

Rythmes à court et à moyen termes associés au broutage de la microflore marine épilithique par *Littorina saxatilis*



The temporal variations of the grazing rate of a marine herbivorous gastropod, *Littorina saxatilis*, were measured in laboratory conditions. In a first series of measurements, the natural circadian and tidal cycles were preserved. Samplings were performed at intervals of 2 h over a period of 8 d. In a second series of experiments, during two three-day periods, the natural circadian or tidal cycles were reversed. The available resource for the herbivores was obtained from artificial substrata previously colonized by intertidal microflora at the same tidal level as that where *L. saxatilis* was found. This algal assemblage was principally composed of pennate diatoms, *Achnanthes groenlandica* and *Fragilaria striatula* being the most common. The grazing rate was measured using an estimate of ingested chlorophyll a, the selected biomass index. Grazing activity was significantly lower during spring tide than during neap tide conditions. The short-term fluctuations of the grazing rate were dominated by a circadian rhythm, the maximum occurring during the light phase. A secondary semi-diurnal periodicity was also found in the series, and maximum grazing was observed

at high tide. Inversion in the natural circadian or tidal cycle significantly modifies the grazing rate. Gastropods submitted to an artificial night decreased their grazing rate whereas, under tidal inversion, organisms demonstrated a response similar to that exhibited for the natural cycle. The temporal coincidence of grazing and photosynthetic production under field conditions does not seem, a priori, to support the hypothesis of optimal equilibrium between consumers and their resource.

Auteurs du document : Konan, A, Cardinal, A, Lamontagne, I

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