

*Spumella* is often among the dominant bacterivorous flagellates in different environments. In ecological studies these organisms are often reported as “*Spumella*-like” flagellates, i.e. other genera such as *Paraphysomonas* are not separated. It became increasingly evident that such black box approaches can not sufficiently reflect the ecological diversity of this group. Current experimental data provided evidence that *Spumella* is diverse regarding ecophysiological key characteristics and following molecular data this group is polyphyletic. Several clusters of *Spumella* have been reported which were separated from each other by pigmented taxa including flagellates belonging to *Ochromonas*, *Dinobryon*, *Poterioochromonas* and others. It is an open question to what extent the ecology of this group of organisms can be generalized or is rather strain-specific. Due to the similar morphology it seems probable that basic behavioural patterns (and thus the basic mechanisms for interacting with the environment) can be generalized. The specific adaptations and threshold values to induce specific reactions, however, are likely to be specific for subclusters or even for strains.