

LEPTODONTIUM (POTTIACEAE, BRYOPHYTA),  
A NEW GENUS FOR CAUCASUS

LEPTODONTIUM (POTTIACEAE, BRYOPHYTA) –  
НОВЫЙ РОД ДЛЯ КАВКАЗА

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Abstract

*Leptodontium flexifolium* is reported from the Caucasus, in the Ingushetia Republic. This is a first record of this mainly tropical and subtropical genus in the Caucasus. The differences between *L. flexifolium* and *L. styriacum* are discussed and the latter species is synonymized with *L. flexifolium*.

Резюме

*Leptodontium flexifolium* выявлен на Кавказе, в Ингушетии. Это первая находка этого в целом тропического и субтропического рода на Кавказе. Обсуждается понимание объема вида *L. flexifolium* разными авторами и его изменчивость (касающаяся, главным образом, строения выводковых тел). *Leptodontium styriacum* отнесен в синонимы к *L. flexifolium*.

The bryological exploration of the Caucasus began in the 19th Century, and Brotherus (1892) provided a quite comprehensive account of Caucasian mosses. However certain regions of Central Caucasus still remain almost totally 'white spots'. This is especially true for Chechenia and partly also for Ingushetia (these before 1991 forming a single Checheno-Ingush Republic). Recent moss collecting in Ingushetia, however, brought a number of interesting findings (Bersanova, in prep.). Here we discuss one of them, the genus *Leptodontium*. Identification of the genus is a relatively easy, as most species of *Leptodontium* are large plants with a coarsely serrate leaf margins, not observed in other species of Pottiaceae of the region. The species identity, however, is more problematic.

The genus *Leptodontium* includes 25 to 36 species (Crosby & al., 1999) or 39 species (Zander, 1993); most of them distributed in the tropics. There are no records of *Leptodontium* in Asian

countries close to the Caucasus, while in Europe the genus is represented by three species. One of them, *L. gemmascens* (Mitt.) Braithw., is probably not relevant to the present discussion, as it contrastingly differs in having a unique brush-like cluster of gemmae near the tip of excurrent costa. Two other species, *Leptodontium flexifolium* (Dicks.) Hampe and *L. styriacum* (Jur.) Limpr. are closely related and a choice among them is not easy.

*Leptodontium flexifolium* has a wide distribution within the tropics and in temperate areas of the Northern Hemisphere (Zander, 1972). It was described from England, and reported from many regions of the world: in Oceania in Hawaii; in America from Peru and Bolivia through Central America and Mexico northward to Arizona and Northern Carolina; in Africa from Kenya, Congo, Cameroon, and also Canary Islands; in Asia from New Guinea, Indonesia and Sikkim through South East Asia and south China to Japan (up to

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Honshu), North-East China (up to Jilin and Inner Mongolia), Mongolia; plants from South Siberia, reported as *L. styriacum* (Bardunov, 1965, 1969) are probably indistinguishable from Mongolian ones. In Europe, *L. flexifolium* was reported from many countries: Portugal, Spain, France and Germany to Ireland, UK, and Norway. Recently it was reported from Romania (Plamada & al., 2000), which at moment is the closest known locality to the Caucasus.

*Leptodontium styriacum* was described from the Alps of Austria. Soon after its description (in the genus *Didymodon*), Braithwaite (1887) concluded that it belongs to *Leptodontium* and probably is no more than a variety of *L. flexifolium*. Soon afterwards, Limpricht (1890) formally transferred *Didymodon styriacum* in *Leptodontium*, as a separate species endemic of mountains of Central Europe (i.e. Frahm & Schumacker, 1986; Zander, 1972).

Bardunov (1965) reported *L. styriacum* in South Siberia in the Baikal area; he probably identified it using the handbook of Limpricht (1890), in which *L. flexifolium* is described as a species without gemmae. Subsequently this and additional discoveries in Siberia were cited as *L. styriacum* (Bardunov, 1969; Savicz-Lyubitskaya & Smirnova, 1970; Ignatov & Afonina, 1992).

Preparing a treatment for Mongolia, Abramov & Abramova (1983) studied the variation of axillary gemmae in Mongolian material and came to the conclusion that the range of variation is very broad. Thus, they used the name *L. flexifolium* implying that *L. flexifolium* and *L. styriacum* are probably just one species.

Zander (1972) in his revision on *Leptodontium* in New World accepted the very broad concept of *L. flexifolium*, but retained *L. styriacum* as a species of its own, although he noted that it is close to *L. flexifolium*, differing from the latter by acute leaves and spindle-shaped propagula, whereas propagula in 'typical' *L. flexifolium* are obovate. However, Zander did not cite a type for *L. flexifolium*, due to the absence of the relevant material in the Dickson herbarium. Typification was done later by Frahm & Schumacker (1986), who said nothing about gemmae in type material; it is most likely that the gemmae simply were absent, as it is almost always in material from

Great Britain. Soon afterwards, Newton & Boyce (1987) found gemmae of *L. flexifolium* in Great Britain for the first time, and those gemmae were not round to short-obovoid, as in most of tropical and subtropical collections of *L. flexifolium*, but flask-shaped, rather like those found in the lectotype of *L. styriacum* (Figs. 22-25 in Frahm & Schumacker, 1986), as well as certain gemmae found in Caucasian plants (see Fig. 1F,G,K).

At the same time, the illustration of gemmae of *L. styriacum* by Limpricht (1890) showed the large variation in their shape, mostly representing short-obovate gemmae, i.e. those which Zander (1972) thought to be typical for *L. flexifolium*. Similar gemmae were found in Caucasian collections too (see Fig. 1J).

Frahm & Schumacker (1986) came to conclusion that 'differentiation between *L. flexifolium* and *L. styriacum* by means of the gemmae seems to be problematic', but retained them as a separate species, mentioning, however, no other differences.

Summarizing this overview and keeping in mind variation of gemmae in the Caucasian population, we see no better solution than to synonymize *L. flexifolium* and *L. styriacum*.

***Leptodontium flexifolium*** (Dicks.) Hampe, Oefvers. Foerh. Kongl. Svenska Vetensk.-Akad. 21: 227. 1864. – *Bryum flexifolium* Dicks., Fasc. Pl. Crypt. Brit. 4: [29]. 1801. Neotype in BM (see Frahm & Schumacker, 1986).

*Leptodontium styriacum* (Jur.) Limpr., Die Laubm. Deutschl. 1: 565. 1888. – *Didymodon styriacum* Jur., Rev. Bryol. 5: 29. 1878., syn. nov. Lectotype in W (see Frahm & Schumacker, 1986).

Description based on Caucasian plants:

Plants in rather loose tufts, brownish green in the youngest portions, soon becoming reddish to brownish. Stem to 1.5 cm high, densely foliate, with solitary branches. Leaves incurved-appressed to incurved-contorted when dry, spreading when moist, ca. 1.7-2.2 × 0.4-0.55 mm, narrowly lingulate, acute; margin above coarsely serrate; costa ending shortly below leaf apex, in cross section with large guide cells, and with dorsal and ventral groups of substereids with few stereids, without dorsal and ventral epidermis; laminal cells rounded-quadrate, 10-15 µm, with 2-4 high pa-

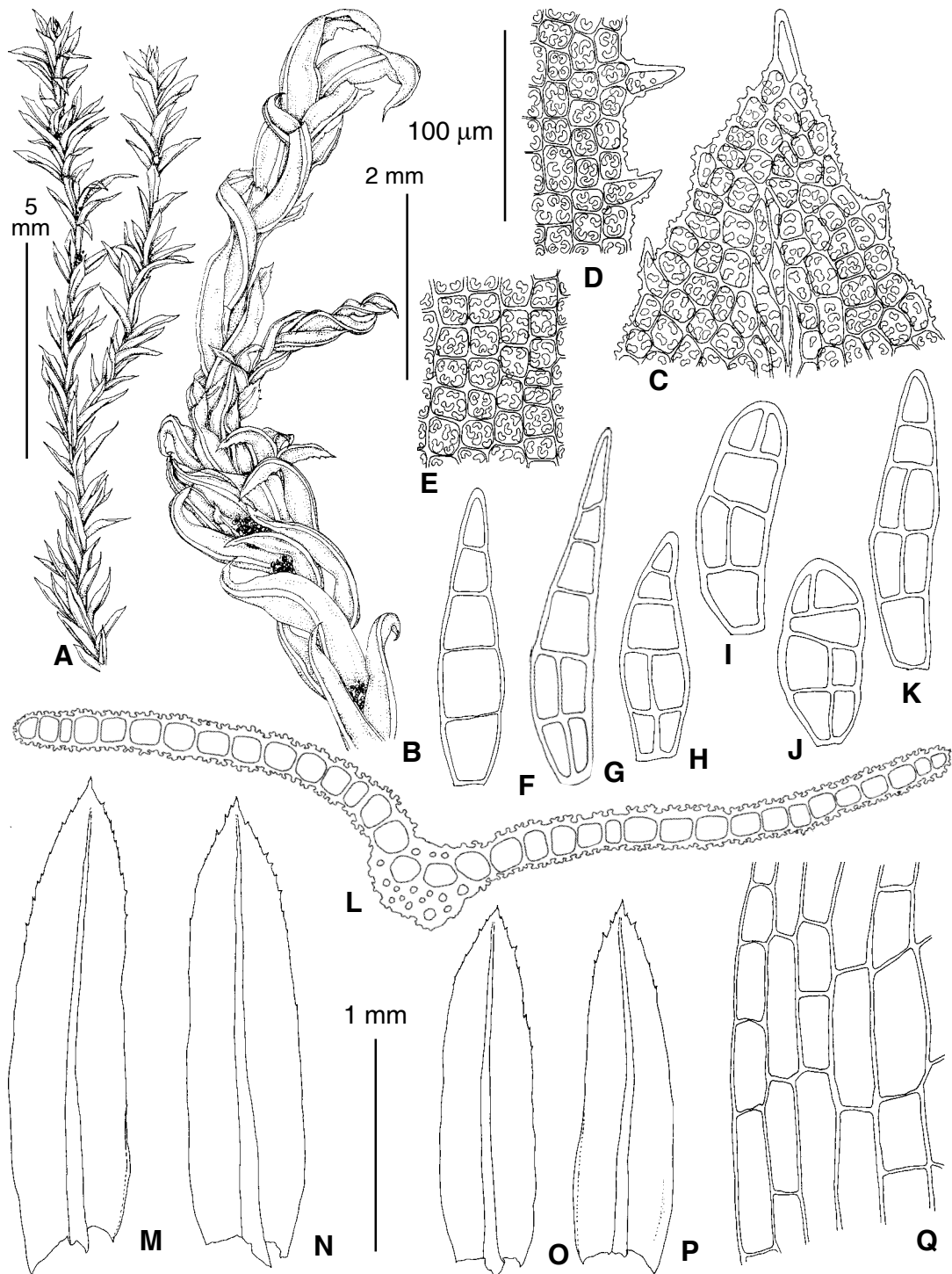


Fig. 1. A-O: *Leptodontium flexifolium* (Dicks.) Hampe (from Ingushetia, A. Bersanova, 29.IV.2004 (MHA)): A – habit, wet; B – habit, dry; C – upper laminal cells; D – cells of leaf margin in upper leaf; E – mid-leaf cells; F-K – gemmae; L – leaf transverse section; M-P – leaves; Q – basal leaf cells. Scale bars: 5 mm for A; 2 mm for B; 1 mm for M-P; 100  $\mu$ m for C-L, Q.

pillae on both surfaces, cells at leaf base wider, rectangular, smooth. Gemmae brownish, in leaf axils on short receptacles, 50-120 × 35-70 μm, obovoid, spindle-shaped to almost flask-shaped, with or without longitudinal septae.

Specimen from Caucasus: Ingushetia, Tersky Range [ca. 41°30'N – 45° 45'E], 600 m alt., on

soil with *Campylopus sp.*, coll. A. Bersanova, 29.IV.2004 [KBNG, MHA].

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