27. Wissenschaftliche Jahrestagung der Deutschen Gesellschaft für Protozoologie
(Rostock-Warnemünde, 05. – 08. März 2008)

BOOK OF ABSTRACTS
(compiled by Klaus Jürgens and Rhena Schuhmann)

Mimicry in a haptorian Ciliate

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Typically, haptorids have toxicysts for killing other ciliates, their preferred prey. Further, they have so-called cortical granules which are usually less than 2 µm in size and colourless. Possibly, these granules are mucocyst-like extrusomes with a defensive function. In African and North American soils, we discovered a red haptorian ciliate, possibly belonging to the genus *Enchelyodon*. The colour is due to cortical granules which have a similar absorption spectrum as those of the red heterotrich ciliate *Blepharisma,* whose pigment granules have a defensive function against predators. The new *Enchelyodon*, an about 200 µm long, cylindroidal ciliate, is the first coloured haptorid that ever has been found. Among 30 food items offered (various ciliates, flagellates, micrometazoans ...), *Enchelyodon* fed only on *Blepharisma* spp. When this prey is lacking, it makes red resting cysts. However, some become smaller and colourless, indicating that the colour depends on the specific prey. Based on some preliminary experiments, I suggest that *Enchelyodon* mimics the toxic *Blepharisma* to escape predators, for instance, the large *Bursaria* and *Dileptus*.
(Supported by FWF, project P-19699-B17.)

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Drei neue, haptoride Boden-Ciliaten

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Die Ordnung Haptorida umfasst holotriche Ciliaten, die eine sogenannte Dorsalbürste besitzen. Sie führen eine räuberische Lebensweise und besitzen in der Regel Extrusome vom Toxicysten-Typ, um ihre Beute zu überwältigen. Es wurden die Morphologie und Infraciliatur dreier neuer Arten aus Moosen und den oberen Bodenschichten feuchter Standorte Venezuelas und Australiens mit Standardmethoden untersucht. Die erste Art gehört zur Gattung *Enchelys*, die hauptsächlich limnische und nur wenige bodenbewohnende Arten umfasst. Sie wurde in einer Algenkruste auf einem Granitfelsen, einem sogenannten "Laja", in Venezuela gefunden und unterscheidet sich von ihren Verwandten durch den flaschenförmigen Körper und den langen, geschwungenen Makronukleus. Die beiden anderen Arten besitzen keine lichtmikroskopisch erkennbaren Extrusome und stellen daher eine Besonderheit innerhalb der Haptoriden dar. Bisher wurden nur bei *Coriplites terricola*, einer Art mit zweireihiger Dorsalbürste, keine Extrusome gefunden. Eine der neuen Arten konnte der Gattung *Coriplites* zugeordnet werden, während für die Zweite aufgrund ihrer dreireihigen Dorsalbürste eine neue Gattung aufgestellt wird.
(Gefördert vom FWF, Projekt P 19699 – B17.)

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Some interesting new ciliates from the microaerobic and anaerobic bottom of the Gotlandtief (220 m below NN), Baltic Sea

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Few data are available on ciliates from deep marine environments. Thus, we investigated the so-called Gotland depth in the Baltic Sea. Samples were taken from microaerobic and anaerobic sites close above the bottom at a depth of about 220 m. Ciliates were studied in vivo and after silver impregnation. We found about 20 species, most belonging to the haptorids, prostomatids, and scuticociliatids, some of which have an outstanding morphology and likely represent new genera and species. Obviously, deep marine environments are a further, almost untouched diversity pool, such as floodplain soils and tanks of bromeliads. Studying ciliates from deep marine environments poses two major problems: their abundance is usually very low and they cannot be cultivated with ordinary laboratory conditions. The poster shows three likely undescribed species, viz. a *Metacystis* (Haptoria ?) with several caudal cilia, a *Plagiocampa*-like prostomatid with large cortical alveoli, and a *Holophrya*-like prostomatid with a specific brush pattern. (Supported by FWF, P-19699-B17.)

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Distribution and diversity of protists in pelagic redoxclines of the central Baltic Sea

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In the central Baltic Sea (e.g., Gotland Deep) the pelagic redoxcline, comprising the transition from suboxic to anoxic and sulphidic water layers, is characterized by steep physico-chemical gradients (oxygen, N- and S- compounds, manganese, iron etc.) and high chemoautotrophic bacterial activities, fueled by different redox reactions. Much less than on prokaryotes is known on the functional role and diversity of protists within redoxclines. Our goal was to quantify the vertical distribution of different functional groups of protists (e.g., nanoflagellates, ciliates), to assess their diversity and taxonomic identity by microscopical and molecular techniques (e.g., RNA/DNA fingerprints, sequencing) and to estimate their importance as bacterial consumers (size-fractionation, FLB disappearance). The results reveal that, similar as for the prokaryotes, the biogeochemical gradients in the redoxcline determine the composition, distribution and probably also ecological function of the protist communities, with strongest shifts at the sulphidic interface.

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Conjugation in the Spirotrich Ciliate Halteria grandinella *(Müller, 1773) Dujardin, 1841 (Protozoa, Ciliophora)*

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The isogamontic conjugants fuse partially with their ventral sides to a homopolar pair. The first maturation division embraces dramatic transformations: (i) the partners obtain an intimate interlocking arrangement; (ii) the number of bristle kineties is reduced from 7 to 4 in each partner; and (iii) the right conjugant loses its buccal membranelles, the left the whole adoral zone. The remaining collar membranelles arrange around the pair's anterior end and are shared by both partners; finally, the couple resembles a vegetative specimen in size and outline. The vegetative macronucleus fragments before pycnosis. The micronucleus performs three maturation divisions, but only one derivative each performs the second and third division. The synkaryon divides twice, producing the future micronucleus, a macronuclear anlage, and two disintegrating derivatives. Scattered somatic kinetids occur, but disappear without reorganization. An incomplete oral primordium originates on the ventral side of both partners. The conjugation of *Halteria* resembles in several respects that of spirotrich hypotrichs; however, the majority of morphological, ontogenetical, and ultrastructural features still indicates an affiliation with the oligotrich and choreotrich spirotrichs. Accordingly, the cladistic analysis still contradicts the genealogies based on the sequence of the small subunit rRNA genes. Supported by the Austrian Science Foundation (Projects P17752-B06 and P19699-B17).

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Conjugation in a new Dileptus *(Ciliophora, Litostomatea) and its phylogenetic significance*

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Details on sexual processes in *Dileptus* have been reported for only two species, i.e., *D. anser* and *D. gigas*. However, the knowledge on body and ciliary changes is scant because these studies did not use silver impregnation, where both processes can be followed concomitantly. Thus, we studied conjugation in a new haptorid ciliate, *Dileptus* sp. Conjugation is similar to that in congeners, that is, it is temporary, heteropolar, and the partners unite bulge-to-bulge with the proboscis. Some peculiarities occur in the nuclear processes, i.e., there are two synkaryon divisions producing four synkaryon derivates, of which two become macronucleus anlagen, one becomes the micronucleus, and one degenerates. Unlike spathidiids, *Dileptus* shows massive changes in body shape and ciliary pattern before, during, and after conjugation, that is, early and late conjugants as well as early exconjugants resemble *Spathidium*, while mid-conjugants resemble *Enchelyodon.* These data give support to the hypothesis that spathidiids evolved from a *Dileptus*-like ancestor by reduction of the proboscis. *Dileptus* exconjugants differ from vegetative cells by the smaller size, the stouter body, the shorter proboscis, and the number of ciliary rows, suggesting one or several postconjugation divisions.

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