**Do freshwater mussels (Bivalvia, Unionoida) feed selectively according to seasonal dietary needs? A case study on *Anodonta cygnea***

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Several species of animals are able, during their life cycles, to selectively choose specific food items that meet special needs and unique metabolic crucial stages, such as growth, reproduction or parental care. Is this capability also present in freshwater mussels (Bivalvia, Unionoida)? It is already established that microalgae usually are the main food source for standing water unionids and that these bivalves have the ability to select food based on certain cellular characteristics before uptake. Moreover, its metabolism displays a seasonal cycle, where the different stages of growth, sexual development and reproduction are well identified, mainly in temperate waters. Therefore, the objective of this study is to examine the seasonal composition of phytoplankton in the gut contents of freshwater mussels *Anodonta cygnea*, to determine whether they are able to select food items seasonally and which, if any, are their preferences. Samples of stomach contents and water samples were collected in the lagoon of Mira, in northwest Portugal, monthly for a one year period. The composition of microalgae found in water samples and gastrointestinal contents was diversified and was represented by seven main groups: Chlorophyta, Cryptophyta, Chrysophyta Cyanobacteria, Euglenophyta, Bacillariophyta and Dinophyta. In both cases Chlorophyta showed a clear predominance, this group was followed by Bacillariophyta and Cryptophyta in water samples and Bacillariophyta and Cyanobacteria in gastrointestinal contents. Although the mussels eat algae in a very similar pattern to their abundance, some specific groups were preferred in certain periods, even while present in very low levels in the water. This indicates that these animals are capable of selecting food for their specific characteristics. This selection may be associated with specific physiological needs of the mussel in different life cycle stages and related nutritional requirements.

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