

Size of consumed diatom algae indicates feeding segregation in symbiotic suspension-feeders: preliminary results

Tamberg, Y. Y.¹, N. N. Shunatova¹ & E. L. Yakovis¹

¹Invertebrate Zoology Department, St.-Petersburg State University,

Correspondence

Yuta Tamberg

E-mail: silent_shade@rambler.ru

Abstract

Non-colonial kamptozoans *Loxosomella nordgaardi* are common symbionts of marine bryozoans, but the nature of the symbiosis (mutualistic, parasitic or commensal) remains unknown. Kamptozoans were previously reported to occupy living parts of bryozoan colonies. Their tentacle crowns usually are shorter than bryozoan ones, so that the water reaching them seems already having been filtered by a host. We hypothesised that there could be feeding segregation between kamptozoans and bryozoans. The prediction was that species composition and/or size structure of the diatom algae found in stomachs of coexisting symbionts would be different. In August 2005 we collected 9 colonies of *Tegella armifera* (T) with 10-25 individuals of *L. nordgaardi* (L) at two subtidal sites 1500 m from each other in the Kandalaksha Bay of the White Sea. Stomach contents was analysed in all kamptozoans found and in equal quantity of neighbouring bryozoan zooids; all diatom algae shells were measured along the shortest linear dimension and identified generally to species level. We identified 2706 shells belonging to 80 species of diatom algae, on average 150 shells per colony studied. Multi-dimensional scaling (nMDS) and ANOSIM on Bray-Curtis dissimilarity revealed no effect of consumer (L or T) on species composition and relative abundances of diatoms. The two sites, however, were clearly different. In contrast, the size structures of diatoms were affected by consumer type: average size was significantly different in L and T (Mann-Whitney U-test), so were the size distributions (Chi-square). Factorial ANOVA on size showed significant interaction term Consumer X Site. Smaller diatoms (0.01-0.02 mm) were more often found in L stomachs; however most of these small diatoms were only present at one of the sites. Although the data from more locations is needed for accurate conclusions, the difference in feeding particle spectra is highly probable.
