

## The Flagellar Apparatus Ultrastructure in *Leptosira erumpens* (DEASON & BOLD) LUKESOVÁ and its Contribution to the Understanding of Phylogenetic Relationships within the Microthamniales (Chlorophyta)

M. ELS BAKKER, YDE S. D. M. DE JONG & GIJSBERT M. LOKHORST  
Rijksherbarium/Hortus Botanicus, Leiden, The Netherlands

**Summary:** The actual spatial configuration of the flagellar apparatus in biflagellate zoospores of the terrestrial green alga *Leptosira erumpens* is described. The basal bodies are displaced with respect to each other in the counter clockwise direction (CCW). The two types of microtubular roots consist of 2 microtubules (R2) and 8 microtubules (R8) respectively. The latter type of microtubular root is arranged in a 7-over-1 orientation. The two basal bodies are connected to each other anteriorly by a large striated distal connecting fibre. The microtubular roots are connected to the adjacent basal body via a striated proximal fibre and linked with the lower side of the distal connecting fibre. A single striated rhizoplast runs from one basal body along a large mitochondrion towards the nuclear envelope. The distinct eyespot (stigma) is intimately associated with a series of ca. 10 microtubules originating from one of the eight-membered microtubular roots.

In order to investigate the role that non-molecular characters play in the understanding of evolutionary relationships within the Microthamniales, a datamatrix was compiled for a preliminary phylogenetic analysis. Along with the present data of *L. erumpens* non-molecular (in great majority morphological) data of 15 more microthamnialean species and 2 selected outgroup species were included within this set. Despite incompleteness of the data, a distinct phylogenetic signal was found. This encouraged us to compare our results with a recent phylogenetic reconstruction based on molecular data.

**Key Words:** Cladistics; Flagellar apparatus; *Leptosira erumpens*; Morphological/molecular data; Microthamniales; Phylogeny.

