A moss family Rhachitheciaceae new to Guizhou, China

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Abstract: The Rhachitheciaceae is a small family with one widly distributed and 14 narrowly distributed species belonging to seven genera. It was established by Robinson in 1964. Previously, no any species of this family was reported from Guizhou province, China. The present paper reports *Rhachithecium perpusillum* for the first time for Guizhou province. The description and illustration of *R. perpusillum* based on the specimen from Pndin county are presented.

Key words: Family Rhachitheciaceae; *Rhachithecium perpusillum*; New record; Guizhou

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The small moss family Rhachitheciaceae which includes two genera *Rhachithecium* Broyh. ex Le. Jel. and *Hypnodontopsis* Iwats. & Nog. was established by Robinson in 1964 to include two genera from Orthotrichaceae: The genus *Jonesiobryum* Allen & Pursell was transferred from Funariaceae to Rhachitheciaceae by Allen and Pursell (1991) and Zander (1993) included the genus *Tisserantiella* P. de la Varde. from the Pottiaceae to this family. Goffinet (1977) added *Uleastrum* Buch. In this family too. Up to date seven genus and 15 species have been accepted in the family Rhachitheciaceae (Goffinet 1997).

The Rhachitheciaceae may be recognized by the Orthotrichaceae appearance with distinctive sheathing perichaetial leaves, single peristome consisting of 16 teeth fused into 8 pairs and 8 ribbed capsules. (Zande 1993; O'Shea 1997; Goffinet 1997).

All the species of this family except *Rhachithecium purpusillum* (Thwait. & Mitt.) Broth. are narrowly distributed in tropical and subtropical regions of both hemispheres *Rhachithecium purpusillum* is widely spreading in Africa, America and Southeast Asia(Fig. 1). In China, *Rhachithecium purpusillum* has been recorded from Yunnan province: Yunnanfu; Bei Hsinlung 25°24′(507); Sanyingpan 26°(676); Zwischen Hsiangschuiho; Sunggwe 26°17′Hoding (6546); and Sichuan province: Helugo Yalyng Yenyuen (2480). (Broth. 1929).

In the latest checklist of mosses in Guizhou province(Xiong yuanxin 1997)Rhachitheciacee was not included. Therefore, the family Rhachitheciaceae including the genus Rhachithecium and R. purpusillum are newly reported to Guizhou based on the material collected from Pudin county of Guizhou.

Rhachitheciaceae Robinson

The family is characterized by having spathulate or lingulate stem leaves; basal cells hyaline; rectangular; costa single, extending to the upper portion of the leaf; perichaetia terminal on the stem; and peristome single, 16 teeth in 8 pairs(Zander 1993).

Rhachithecium Broth. ex Le Jolis. ,Mem. Soc. Sc. Nat. Math. Cherbourg, **29**: 308. 1895.

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Four species were described in this genus: *R. welwitschii* (Dudy.) Zander. is endemic to Angola; *R. papillosum* (Williams) Wijk. & Marg. is endemic to Philippines and India; And *R. nipponicum* (Toyama) Wijke & Marg. is endemic in Japan. The following is revised key to species of *Rhachithecium*:

1. Peristome lacking ····· *R. nipponicum*
1. Peristome present ····· 2.
2. Leaf cells smooth ····· 3.
2. Leaf cells papillose ····· *R. papillosum*
3. Annulus unistratose ····· *R. perpusillum*
3. Annulus bistratose ····· *R. welwitschii*

Rhachithecium purpusillum (Thwait. & Mitt.) Broth., Nat. Pfl. 1(3): 1199. 1909. (Plate I).

Plant minute, simple, densely matted on tree bark. Stems very short or almost stemless, radiculose at base, 0.5～1.5 mm high. Including leaves, yellowish-green or brownish. Lower leaves small, 0.4～0.7 mm long, 0.1～0.2 mm wide; upper leaves long, obovate-spathulate, broadly acute at tips, about 0.8～1.5 mm long, 0.45～0.55 mm wide; upper leaf cells roundish-hexagonal, 10～20 μm in diameter, smooth or mammillose; basal leaf cells rectangular, 40～90 μm long, 15～30 μm wide, lighte or hyaline, thin-walled, larger, smooth; marginal cell narrow. Costa slender, ending much below the leaf tip. Propagula abundant on the upper surface of leaves or the base of costa, light-green, 80～140 μm long, 45～65 μm wide, composed of 2～6 cells. Perichaetial leaves 2～3, conspicuous, erect and convolute-sheathing, oblong-lanceolate, 1～2.4 mm long, acute at apex; costa ending below apex of the leaf. Seta short, erect or bent at top, smooth, about 1.8～2.8 mm long, usually twisted when dry. Capsule erect or inclined, ovate-cylindrical, symmetric, about 0.54 mm high, 0.39 mm in diameter, strong 8-ribbed and contracted below the mouth when dry, elliptic and scarcely ribbed when moist. Annula composed of one row of hyaline cells. Operculum short-conical. Peristome consisted of 16 teeth fused at base in 8 pairs, smooth, reflexed when dry and incurved when moist, lanceolate, about 140 μm high, with reansverse striation. Calyptra cucullate, scabrous by projection of upper cells. Spores rough, spherical, 21～28 μm in diameter.

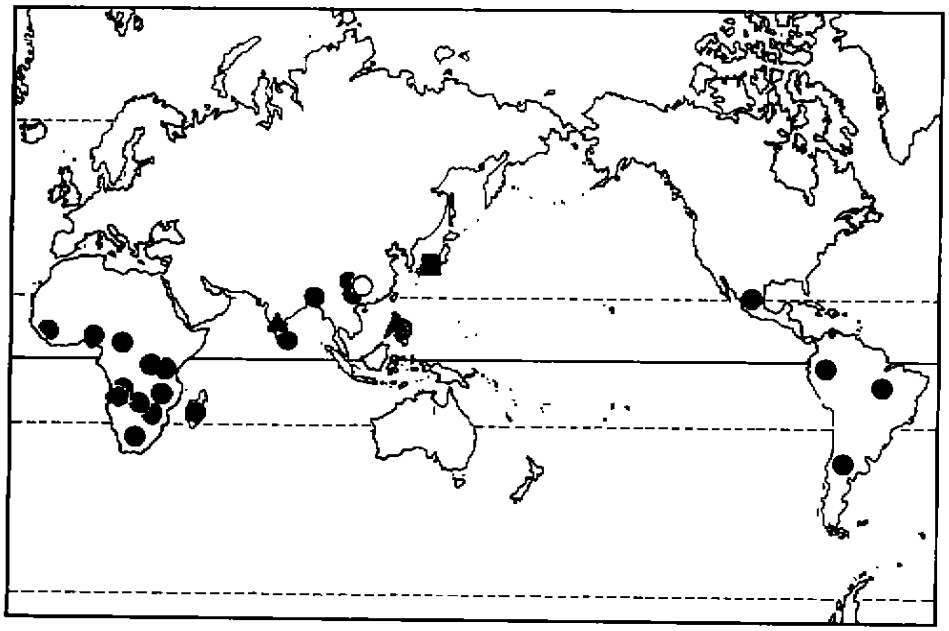

Fig. 1 The distribution patterns of *Rhachithecium* species in the world

● *R. welwitschii* (Dudy.) Zander.; ▲ *R. papillosum* (Williams) Wijk & Marg.; ■ *R. nipponicum* (Toyama.) Wijk & Marg.; ● *R. perpusillum* (Thwait. & Mitt.) Borth.

Specimen examined: China, Guizhou province, Pudin county, Xinzhai, alt. 1 160 m, 26°30′ N, 105° 75′ E, on trunk of *Prunus*: 15 December 1998, Xiong Yuanxin 98971.

The specimen of species that was collected from Guizhou is different from that of the other regions with

cell of leaves, propagulas and spores. *Rhachithecium purpusillum* is characterized by having smooth or some what manimillose leaf cells; large spores (21～28 μm) and gemmae on upper surface of leaves. It is different from that of *R. papillosum* and *R. nipponicum*.

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刺蘚科在贵州的发现

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摘 要：刺蘚科(Rhachitheciaceae)为 Robinson 1964 年从木灵蘚科(Orthotrichaceae)中分出来的 1 个小科。现知全世界有 7 属和 15 种，除刺蘚(*Rhachithecium purpusillum*)外，均为热带、亚热带分布狭窄的属种，刺蘚科在中国仅刺蘚属 1 种，分布于云南和四川。描述了首次采自贵州刺蘚科的种类刺蘚(*Rhachithecium purpusillum*)以及刺蘚科的形态特征。

关键词：刺蘚科；刺蘚；新记录；贵州

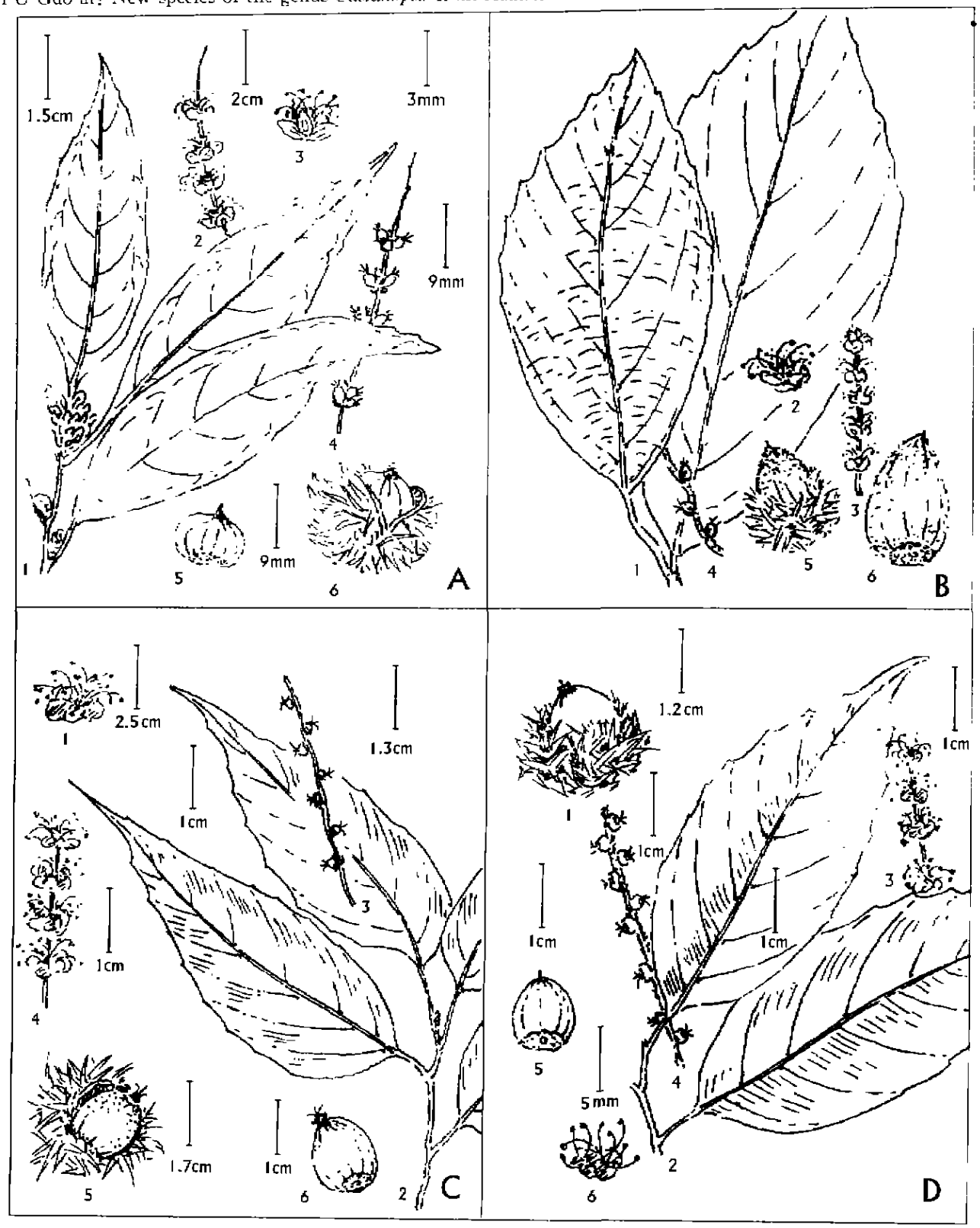

图 A　1. 叶枝 A leaves branch；2. 雄花序 Inflorescence ♂，3 雄花 Flower ♂；4. 雌花序 Inflorescence ♀；5. 坚果 Nucula；6. 带坚果壳斗 Cupula with nucula.

图 B　1. 叶枝 A leaves branch；2. 雄花 Flower ♂；3. 雄花序 Inflorescence ♂；4. 雌花序 Inflorescence ♀；5. 带坚果壳斗 Cupula with nucula；6. 坚果 Nucula

图 C　1. 雄花 Flower ♂；2 叶枝 A leaves branch；3. 雌花序 Inflorescence ♀；4. 雄花序 Inflorescence ♂；5. 带坚果壳斗 Cupula with nucula；6. 坚果 Nucula.

图 D　1. 带坚果壳斗 Cupula with nucula；2. 叶枝 A leaves branch；3. 雄花序 Inflorescence ♂，4 雌花序 Inflorescence ♀；5 坚果 Nucula，6. 雄花 Flower ♂.（王其兴　绘）