

Abstract

This thesis deals with the sphenopterid types of ferns from the Czech Carboniferous basins. Thesis is presented as a combination of two published papers in peer-reviewed journals, one manuscript in review and one manuscript ready for submission. The actual text of the thesis is a general introduction with introduction to the study subject of sphenopterid ferns, methodology, studied type collections, terminology and the result of my study. The introduction of the thesis provides a general overview of the ferns and history of their studies. All four papers presented here are focussed on modern redescription, redefinition, emendation and revision of genera *Boweria* Kidston, *Dendraena* Němejč, *Sturia* Němejč. Based on the revision of these genera, following two new genera were established: *Kidstoniopteris* gen.nov. and *Paraszea* gen.nov. A new species *Boweria nowarudensis* has been described during the course of this study. The “whole plant concept” was applied to all studied specimens, which allows to obtain as much information on the ferns morphology, anatomy, and reproductive organs as possible. This was combined with data on *in situ* spores as well as sedimentological and petrological analyses. The sporangial cells as annulus, stomium and apical cells and *in situ* spores were described for all genera and species for the first time. The new observations and researches allow a better integration of genera/species into the plant system. Reproductive organs analysis combined with *in situ* spores and anatomy researches enable more detailed systematic evaluation of the studied genera. This proved useful in palaeoenvironmental and palaeoecological interpretations as well, especially when combined with sedimentological analyses.