

## **Abstract:**

From 23 European and North American strains *Euastrum humerosum/didelta* species complex (Desmidiaceae) we have obtained 3 lineages in molecular marker trnG<sup>unc</sup> group II intron. We did not acquire significant and homogenous results in SSU intron. It is probable that the lineages are very young. The lineages were significantly different in their shape and dimensions. We used the geometric morphometrics with the measuring of the lengths and breadth of the semicells, isthmus and their ratios. The lineages differentiated in their dimensions and shape variable polar lobes and neck. SEM revealed the one central pore in cell wall on the contrary, with variant *E. didelta* var. *bengalicum*, which has two pores according the literature records.

Key words: desmids, species, hidden diversity, molecular phylogenetics, geometric morphometrics, Euastrum, scanning electron microscopy