holm-Hansen and Huntley (1984) the bacterioplankton do not make a significant part of the krill diet. So far nobody has assessed the bacteria in the stomach and on the body of krill. During the Polish Antarctic Expedition (January 1987) krill was collected in the vicinity of Elephant Island. The SEM micrographs of the surface of krill's cephalothorax and the stomach content were made. The cephalothorax of krill was dried and coated with Au/Pt. The stomach content was taken by a syringe and filtered on the "Acrodisc" $0.2 \mu\text{m}$ filter, then dried and also coated with Au/Pt. Photos were made by NOVASCAN 30 Electron Scanning Microscope. These micrographs show individual bacteria and colonies on the body (Pl. 1) and clumps of bacteria in the stomach (Pl. 2); these latter were cocci. Some of them were in the stage of proliferation. If they develop in the stomach of krill, they might play an important role as a source of enzymes for phyto- and zooplankton digestion. They also may be of importance in autolytic processes of dead krill and decomposition of the chitin of krill exuviae in natural conditions (Fukami and Simidu 1985).

Krill swarms can be the source of bacteria in the pelagic zone.

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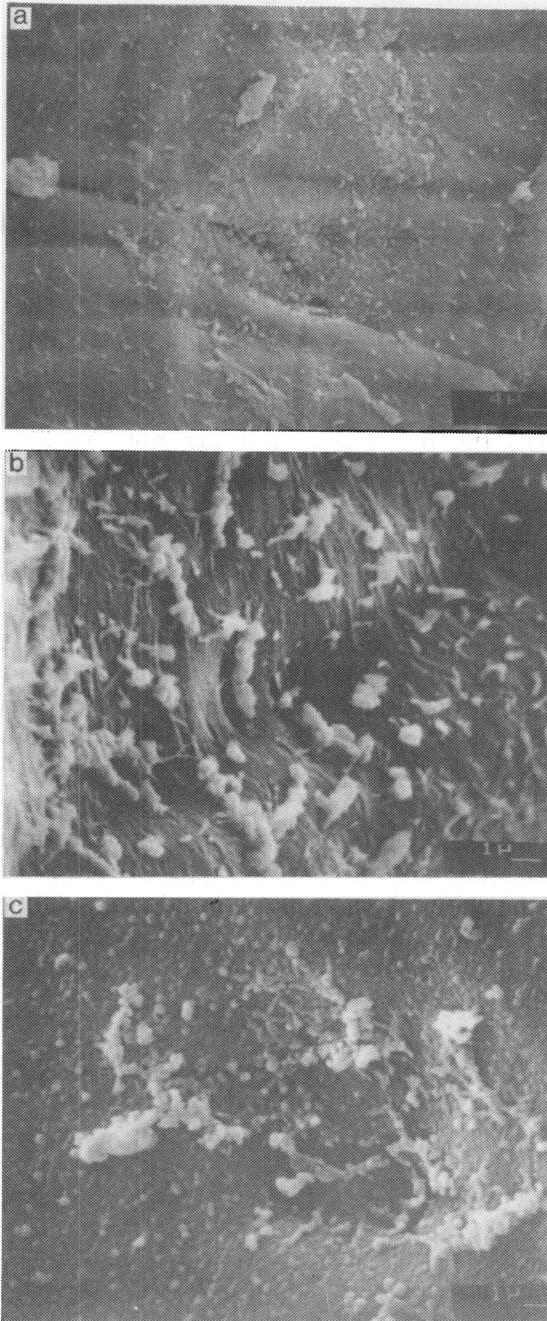


Plate 1. Scanning electron micrographs of krill's cephalothorax surface. The colonies and individual bacteria are visible.

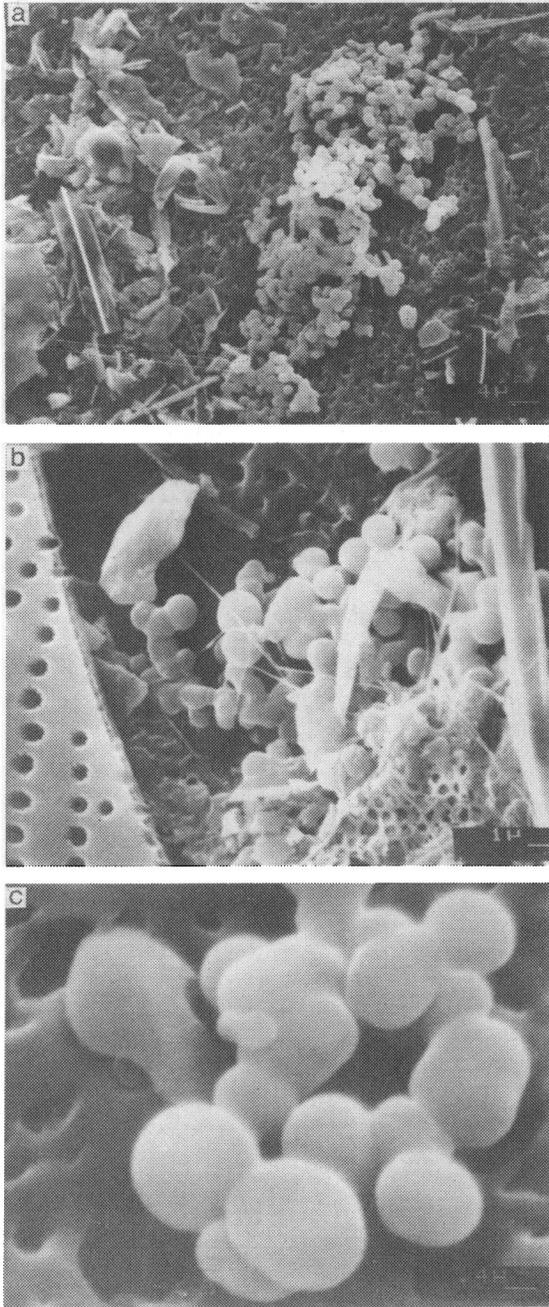


Plate 2. Scanning electron micrographs of krill's stomach content. Pieces of diatom frustules and clumps of bacteria are visible.

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