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ENCALYPTA SINICA (MUSCI: ENCALYPTACEAE), A NEW SPECIES FROM NORTHERN CHINA

ENCALYPTA SINICA (MUSCI: ENCALYPTACEAE), НОВЫЙ ВИД ИЗ СЕВЕРНОГО КИТАЯ

JIAN-CHENG ZHAO[1], MIN LI[1] & JI-BIAO LI[2]

ЖЕНЬ-ШЕНЬ ЧЖАО[1], МИН ЛИ[1], ЧЖИ-БИАО ЛИ[2]

Abstract

Encalypta sinica, a new Chinese endemic from Mt. Xiaowutai, Hebei Province, China, is described and illustrated. The new species is distinguished by its calyptrae with densely arranged high-conic papillae, and by its leaf cells with a starlike papillae. The presence of distally "warty" spores places the new species in the section *Rhabdotheca* C. Müller.

Abstract

Дано описание и иллюстрации *Encalypta sinica*, нового вида из Китая, известного только с горы Xiaowutai, провинция Хебей. Описываемый вид отличается колпачком, густо покрытым высококоническими папиллами и звездчато папиллезными клетками листа. Споры на дистальной поверхности имеют крупные папиллы, что позволяет отнести *E. sinica* к секции *Rhabdotheca* C. Müller.

In a world-wide revision of Encalyptaceae, Horton (1982, 1983) accepted 19 species and 4 subspecies of the genus *Encalypta* Hedw. In China, there are only seven or eigth species accepted by Cao & al. (1992), Cao & Gao (1990, 1996) and Bai (1997), although Redfearn & al. (1996) listed eleven species. Among them, *E. buxbaumioidea* Cao, Gao et Bai was described as a new species from the Inner Mongolia (Cao & Gao, 1992). Thereafter, another new species, *E. tianschanica* Zhao, Hu et He was described from Tianschan Mountains, Xinjiang (Zhao & al., 1997).

While working through the bryophyte collections made in Xiaowutai Mountains, Hebei Province, we encountered an interesting moss that belongs to the genus *Encalypta*. Unlike other species of *Encalypta*, this species has costa stout, percurrent or shortly excurrent, and tend to have denticulates in the apices; calyptra is covered by densely arranged high-conic papillae, perisome is single, teeth are short-lanceolate and truncate, with sparse papillae throughout. This moss does not match any of the species already described (Horton, 1982, 1983; Cao & al., 1992; Cao & Gao, 1996; Zhao & al., 1997, etc.). It is described below as a new species.

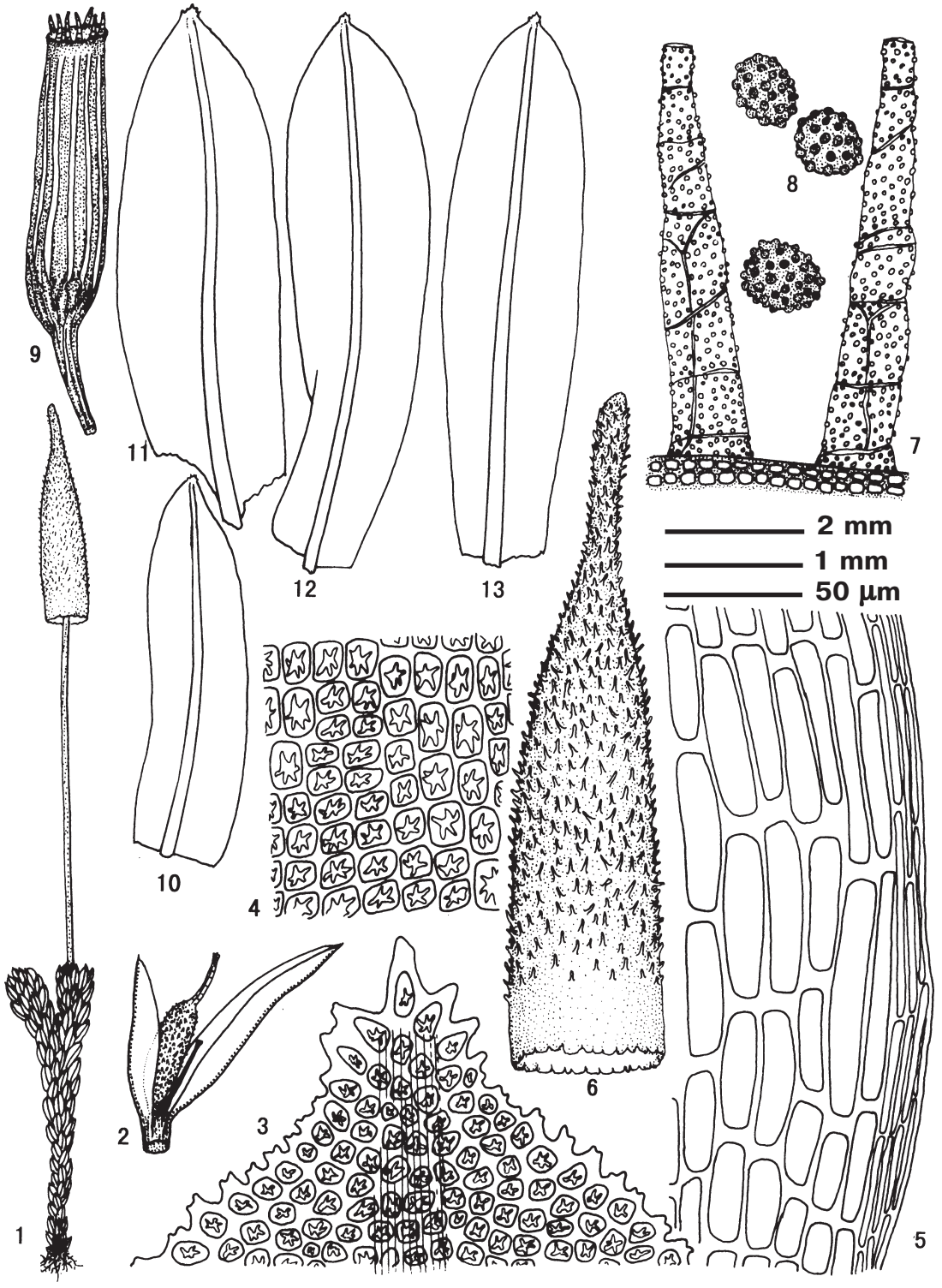
Encalypta sinica J.-C. Zhao et M. Li, sp. nov.

Type: China, Hebei Province, Mt. Xiaowutai (39°50' - 40° 07'N, 114°47' - 115°30'E), on soil or rock surface, Li Min 97047b, 5 August 1997 (Holotype in Department of Biology, Hebei Normal University). Figs. 1-19.

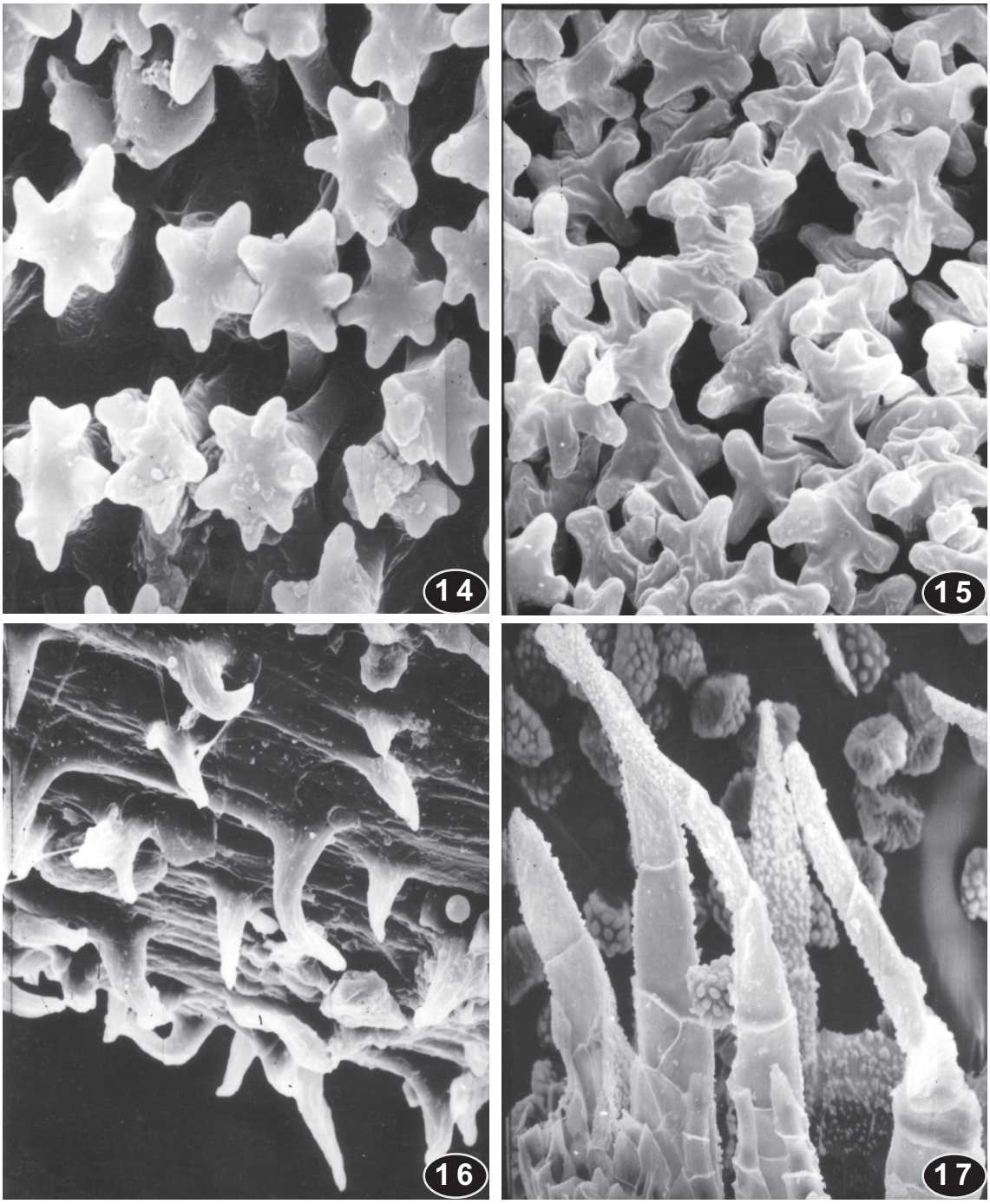
Plantae *Encalyptae rhaptocarpae* Schwaegr. similis. Differt ab *E. rhaptocarpa* foliis et calyptris. Folia oblongo-ovata vel oblongo-lingulata, cellulae superae stellatim verrucae, costa breviter excurrens. Calyptra dense papillosa, basi irregulariter fimbriata. Affinis *Encalyptae sibiricae* (Weinm.) Warnst., sed distincta. Capsula cylindrica in longitudinem exaratum. Calyptra dense papillosa supra basin, quo certe dignoscitur.

Plants small to middle size, ca. 1.2-1.4 cm high, light-green or yellow-green above, brown below. In tufts. Stem single or branched, without well-developed central strand in transverse section. Leaves incurved or slightly twisted when dry, erect-spreading when moist, 2.5-3.5 mm long, 0.60-0.85 mm wide, oblong-ovate to oblong-ligulate, obtuse; margins plane to more or less incurved; median-upper cells irregularly rounded to quadrate, 10-16 μm, with a stellate papillae; basal cells

1 – Department of Biology, Hebei Normal University, Shijiazhuang 050016 China
2 – Experimental Center, Hebei Normal University, Shijiazhuang 050016 China

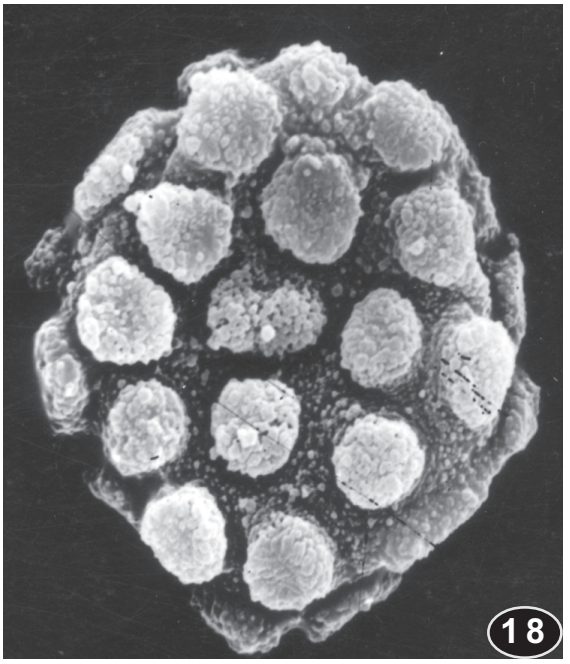


Figs. 1-13. *Encalypta sinica* J.-C. Zhao et M. Li (from holotype, M. Li 97047b, HBNU): 1 – plant; 2 – young sporophyte; 3 – apical leaf cells; 4 – median leaf cells; 5 – basal leaf cells; 6 – calyptra; 7 – peristome; 8 – spores; 9 – capsule; 10-13 – vegetative leaves. Scale bars: 2 mm for 1, 1 mm for 2, 6, 9-13; 50 µm – for 3-5, 7-8.



Figs. 14-17. *Encalypta sinica* J.-C. Zhao et M. Li (from holotype, M. Li 97047b, HBNU): 14 – abaxial surface of median laminal cells (2500x); 15 – abaxial surface of upper laminal cells (2500x); 16 – high-conic papillae on calyptra surface (2500x); 17 – peristomes (400x).

oblong, 14-18 x 35-85 μm, with reddish, distinctly thickened transverse walls, 3-4 rows of marginal cells linear, 5-7 x 38-75 μm, thin-walled, paler in color. Autoicous. Perichaetial leaves little differentiated from vegetative, somewhat smaller than upper stem leaves. Setae reddish-brown, 4-6 mm long, erect, slightly twisted above when dry; capsules cylindric, the base is broad and somewhat enlarged distally, ca. 4.0-5.0 mm long, with dark-red, longitudinal ribs on surface. Peristome single,



Figs. 18-19. *Encalypta sinica* J.-C. Zhao et M. Li (from holotype, M. Li 97047b, HBNU):18 – distal face of spore (2500x); 19 – proximal face of spore (2500x).

orange, 330 μm long, teeth 16, erect to inflexed, regularly lanceolate to truncate, outer surface of each tooth with 1(2) vertical rows of cell plates, smooth, inner surface strongly papillose, with 2 vertical rows of cell plates basally; preperistome present, well-developed, and smooth. Annulus undifferentiated. Opercula with a long, straight beak. Calyptrae cylindric, golden to golden-brown, covering the whole capsule, with dense high-conic papillae throughout except the base, which is irregularly fringed; rostrum long, erect, 0.2-0.3 length of calyptra. Spores yellowish brown, 24-32 μm, nearly smooth on proximal surface, with large warty papillae on distal surface.

Encalypta sinica is named after China, the locality of this species. The warty spores of *E. sinica* link it to the section *Rhabdotheca*. Within this section, *E. sinica* appears to be closely related to *E. raptocarpa* in having well-developed, lanceolate peristome teeth, prominent capsule ribs, and undifferentiated annuli. It differs from the latter species by its calyptrae with dense high-conic papillae, and by its leaf cells with stellate papillae. In *E. rhaptocarpa*, however, the calyptrae are smooth or nearly so, upper hair-pointed or muticous, upper cells with dense papillae.

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LITERATURE CITED

BAI, X.-L. 1997. Flora Bryophytarum Intramongolicarum. – *Hohhot, Intramongolicae Univ. Press, 542.*

CAO, T. & C. GAO 1990. A new species of Encalypta (Musci) from China. – *Acta Bryolichenologica Asiatica* **2**: *1-4.*

CAO, T., D. G. HORTON & C. GAO 1992. A revision of the genus Encalypta (Encalyptaceae, Musci) in China. – *Bryobrothera* **1**: *251-268.*

CAO, T. & C. GAO 1996. Encalyptaceae. – *In: Flora Bryophytarum Sinicorum. Vol. 2. Beijing, Sci. Press: 99-112.*

HORTON, D. G. 1982. A revision of Encalyptaceae (Musci) with particular reference to the North American taxa. Part. 1. – *J. Hattori Bot. Lab.* **53**: *365-418.*

HORTON, D. G. 1983. A revision of Encalyptaceae (Musci) with particular reference to the North American taxa. Part. 2. – *J. Hattori Bot. Lab.* **54**: *353-532.*

REDFEARN, P. L. Jr., B. C. TAN & S. HE 1996. A newly updated and annotated checklist of Chinese mosses. – *J. Hattori Bot. Lab.* **79**: *163-357.*

ZHAO, J.-C., S. HE & R.-L. HU 1997. Encalypta tianschanica (Musci: Encalyptaceae), a new species from Western China, with a key to the species of Encalypta in Xinjiang. – *Novon* **7**: *320-322.*