

DIPHYSCIUM SATOI TUZIBE (BRYOPSIDA: DIPHYSICIACEAE)  
DISCOVERED IN CHINA

НАХОДКА DIPHYSCIUM SATOI TUZIBE  
(BRYOPSIDA: DIPHYSICIACEAE) В КИТАЕ

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Abstract

*Diphyscium satoi* Tuzibe, previously known only from Japan and Korea, is reported from the Changbai Mountain, Jilin province, China. Description, illustrations and ecological data of this species are provided, the geographic distribution and the characteristic habitats of *Diphyscium satoi* are also discussed.

Резюме

*Diphyscium satoi* Tuzibe, ранее известный только из Японии и Кореи, впервые найден в Китае, провинции Жилин, в горах Чангбэй. Приводятся описание, иллюстрации и данные о местообитании, обсуждается географическое распространение вида.

Four species and one variety of *Diphyscium* Mohr have been recorded for China (Chen, 1955; Chen & al., 1978; Redfearn & al., 1996). They are distributed predominately in the southern part of the country. Of these present taxa, *D. granulolum* P.-C. Chen is endemic to Sichuan and Taiwan, *D. fulvifolium* Mitt. is endemic to East Asia and *D. involutum* Mitt. to South Asia, while *D. foliosum* (Hedw.) Mohr is currently known to be distributed in China, Japan, Europe, North and Central America, and Africa.

While engaged in the field work in the Changbai Mountain Natural Reserve, Antu County, Jilin Province, several interesting specimens of *Diphyscium* were collected on volcanic rocks in the *Picea-Abies* coniferous forest. They are identified as *Diphyscium satoi* Tuzibe, which was previously known only from Japan (Noguchi, 1987) and Korea (Deguchi, 1977) and is reported new to China here.

***Diphyscium satoi*** Tuzibe in Nakai, Iconogr. Pl. As. Ori. 2:114, pl. 47. 1937; Deguchi, Hikobia 8: 101-103, 1977; Noguchi, Illustr. Moss Fl. Japan, 1:10-14, 1987. Figs. 1-23

Plants small, to 5 mm tall, pale green to yellow green, scattered in flocks. Stems very short, with few branches. Leaves few; lower leaves erect

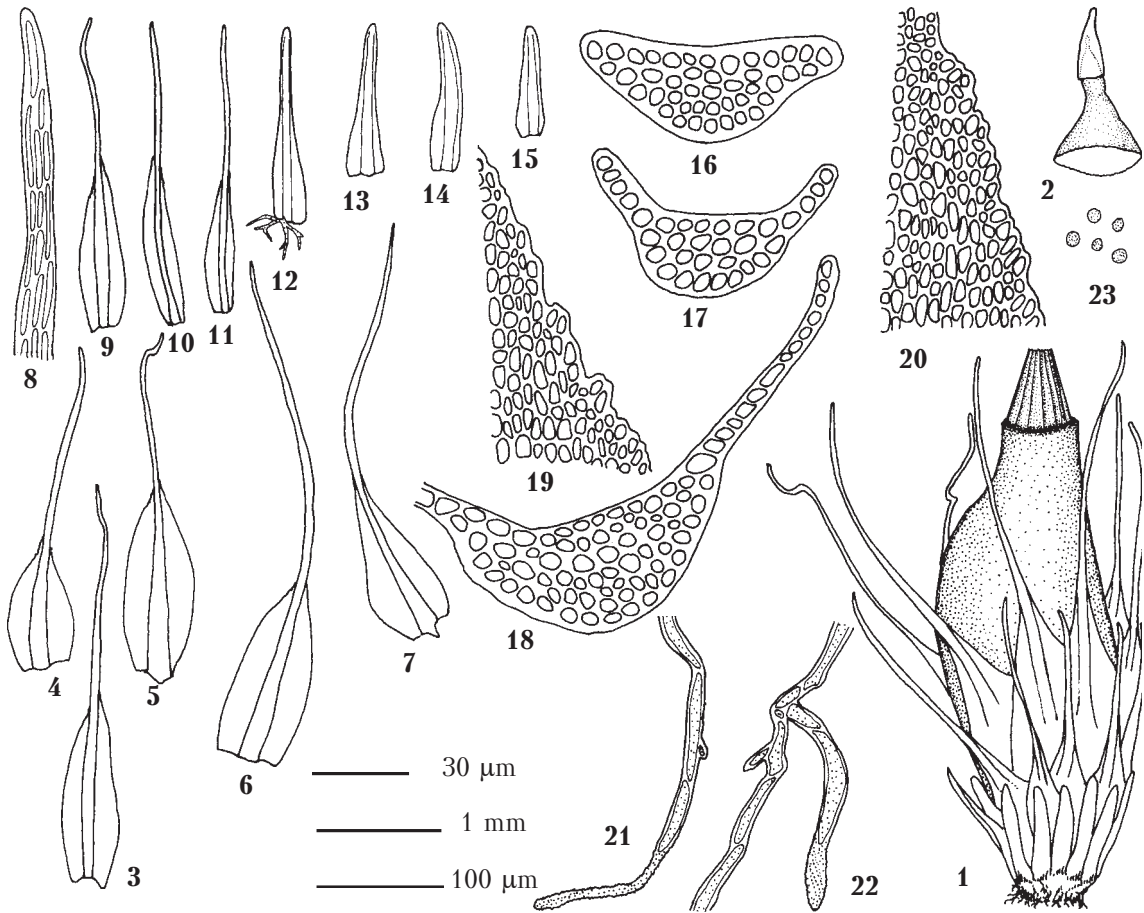
spreading, linear, ca. 0.5-1.0 mm long, obtuse at apex; upper leaves longer, ca. 1.2-1.4 mm long, incurved when dry, ovate-triangular, acute at apex; costa ending below apex. Laminal cells smooth, almost thin to pellucid in both flanks of costa; median-lower cells rectangular to hexagonal, unistratose in cross-section, alar cells not differentiated; upper cells bistratose, smaller. Perichaetial leaves ovate-oblong to elliptic, costa strong, distally thicker and protruding on back, excurrent in a long awn, smooth, usually curved or twisty; outer leaves smaller and shorter than inner leaves, elliptic or ovate-oblong, emarginate, crenate or dentate at upper part of lamina. Capsule ovoid-potform, asymmetrical, gray-green to brownish, to 3.2 mm long x 1.3 mm wide; setae very short, hidden in perichaetial leaves, stomata present. Operculum long-conic, with mucronate beak, 1.2-1.4 mm high, smooth. Exostome absent; endostome membranous, whitish truncate cone, folded like a fan with 16 plicae, densely papillose. Calyptra conic, ca. 0.5-0.7 mm long, covered upper part of operculum. Spores 10-13  $\mu$ m, yellowish, minutely papillose. Male plants minute, with few, small leaves.

**Habitat:** The Chinese populations of *Diphyscium satoi* are found only on bare volcanic

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Figs. 1-23. *Diphyscium satoi* Tuzibe (from J.-C. Zhao 98308). 1 - habit; 2 - operculum and calyptra; 3-7 - outer perichaetial leaves; 8 - upper part of perichaetial leaf; 9-11 - inner perichaetial leaves; 12-15 - stem leaves; 16-18 - cross sections of stem leaves; 19 - upper part of lamina of outer perichaetial leaf. 20 - upper part of lamina of inner perichaetial leaf; 21-22 - rhizoids; 23 - spores. Scale bars: 1 mm for 1-7, 9-15; 100  $\mu\text{m}$  for 8, 19-23; 30  $\mu\text{m}$  for 16-18.

rocks in montane *Picea+Abies* coniferous forest at elevations of 1300-1400 m in the Changbai Mountain, and occur scatteredly.

**Distribution:** In Japan, *Diphyscium satoi* was reported from Hokkaido and Honshu, and was considered as an endemic species to Japan (Noguchi, 1987). In fact, the species had been reported from Mt. Kongo of Korea by Deguchi before 1987 (Deguchi, 1977). The finding of the species in China extends its distributional range considerably and it can be considered as the East Asia species now. The characteristic habitat of volcanic rocks is the

same in both Japan (Noguchi, 1987) and China.

**Distinguishing features:** *Diphyscium satoi* is characterized by having: (1) highly reduced leaves; (2) crenate or dentate inner perichaetial leaves at apex; (3) smooth laminal cells, neither papillose nor mamillate; (4) the only habitat being volcanic rocks.

**Chinese specimens examined:** Jilin: Mt. Changbai (42° 24' N, 128° 28' E), Antu Co., 5. Sept. 1998. Zhao Jian-cheng 98308, 98362 (HBNU). Lai Ming-jou 98001 (Taiwan Regional Development Institute, HBNU, IFSBH).

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