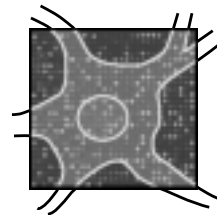
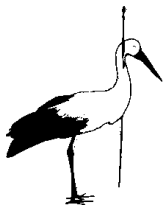


Abstractband



97. Jahresversammlung der Deutschen Zoologischen Gesellschaft vom 31. Mai bis 4. Juni 2004



Universität Rostock

V-S1.3 Phylogenetic analysis within the class Spirotrichea (Ciliophora) inferred from small subunit (ssu) rDNA

Stephanie L. Schmidt¹, Detlef Bernhard¹, Wilhelm Foissner², Helmut Berger³ & Martin Schlegel¹

¹University of Leipzig, Institute of Zoology, Liebigstraße 18, D-04103 Leipzig [sschmidt@rz.uni-leipzig.de]; ²University of Salzburg, Institute of Zoologie, Hellbrunnerstraße 34, A-5020 Salzburg;

³Consulting Engineering Office for Ecology, Radetzkystraße 10, A-5020 Salzburg

The Spirotrichea represents one of the most diverse classes of the Ciliophora. The main goal of our study is to clarify the phylogenetic relationships within the Spirotrichea. Therefore, we examined the ssu rDNA of more than 20 species, which belong to 3 orders and approximately 6 families of the subclass Stichotrichia.

In particular our investigation focuses on the relationships within the Oxytrichidae and the Urostylidae. Former studies which dealt with the phylogenetic relationships of the Oxytrichidae indicate a separation into the Oxytrichinae and the Stylonychinae. The analyses of our expanded dataset confirms this separation. However, only the Stylonychinae forms a monophyletic group, while the Oxytrichinae seems to be paraphyletic in these analyses.

Sequence analyses of further species of the Urostylidae show that this family is not monophyletic. One group of the Urostylidae forms the sistergroup to all remaining representatives of the subclass Stichotrichia, while the other species are found within this subclass.

Supported by the DFG (Schl 229/12-1), German National Academic Foundation, FWF (Vienna) P-14778 (Berger) and P-15017 (Foissner)

P-1 Changes in metabolism, physiology and behaviour as function of oxygen acclimation in *Daphnia magna*

Eva-V. Bongartz, Matthias D. Seidl, Bettina Zeis & Rüdiger J. Paul

Westfälische Wilhelms-Universität Münster, Institut für Zoophysiology, Hindenburgplatz 55; 48143 Münster, Deutschland

Limnic organisms exposed to changes in oxygen availability have to face trade-offs optimizing oxygen transport and minimizing oxygen damage. In the present study, *Daphnia magna* kept in long-term culture at hypoxic, normoxic and hyperoxic conditions (oxygen partial pressures were adjusted to 3 kPa, 21 kPa and 62 kPa) were examined for adjustments in behavioural (swimming activity) and metabolic (antioxidant enzymes) variables as well as survival rates dependent on ambient oxygen partial pressure and oxidative stress caused by hydrogen peroxide. The swimming activities of all acclimation groups increased with enhanced oxygen partial pressure. A marked decrease of swimming activity during the one-hour measurements could be shown at low oxygen partial pressures. Hyperoxically acclimated *Daphnia* showed the lowest sensitivity against exogenously applied hydrogen peroxide. Hypoxically acclimated animals showed a half-maximal lethality already at substantially lower peroxide concentrations than animals from normoxic and hyperoxic medium. Sensitivity against hydrogen peroxide was negatively correlated with animal size. The highest values of catalase (CAT) activity were found for normoxically acclimated animals. CAT activity of the hypoxically and hyperoxically acclimated animals was significantly lower. The CAT activity decreased in large animals compared to small and medium-sized animals, the latter showed the highest CAT activities. A stimulation of CAT activity by sublethal amounts of hydrogen peroxide or varying oxygen partial pressure conditions could not be observed within 48 h. A superoxide dismutase activity could not be detected.