

***Zygodon dentatus* (Limpr.) Kartt., a new moss species in the Bohemian Switzerland National Park (NW Bohemia, Czech Republic)**

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Abstract: The moss *Zygodon dentatus* was found in November 2012 in Bohemian Switzerland National park. It is first noted finding of the species in the north-west Bohemia. The moss is considered as near threatened species in the Czech Republic. New locality and list of recent known distribution of the moss in the Czech Republic is presented.

Key words: *Zygodon dentatus*, Orthotrichaceae, Bohemian Switzerland, Elbe Sandstones, Bohemia, Czech Republic, threatened species.

Introduction

The Bohemian Switzerland National Park is situated in the north-west part of Czech Republic along the border with Germany between Děčín and Rumburk towns. This sandstone area has oceanic climate with average annual temperatures 7-8 °C and precipitation varies between 750-850 mm per year. Elevation ranges from 120 to 609 m a.s.l. Ninety-six per cent of the area is covered by forest.

The area of Bohemian Switzerland belonged to severely polluted area in the past. It was situated in so-called *black triangle*, affected by the emissions of SO₂ from the industrial areas in Bohemia, Germany and Poland. Due to the acid rains, the epiphytic flora of lichens and bryophytes in the region turned nearly completely extinct. However, after the political changes in the 1990s, the emissions of SO₂ rapidly decreased.

Three species of the genus *Zygodon* occur in the Czech Republic (Kučera at al. 2012). *Zygodon dentatus* is included in the Red List of Bryophytes of the Czech Republic into Lower Risk-Near Threatened (LR-nt) category (Kučera at al. 2012). There are no historical data of its occurrence in the Czech Republic (Vondráček 1994). Recently it occurs in 8 known localities.

Description of the species

Small plants (to 1.5 cm), forming yellowish-green tufts or patches. Ovate-lanceolate leaves spreading when moist and appressed and slightly twisted when dry. Leaf apex acute, often with 1-2(-3) teeth, costa percurrent. Gemmae ovoid, 50-75 µm & 35 µm, formed by two rows of cells. Sexual condition is dioicous. Production of capsules is unknown in the Czech Republic.

Description of the new founded locality of *Zygodon dentatus*

Czech Republic, Bohemian Switzerland National park, Chřibská town, Na Tokání settlement, 4 km WNW of Chřibská, young beech forest at so-called “Tokáňský trianagl” (= cross-roads between blue and yellow marked trail), bark of *Fagus sylvatica*, 400 m a.s.l., 28.XI.2012 leg. I. Marková, det. V. Plášek, herb. I. Marková (priv. herb.).

Zygodon dentatus was found on the bark at the height of 160 cm above ground with north exposition. Size of the population was about 1.5 cm² and it grew together with *Orthotrichum* cf. *affine* (sterile plants) and *Hypnum cupressiforme*.

Occurrence of the moss *Zygodon dentatus* in the Czech Republic

The occurrence is the first finding of the species in the north-west Bohemia. The list of all recent known occurrences of *Zygodon dentatus* in the Czech Republic (in a chronological order) is arranged below:

- S Bohemia, Šumava Mts, cirque of Černé jezero lake, leg. Z. Soldán (Kučera in litt.)
- S Bohemia, Šumava Mts, Železná Ruda town, Ferdinandovo údolí valley, leg. Z. Soldán (Kučera in litt.)
- S Bohemia, Novohradské hory Mts, “Žofínský prales” National Nature Reserve, 22.V.1998 leg. B. Buryová, unpublished data listed in Kučera (2004a).
- S Bohemia, Novohradské hory Mts, Nové Hradky village, “Terčino údolí” National Nature Monument
 - at the edge of the park near the northern entrance, at the bark of *Carpinus betulus*, 482 m a.s.l., 5.XI.2004 leg. J. Kučera, herb. J. Kučera (Kučera 2004b).
 - NW part of the park at the edge of the forest, 610 m WSW of the bridge at the northern entrance, 494 m a.s.l., at the bark of *Tilia cordata*, 5.XI.2004 leg. J. Kučera, herb. J. Kučera (Kučera 2004b).
 - middle part of the park, path along the left bank of Stropnice river, 110 m NNE of Terežín pub, 493 m a.s.l., 5.XI.2004 leg. J. Kučera, herb. J. Kučera (Kučera 2004b).
- SW Bohemia, Plzeňsko region, “Pod Smutným koutem” Natural monument, near the north border of the protected area, on the bark of *Betula* sp., ESE exposition, associated with *Orthotrichum affine*, 30.VII.2005 leg. J. Košnar, teste J. Kučera, herb. J. Košnar (Košnar 2005).
- S Bohemia, Šumava Mts, Modrava village, nameless hill (1090 m) between Smrkový vrch Hill (1112 m) and Šárecká slat' moor, on the bark of *Acer pseudoplatanus*, 1087 m a.s.l., 28.VI.2006 leg. E. Mikulášková, teste V. Plášek, herb. E. Mikulášková, (Mikulášková 2007).
- S Bohemia, Novohradské hory Mts, on the side of the road between Černé Údolí and Staré Hutě villages, 545 m SW of Mlýnský (Cikánský) vrch Hill (829 m n. m.), 755 m a.s.l., on the bark of *Quercus robur*, 7.X.2007 leg. T. Berka, herb. T. Berka (Berka 2007).
- S Bohemia, Novohradské hory Mts, Pohorská Ves, Žofín: at the forest track on NE slopes of Stříbrný vrch hill, 550 m ENE of the summit of Stříbrný vrch [E3478.500, N5391.469], 840 m, on bark of *Acer pseudoplatanus*, half-shaded, 13.10.2012 coll. J. Kučera (15463, CBFS).

Discussion

Zygodon dentatus is widespread in temperate-boreal zone of Europe, where is regionally threatened. It is an epiphytic species, which grows mainly in the phytosociological alliances of *Ulotion crispae* and *Lobarion pulmonariae* association, of the order *Fagetalia* (Dierßen 2001). To-date, all recent Czech localities of *Zygodon dentatus* were situated in the southern and south-western part of Bohemia, particularly in Novohradské hory and Šumava Mts. This part of the Czech Republic was not that strongly influenced by air pollution in the past century and many epiphytic species of lichens and mosses found their refuge there. The nearest localities of this species are situated in Bavaria (Germany), where it is occurred mainly in south Bavaria and Alps. Near the Czech border was it found in Bayerischer Wald Mts, where it has seven recent localities, and in Fichtel Gebirge Mts, where it has one recent locality (Meinunger 2007). Nevertheless, the species was found in the neighbouring Saxony (Germany) in 2003 too, and nowadays is known there from five localities (Müller 2004, Meinunger 2007). In neighboring countries, the species is considered as threatened species, e.g. in Slovakia is evaluated as critically endangered (Kubinská et al. 2001) and in Poland as endangered (Żarnowiec et al. 2004). Recently it seems that the moss *Zygodon dentatus* starts the spreading in all the above mentioned countries.

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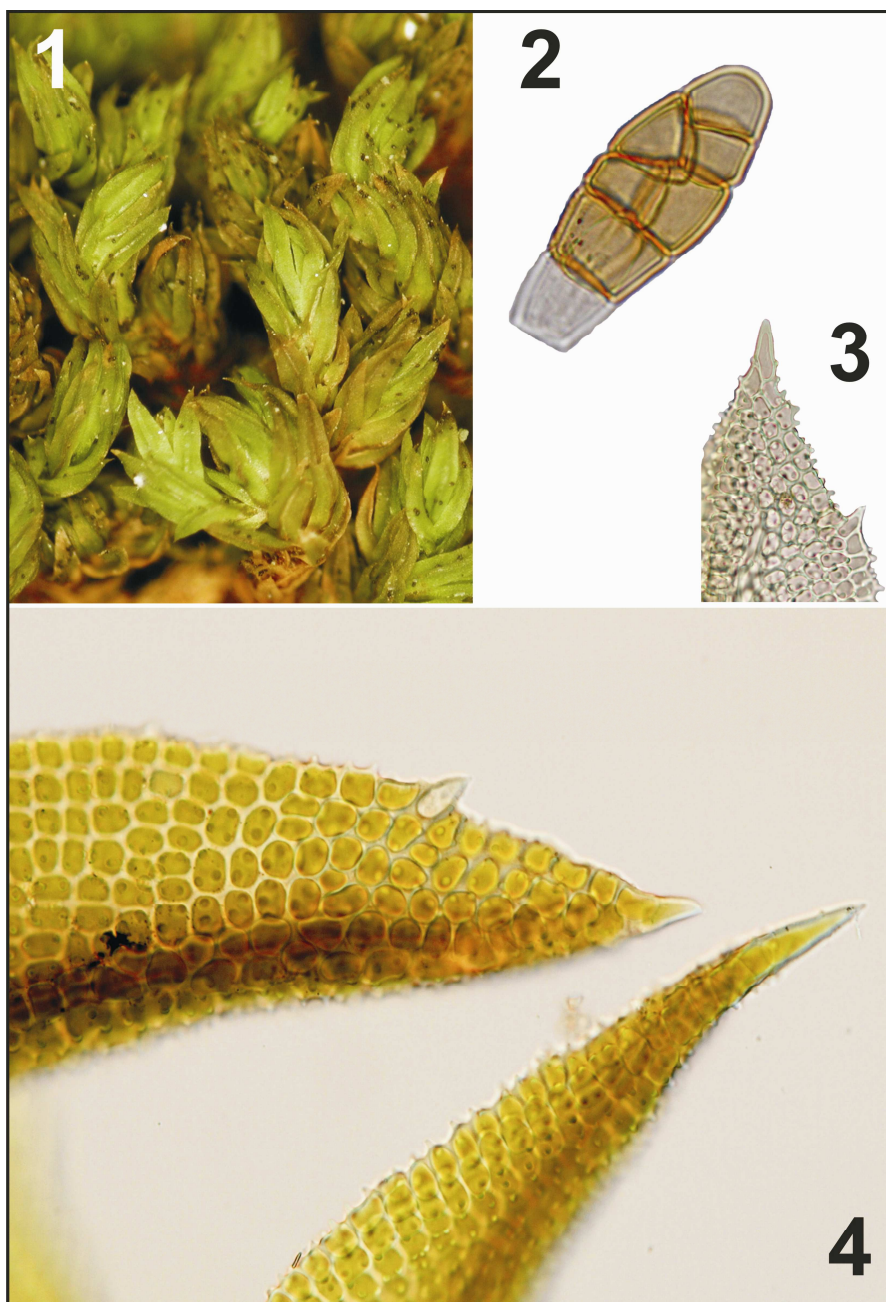


Fig 1: Detail view on moss *Zygodon dentatus*. **1.** gemmiferous plants, **2.** gemma with longitudinal septae, **3 - 4.** leaf apex with characteristic teeth. Photos by V. Plášek.

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