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Original article

An early Tournaisian (Mississippian) bryozoan fauna from the Moravian Karst (Rhenohercynian Zone, Czech Republic)☆

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ABSTRACT

Bryozoans are described from the lower Tournaisian of the Moravo-Silesian Zone (part of the Rhenohercynian Zone) of the Czech Republic for the first time. The studied fauna displays poor diversity and small size; it is represented by encrusting unilaminar and delicate branching growth habits. One species, *Eridopora moravica*, is new, and three other species are left in open nomenclature: *Nikiforovella* sp., *Saffordotaxis* sp., and ?*Streblotrypella* sp. Bryozoans found within calciturbidites of the *Siphonodella sulcata* and *Siphonodella quadruplicata* conodont zones inhabited originally the littoral zone at the southern margin of Laurussia. They indicate links between the eastern and western parts of the northern Palaeotethyan Siberian and Panthalassan realms.

1. Introduction

Tournaisian deposits of the Moravian Karst contain various and abundant marine fossils including, e.g., conodonts, foraminifers, ammonoids, brachiopods, algae, sponge spicules, bivalves, bryozoans, ostracodes, radiolarians, trilobites, ichthyoliths, and echinoderms (Chlupáč, 1966; Kalvoda and Kukal, 1987; Kalvoda et al., 1999, 2002; Kumpan et al., 2014). Conodonts and foraminifers have been studied in great detail due to their biostratigraphic value. Co-occurrence of these two groups in calciturbidites of the Líšeň Fm. (Famennian–Viséan) makes the Moravian Karst a key area for correlations of conodont and foraminiferal zonations (Kalvoda, 1983, 1990, 2001, 2002; Kalvoda et al., 2010, 2015; Kumpan et al., 2014). Systematic palaeontological research of the Tournaisian from the Moravian Karst has also focused on the trilobite fauna described from the upper Tournaisian by Chlupáč (1966), Rak and Lerosey-Aubril (2009), and Rak et al. (2012). Additionally, data on ichthyoliths (Smutná, 1994; Kumpan, 2013a), echinoderms (Kumpan, 2013b), ostracodes (Bless *in* Dvořák et al., 1986), and plants (Purkyňová, 1996) were published. The present study is the first taxonomic evaluation of Tournaisian bryozoans from the Bohemian Massif. Bryozoan faunas from the lower Palaeozoic of the Prague Synform show higher stage of knowledge comprising published information on 100 species from the Upper Ordovician (Počta, 1894; Kulich, 1984; Ernst et al., 2014), Upper Silurian (Ernst et al., 2008, 2011), and Lower Devonian (Prantl, 1928, 1932, 1933, 1935; Astrova, 1970; McKinney and Kříž, 1986; Ernst, 2008, 2009; Ernst and May, 2009; Mergl, 2015).

Study and analysis of bryozoan communities have palaeobiogeographical and palaeoecological implications (McKinney and Gault, 1980; McKinney and Jackson, 1989; Hageman et al., 1998; Ernst and Königshof, 2008) and can be useful for correlation between regions where main index fossils, such as conodonts and foraminifers are absent or rare – e.g., for biostratigraphical division of the Tournaisian sections in the Mongol-Ochotsk orogen belt (Popeco, 2000; Kurilenko et al., 2002; Ariunchimeg, 2010). Bryozoans were affected only slightly by the Hangenberg Crisis at the end of the Famennian (Gutak et al., 2008), much like many other shallow-water groups (Kaiser et al., 2015). Bryozoan species and genus diversity increased strongly during the Tournaisian (Ross, 1981; Ernst, 2013). Analysis of generic diversity shows an increase in extinctions during the late Famennian and an increase in originations during the Early–Middle Mississippian (Ernst, 2013). Within bryozoan orders, a decrease of richness can be observed in the Trepostomata, a rapid diversification in the Fenestrata, and a moderate renewal of the generic composition in the Cystoporata (Tolokonnikova et al., 2014). Knowledge about Early–Middle Mississippian bryozoans from Europe has increased in recent years (Morozova et al., 2006; Ernst and Rodríguez, 2013; Tolokonnikova et al., 2015; Ernst et al., 2015) and suggests that

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