Arctoa (2001) **10**: *161-164*

A NEW SPECIES OF BARBULA (POTTIACEAE, MUSCI) FROM SIBERIA

НОВЫЙ ВИД BARBULA (POTTIACEAE, MUSCI) ИЗ СИБИРИ

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Abstract

Barbula jacutica Ignatova sp. nova is described from Ust-Maya District of Republic Sakha (Yakutia); holotype is in MHA. The new species is compared with *B. eustegia* Card.et Thér., from mountains of the West of North America, and *Leptobarbula berica* (DeNot.) Schimp., a Mediterranean endemic species.

Резюме

По сборам из Усть-Майского района республики Саха (Якутия) описан новый вид рода *Barbula* – *B. jacutica* Ignatova sp.nova (голотип в MHA). Приводится сравнение нового вида с *B. eustegia* Card.et Thér., распространенной в горах на западе Северной Америки, и *Leptobarbula berica* (DeNot.) Schimp., эндемиком Средиземноморья.

During my studies of colletion of M. Ignatov & E. Ivanova from Ust-Maya district of the Republic Sakha/Yakutia (see also Ignatov & al., 2001), I found a species of *Barbula*, which I could not refer to any of known species and therefore describe it here as a species new for science.

Barbula jacutica Ignatova sp. nov. Figs. 1-2

Barbula eustegia proxima sed foliis valde variabilioribus, pro parte obtusioribus, seta rubriore et sporis 12-15 μm in diametro differt.

Plants small, gregarious, yellow-green. Stem 1-1.5 mm long, densely foliate with upper leaves much larger, not branched, in transverse section rounded-polygonal, central strand strong, cortical layer of 2 rows of substereid cells, hyalodermis absent. Axillary hairs to 140 μm long, 5-celled, thin-walled, hyaline, 2 basal cells brownish; upper cell ca. 25 x 6 μm. Leaves contorted to crisped when dry, spreading when wet, from 0.5 x 0.2 mm in lower part to 1.6 x 0.5 mm in upper part, varying in shape from narrowly oblong-lanceolate (mostly in sterile and male plants) to ovate-lanceolate, rather abruptly contracted from ovate base to gradually narrowing acumen, obtuse to broadly acute, at leaf tip rounded or shortly apiculate, with 1 uppermost cell almost smooth, at base not decurrent, obtusely keeled above; margin entire, plane; costa ending 5-8 cells below apex, 4 cell row in width at ventral mid-leaf, superficial cells dorsally and ventrally papillose, short-rectangular; costal transverse section hemisphaeric, stereid bands two, dorsal band strong, ventral one small, 2-3-celled, not extending far above leaf base (so in upper leaf stereid band one), both dorsal and ventral epidermis present, guide cells 2-4 in one layer; upper laminal cells subquadrate to short-rectangular and irregular in shape; 8-10 μm wide, thin-walled, superficially flat; papillae bifid, low, looking c-shaped, dense, (3-)4-6 per cell; basal cells smooth, rectangular, ca. 55 x 10 μm, cell walls moderately thickened, not porose, gradually becoming papillose above at equal distance from base across leaf. Dioicous. Male plants small, not differentiated from sterile plants, perigonial leaves ca. 0.7 mm long, oblong-lanceolate, broadly acute, at base slightly widened, yellow-brownish. Perichaetia terminal; inner perichaetial leaves to 2 mm long, from sheating base abruptly narrowing into narrowly lanceolate or narrowly linear acumen, obtuse or, more rarerly, broadly acute; acumen equal or half as long as sheating base. Seta 10-16 mm long, reddish-brown, occasionally yellowish in upper 1/10, straight or flexuose above, twisted to the right above, one per perichaetium. Urn 0.9-

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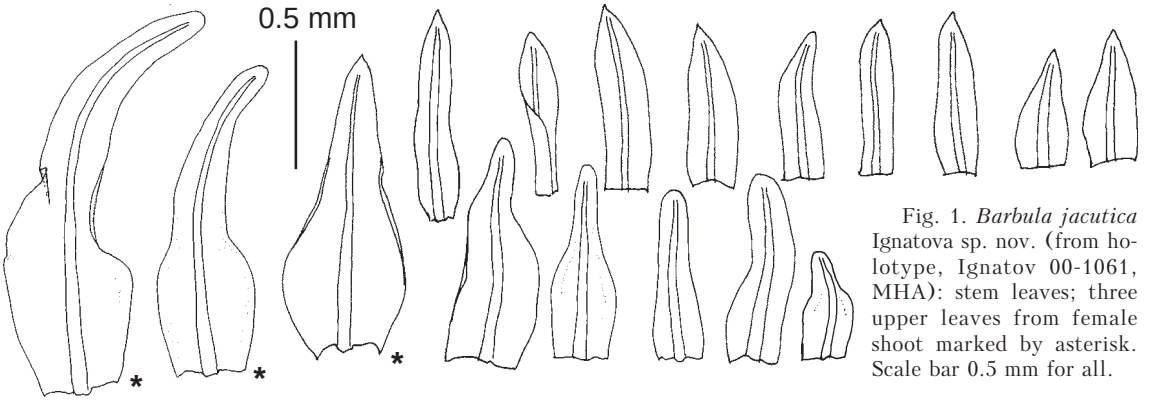


Fig. 1. *Barbula jacutica* Ignatova sp. nov. (from holotype, Ignatov 00-1061, MHA): stem leaves; three upper leaves from female shoot marked by asterisk. Scale bar 0.5 mm for all.

Fig. 2. *Barbula jacutica* Ignatova sp. nov. (from holotype, Ignatov 00-1061, MHA): 1-3 – habit; 4-6 – casiles; 7 – capsule with calyptra; 8-9 – upper leaf cells; 10-12 – leaf transverse sections; 13 – mid-leaf cells; 14 – part of peristome; 15 – upper exothecial cells and annulus; 16-17 – perichaetia; 18-19 – perichaetial leaves; 20 – basal leaf cells; 21 – exothecial cells; 22 – stem transverse section; 23 – perigonial leaves with antheridia. Scale bars: 5 mm for 1-3; 2 mm for 4-7, 16-17; 1 mm for 18-19; 0.5 mm for 23; 100 μm for 8-9, 13-15, 20-22. ➔

1.3 x 0.4 mm, elliptic to cylindric, widest at base, straight or slightly curved, red-brown, slightly furrowed when dry (in operculate capsules); exothecial cells in alternating vertical strips of elongated, rather thin-walled cells ca. 60 x 16-20 μm and shorter, irregular in shape, more thick-walled cells; stomata not seen. Operculum long-conic, oblique, 0.8-0.9 mm long, cells in counterclockwise-twisted rows. Annulus deciduous, of 2 rows of strongly vesiculate cells. Peristome teeth split almost to base into 2 filiform parts, so peristome composed of ca. 32 filiform parts ca. 850 μm long, strongly twisted to the right, sitting on basal membrane ca. 50 μm high. Spores 12-15 μm in diameter, yellow, finely papillose. Calyptra cucullate, smooth, ca. 1.5 mm in length. KOH reaction yellow.

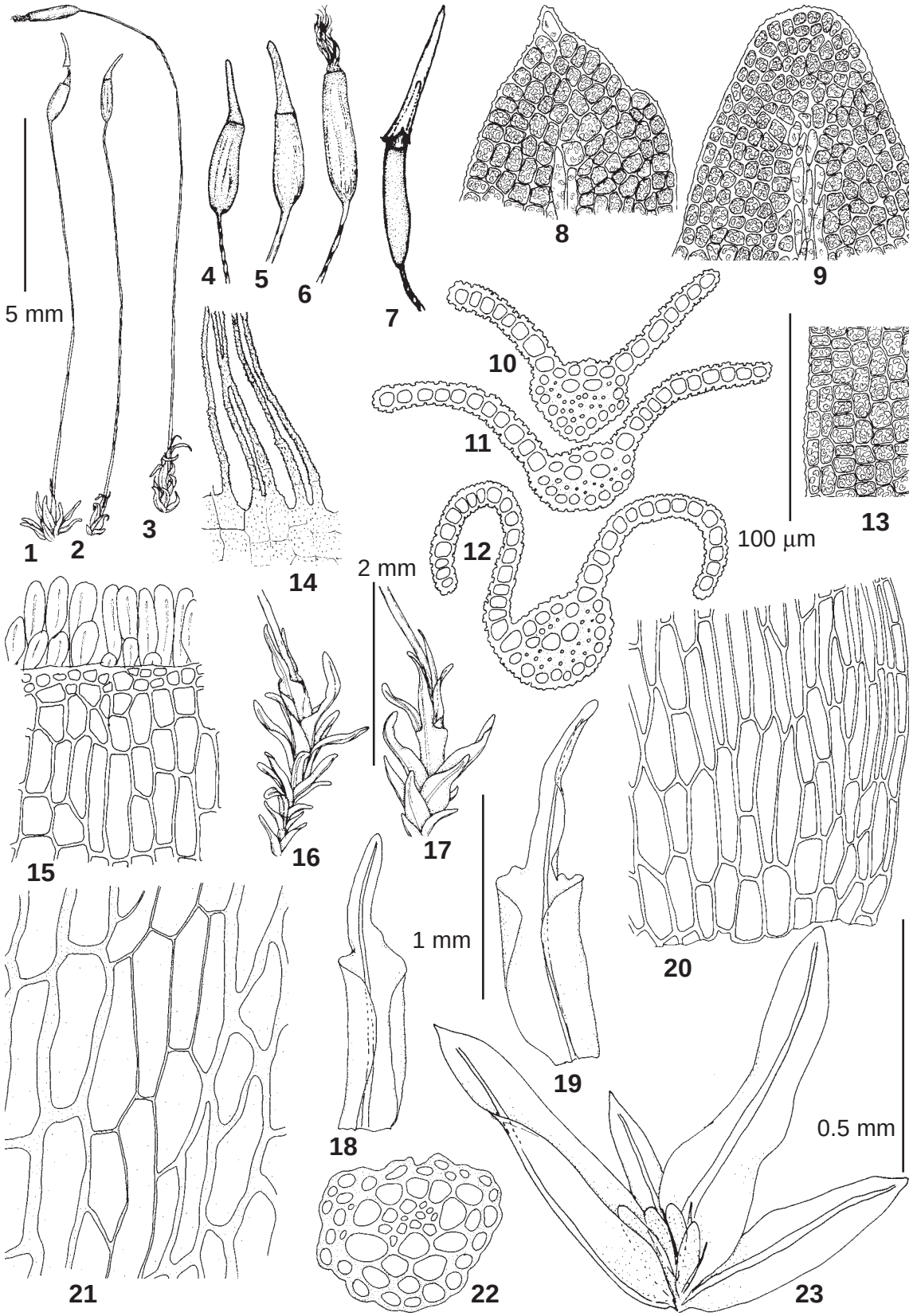
Type: East Siberia, Republic Sakha/Yakutia, Ust-Maya District, Allakh-Yun, Tarbagannakh, 61°06'N – 138°10'E, 1000 m alt., along old road, 24.VIII.2000 M. Ignatov 00-1060 (holotype MHA; isotypes in BUFF, MW, LE, H).

Barbula jacutica is probably most closely related to *B. eustegia* Card. & Thér., described in 1900 from Idaho, U. S. A., and known at present also from Washington, Oregon, Montana in U.S.A., and British Columbia in Canada (character states of *B. eustegia*, used in the present study are based on rather detailed original description of this species by Cardot & Thériot (1900), description of Lawton (1971) and speciemen of Ireland 6176, from Washington H!). *Barbula eustegia* has also small plants with upper leaves considerably larger, stem and costa in transverse sections exhibit the same patterns, perichaetial leaves similarly abruptly narrowed from sheating base to narrowly linear acumen (even narrower than in *B. jacutica*), and capsule is similar in shape. The differences of *B. jacutica* from *B. eustegia* are summarized in Table 1.

Both *B. jacutica* and *B. eustegia* resemble in some respects *Leptobarbula berica* (De Not.) Schimp., the only species of this genus with Medi-

Table 1. Differences between *Barbula eustegia* Card.& Thér. and *B. jacutica* sp.nov.

Character	*Barbula eustegia*	*Barbula jacutica*
Seta	10-25 mm long, yellow in mature sporophyte	10-16 mm long, reddish in mature sporophyte
Spores	7-10 μm	12-15 μm
Capsule urn	yellow-brown, 0.9-2.0 mm	reddish-brown, 0.9-1.3 mm
Costa	ending 1-2(-5) cells below apex to shortly excurrent	ending 5-8 cells below apex
Stem leaves of female plants	uniform in shape, oblong-lanceolate, gradually acuminate	variable in shape, oblong-lanceolate to ovate-lanceolate, abruptly or gradually (lower leaves) acuminate
Perichaetial leaves	gradually transiting to stem leaves	sharply delimited from stem leaves


5 mm
1
2
3
4
5
6
7
8
9
10
11
12
13
100 µm
14
2 mm
15
16
17
18
19
20
1 mm
21
22
23
0.5 mm

terranean distribution. *Leptobarbula* has also (1) oblong-lanceolate stem leaves, with plane margins and acute to obtuse tip; (2) much differentiated perichaetial leaves, abruptly contracted from the sheating base into lanceolate acumen; (3) similar leaf areolation and papillae; (4) elliptic to subcylindric capsule; (5) yellow KOH reaction. However *Leptobarbula* is smaller: stem leaves 0.7-0.8 mm long, perichaetial leaves to 1.5 mm long, seta 6-9 mm long, operculum 0.5-0.7 mm long, peristome teeth to 300 μm, slightly twisted; also costa in transverse section is semi-orbiculate to ovate (Zander, 1993).

ACKNOWLEDGEMENS

I'm very indebted to R. H. Zander for valuable comments on my questions about this species. This work was partly supported by the Russian Foundation for Basic Researches, grant 99-04-48198.

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