

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

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

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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 eight 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 Tianshan 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.

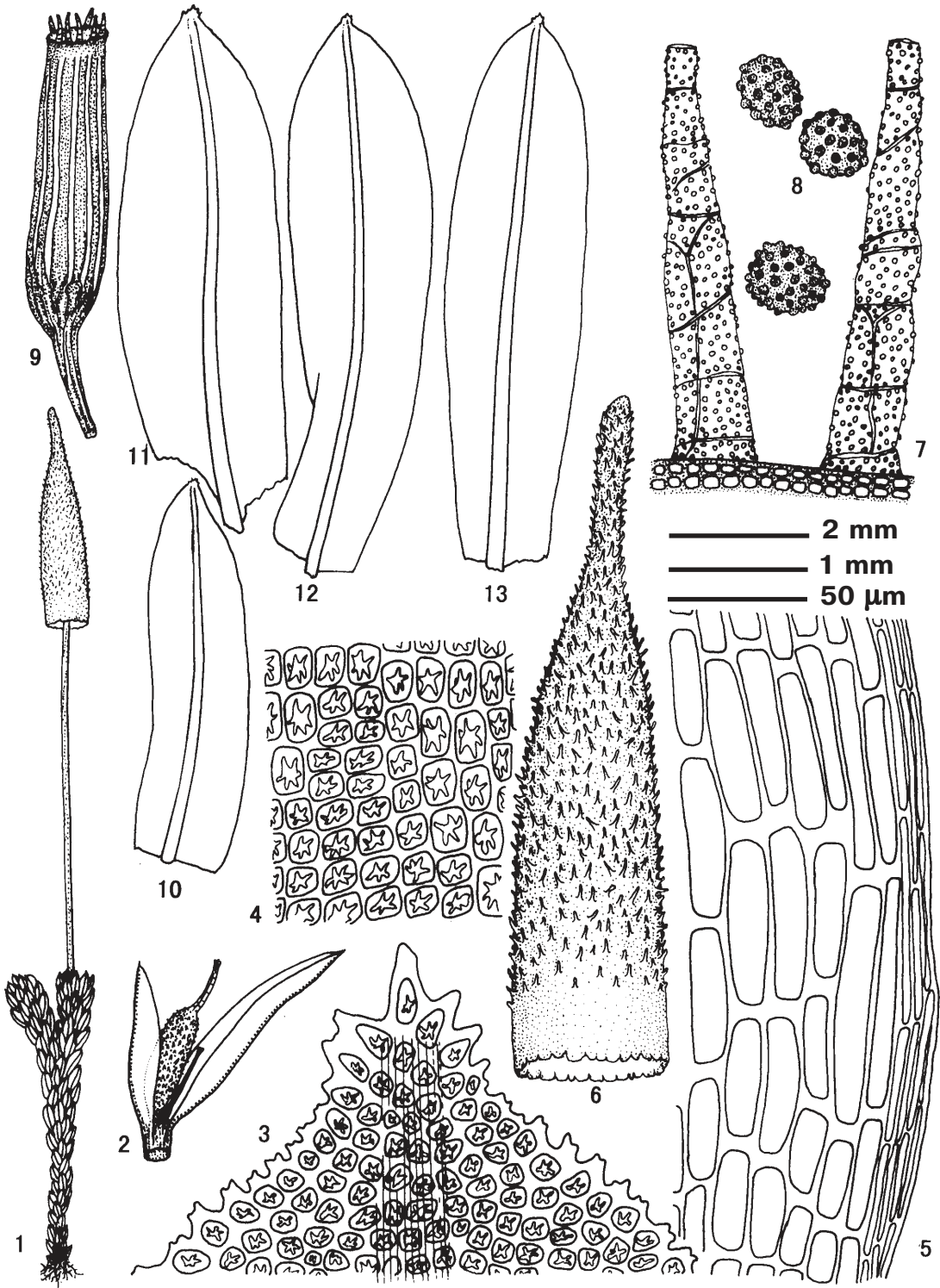
Type: China, Hebei Province, Mt. Xiaowutai (39°50' - 40° 07'N, 114°47' - 115°30'E), on soil or rock surface, Li Min 97047b, 5 August 1997 (Holotype in Department of Biology, Hebei Normal University). Figs. 1-19.

Plantae *Encalyptae rhaptocarphae* 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.

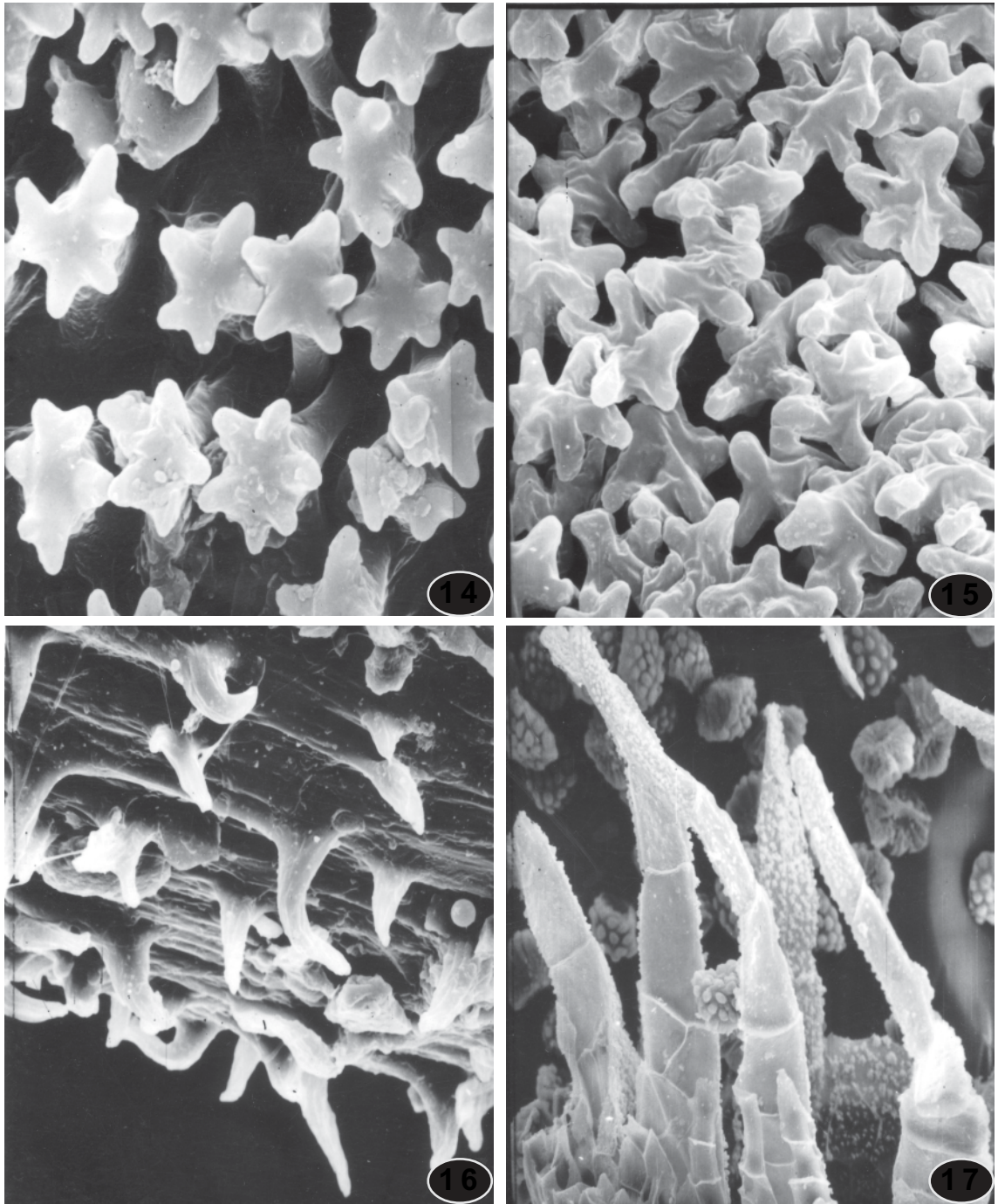
Plants small to middle size, ca. 1.2-1.4 cm high, light-green or yellow-green above, brown below. In tufts. Stem single or branched, without well-developed central strand in transverse section. Leaves incurved or slightly twisted when dry, erect-spreading when moist, 2.5-3.5 mm long, 0.60-0.85 mm wide, 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

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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  $\mu\text{m}$ , with reddish, distinctly thickened transverse walls, 3-4 rows of marginal cells linear, 5-7 x 38-75  $\mu\text{m}$ , 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 cylindrical, 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  $\mu\text{m}$  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  $\mu\text{m}$ , 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. raptocarpa*, however, the calyptrae are smooth or nearly so, upper hair-pointed or mucous, upper cells with dense papillae.

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