



Staurosirella rhombus (Ehrenberg), Ognjanova-Rumenova, Buczkó, Wojtal & R. Jahn, *comb. nov.*—Typification, morphology and biostratigraphic significance

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Abstract

A new combination *Staurosirella rhombus* (Ehrenberg), *comb. nov.*, is based of *Fragilaria rhombus*. Using light and scanning electron microscopy, the type material from Jastrabá, Slovak Republic was studied. The taxonomic description and typification was done on the basis of the original line drawings, mica preparations and on raw materials, which are housed in the Ehrenberg Collection, Museum für Naturkunde, Humboldt Universität zu Berlin (BHUPM). Comments are presented regarding possible synonyms, described for the Neogene sediments in the realm of Central Slovakia.

Key words: *Fragilaria rhombus*, fossil, Jastrabá, Ehrenberg collection, typification

Introduction

Interest in lacustrine diatom biochronology has greatly increased in recent years. Many widespread biochronological schemes are based on planktonic genera, while the group of periphytic species is often neglected, in spite of its high species diversity (more than 70–80% of the studied flora). Some of them have only short stratigraphic range and, even if periphytic, they could be used as biostratigraphic markers, e.g. extinct species of genus *Fragilaria* Lyngbye (1819: 182) *sensu lato* (Fourtanier & Gasse 1988, Serieyssol & Gasse 1991, Moissejeva 1993, Khursevich 1994, Ognjanova-Rumenova 2000). Only in the biochronological scheme of Krebs (1994) the group of pennate genera was included. The stratigraphical range is very long—the beginning is questionable, but it extends back to the Paleogene period.

Within the genus *Fragilaria*, there are many extinct species with restricted stratigraphic ranges: *Staurosirella grunowii* (Pantocsek) Morales, Buczkó & Ector in Morales *et al.* (2014: 105) [(=*Fragilaria leptostauron* var. *amphitetras* (Grunow) Řeháková (1980:120)], *F. leptostauron* var. *trigona* (G. Krasske) Lange-Bertalot & Willmann in Lange-Bertalot *et al.* (1996: 83), *F. bituminosa* Pantocsek (1889: 65), *F. transylvanica* Pantocsek (1905: 54), *Pseudostaurosira zeilleri* (Héribaud) Williams & Round (1987: 276) [≡ *F. zeilleri* Héribaud (1902: 26, pl. 10, fig. 9)], *Pseudostaurosira medliniae* Williams & Morales (2010: 226) [≡ *F. zeilleri* var. *elliptica* Gasse (1980: 63, pl. 32, figs. 34–39, pl. 33, figs. 4–6)], *Fragilaria miocaenica* Jouse (1952: 243, pl. 1, fig. 9) (Williams & Round 1987, Ognjanova-Rumenova *et al.* 1994, Ognjanova-Rumenova 2006, Williams & Morales 2010, Morales *et al.* 2014). Very serious problems in fragilarioid diatom taxonomy are the lack of sufficient characters to distinguish morphologically related taxa at the species or even genus level (Morales 2006).

Christian G. Ehrenberg published the taxon *Fragilaria rhombus* in 1854 from diatomite at the locality Jastrabá, nowadays Central Slovakia. Except for a figure in his famous Mikrogeologie, Ehrenberg (1854) never presented a description of this species, which caused a lot of similar forms to be described by Pantocsek (1892, 1905), Hajós & Pálfalvy (1963), Hajós (1970, 1987), Řeháková (1965, 1980). The present study represents an effort to characterize *Fragilaria rhombus* Ehrenb. taxonomically and biostratigraphically, since it is an important component of Jastrabá Kieselgur (samples #2847-1 and 2847-2, Ehrenberg Collection in BHUPM). The Jastrabá diatomite deposits belong to the Jastrabá Formation, according to the lithostratigraphy of the Turiec Basin, Central Slovakia (~ 11.6 Ma) (Kováč *et*