

CHITIN PRODUCTION IN MARINE ENVIRONMENT BY PLANKTONIC
AND BENTHIC ANIMAL COMMUNITIES

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According to its wide distribution in lower plants and invertebrate animals, and to its quantitative importance in Arthropod exoskeletons, chitin appears as one of the most abundant polysaccharides in the biosphere, besides cellulose. Chitin production and catabolism thus are important steps in carbon and nitrogen biogeochemical cycles.

In marine ecosystems, mean chitin production by zooplankton in mediterranean sea (Calvi bay, Corsica) was estimated to $1 \text{ g m}^{-2} \text{ year}^{-1}$, with high seasonal variations (up to $20 \text{ mg m}^{-2} \text{ day}^{-1}$ in May). These values are much higher than those calculated from Lindley's data (1982) for Krill in both Atlantic Ocean and North Sea, which amounts to only $0.045 \text{ g m}^{-2} \text{ year}^{-1}$.

Chitin production by benthic communities growing on littoral rocky coasts was experimentally measured in Calvi bay (Corsica) on naked substrates of different compositions, immersed at different depths. Main chitin production by pioneering communities was estimated to $0.3 \text{ g m}^{-2} \text{ year}^{-1}$ during the first colonization year, and to $1 \text{ g m}^{-2} \text{ year}^{-1}$ during the second year, as the biological cover reached a climax. Main chitin producers were Crustaceans, followed by Bryozoans. These values are very close to those calculated from Berry and Smale data (1980) for a natural Spiny Lobster population on Natal Coasts ($1.5 \text{ g m}^{-2} \text{ year}^{-1}$).

Despite the quantitative importance of chitin produced by marine communities, sediments are very poor accumulators in detritic "dead" chitin, thanks to the activity of numerous chitinolytic microorganisms (POULICEK, 1989).

202

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