

## Molecular evidence does not support the current division of *Orthotrichum* subgenus *Gymnopus*

Jakub Sawicki · Vítězslav Plášek · Monika Szczecińska

**Abstract** Eight *Orthotrichum* species of subgenus *Gymnopus* were compared using the internally transcribed spacer regions-1 and -2 and the chloroplast *trnH-psbA* region. A phylogenetic analysis did not reflect the current division of this subgenus into sections *Affinia* and *Leiocarpa*. The investigated sequences revealed a close relationship between *O. striatum*, a typical species of section *Leiocarpa* and *O. affine*, a typical species of section *Affinia*. An easily distinguishable group was formed by samples of the dioecious *O. lyellii*, placed into section *Leiocarpa*. A large number of fixed differences between *O. lyellii* and other species of subgenus *Gymnopus* raises doubts concerning its position within this subgenus. No marker mutations enabling to differentiate *O. fastigiatum* from *O. affine* have been found. In absence of such mutations for *O. affine* and *O. striatum*, the status of *O. fastigiatum* cannot be determined unambiguously.

**Keywords** *Orthotrichum* · ITS · *trnH-psbA* · Genetic diversity · Molecular taxonomy