

银莲花属一新组和一新种

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A new section with a new species of *Anemone* (Ranunculaceae) from Mt. Xiaowutai, China

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Abstract In the present paper, a new sect. *Leptotheca* W. T. Wang & Bing Liu with its only new species, *Anemone xiaowutaishanica* W. T. Wang & Bing Liu, of the genus *Anemone* is described and illustrated. In having vertical rhizome, rosulate leaves, 1-flowered cyme, sessile involucre bracts, linear stamen filaments, tricolpate pollen grains with spinulose tectum, and subulate styles, sect. *Leptotheca* is related to sect. *Himalayicae* (Ulbr.) Juz. From the latter it differs in its 3-parted or 3-sect involucre bracts, 3 carpels per flower, and strongly bilaterally compressed ovary, and with these advanced characters it is remarkably more advanced than sect. *Himalayicae*, and might be derived from the latter. *Anemone xiaowutaishanica* with its small distribution area restricted to a valley in the Mt. Xiaowutai, Hebei Province, China is obviously a stenochoric species, and on the basis of its advanced morphological characters it may be regarded as a neoendemic.

Key words *Anemone*, China, Mt. Xiaowutai, new section, new species, Ranunculaceae.

摘要 本文描述了中国河北省小五台山的毛茛科Ranunculaceae银莲花属*Anemone*一新组——小五台银莲花组sect. *Leptotheca* W. T. Wang & Bing Liu及其一新种——小五台银莲花*A. xiaowutaishanica* W. T. Wang & Bing Liu, 并绘出墨线图。此新组与钝裂银莲花组sect. *Himalayicae*同具以下形态特征: 垂直的根状茎, 丛生的基生叶, 具1花的聚伞花序, 条形花丝, 具三沟的花粉粒, 具小刺的覆盖层, 钻形花柱, 而与后者相近缘; 但其总苞苞片分裂程度较大, 3深裂或3全裂, 每花只有3枚心皮, 子房强烈两侧扁压, 而与后者相区别; 同时, 根据上述进化特征可见新组比钝裂银莲花组演化水平高, 可能自后者分化而出。小五台银莲花的分布区很小, 只分布在河北小五台山的山涧口附近的一山谷中, 显然是一狭域分布种; 此外, 再根据其上述进化形态特征, 推测其可能是一新特有种。

关键词 银莲花属; 中国; 小五台山; 新组; 新种; 毛茛科

本文第二作者于2006年9月和2007年9月两次到河北小五台山考察, 在该山的山涧口附近一山谷中采到毛茛科Ranunculaceae银莲花属*Anemone* L.一开花的小草本植物, 根据对此植物的营养器官和花部诸器官外部形态的全面观察, 并参阅有关Juzepcuk (1937)、Ohwi (1965)、王文采(1980)、Wang等(2001)等文献, 确定此植物为银莲花属的一个新种; 再根据Ulbrich (1905–1906)和Tamura (1955)的银莲花属专著, 进一步确定此新种实乃代表银莲花属中一个与钝裂银莲花组sect. *Himalayicae* (Ulbr.)

Juz.亲缘关系相近的新组, 现在本文中发表。

小五台银莲花组

Anemone L. sect. **Leptotheca** W. T. Wang & Bing Liu, sect. nov. Type: *Anemone xiaowutaishanica* W. T. Wang & Bing Liu.

Ob rhizoma verticale, folia basalia rosulata, cymam 1-floram, involucri bracteis sessiles, staminum filamenta linearia, pollenis granula tricolpata, tecto superficie spinuloso et carpellorum stylos subulatos section nova haec est affinis sect. *Himalayicis* (Ulbr.) Juz., quae involucri bracteis lobatis vel indivisis raro tripartitis, carpellis per florem pluribus (5–8)10–30(80) in numero, ovario plus minusve obovoideo haud compresso staim differt.

Rhizoma subteres, verticale. Folia basalia multa rosulata, longe petiolata, 3-secta. Cyma 1-flora;

involucris bractearum 3, sessiles, leviter inaequales, 3-partitae vel 3-sectae. Sepala 5–6, obovata, alba. Stamina numerosa, filamentis linearibus, antheris ellipticis, pollenis granulis tricolpatis cum tecto spinuloso. (Fig. 2: 1, 2) (Xi & Chang, 1964; Huynh, 1970). Carpella 3, glabra, ovariis valde bilateraliter compressis complanatis late oblongis, stylis ovariis leviter brevioribus subulatis.

Species unica, in Monte Xiaowutai, Prov. Hebei, Sina habitat.

Etymology. Lepto+thece: Greek for *thin chest*, indicating the thin and flat ovary of *Anemone xiaowutaishanica*.

根状茎近圆柱形, 垂直。基生叶多数, 丛生, 具长柄, 3全裂。聚伞花序具1花; 总苞苞片3, 无柄, 稍不等大, 3深裂或3全裂。萼片5–6, 倒卵形, 白色。雄蕊多数; 花丝条形; 花药椭圆形; 花粉粒具3沟, 覆盖层表面具小刺(图2: 1, 2)。心皮3, 无毛; 子房强烈两侧扁压, 扁平, 宽长圆形; 花柱比子房稍短, 钻形。

1种, 分布于河北小五台山。

本组在根状茎垂直生, 基生叶丛生, 聚伞花序具1花, 总苞苞片无柄, 雄蕊花丝条形, 花粉粒具3沟, 覆盖层具小刺, 心皮具钻形花柱等特征方面与钝裂银莲花组 sect. *Himalayicae* 相似(图2), 而与后者有相近的亲缘关系, 但本组的总苞苞片3深裂或3全裂, 花只具3枚心皮, 子房强烈两侧扁压, 而与后者不同。在钝裂银莲花组, 总苞苞片3浅裂或不分裂, 稀3深裂, 花具(5–8)10–30(80)枚心皮, 子房多少卵球形, 不两侧扁压。本组上述苞片分裂程度较大, 花的心皮数目发生减化, 子房强烈扁压等现象, 均为进化特征, 并说明此新组的演化水平比钝裂银莲花组的高, 可能由后者演化而来。

小五台银莲花 图1, 2

Anemone xiaowutaishanica W. T. Wang & Bing Liu, sp. nov. Figs. 1, 2

Herba perennis parva. Rhizoma verticale, subteres, circ. 3 cm longum, 7 mm crassum, apice rosula reliquorum foliorum basalium emotorum donatum, basi deorsum radices 2–3 circ. 7 cm longas 3 mm crassas emittens. Folia basalia circ. 12, rosulata; laminae papyraceae, ambitu pentagonae, 1–2.5 cm longae, 2–3.5 cm latae, basi cordatae, 3-sectae, segmento primario mediano sessili vel petiolulato late rhombico 1.2–2 cm lato 3-partito, lobo secundario mediano cuneato-obovato 3-dentato vel 3-lobulato, lobis secundariis lateralibus oblique anguste obovatis

inaequaliter 2-lobulatis, segmentis primariis lateralibus sessilibus vel breviter petiolulatis inaequaliter 2-partitis vel 2-sectis, lobis secundariis inaequalibus pauca lobatis, utrinque glabrae, basi sparse pubescentes; petioli 4–7 cm longi, basi anguste vaginati, sparse pubescentes. Scapus unicus 6–7 cm altus, superne sparse pubescens. Cyma uniflora; involucris bractearum 3, sessiles vel subsessiles, leviter inaequales, rhombicae vel rhombico-ovatae, 0.6–1.1 cm longae, 5–9 mm latae, 3-partitae vel 3-sectae, segmentis rhombicis vel anguste oblongis 2–3-lobulatis, supra sericeo-pubescentes. Flos circ. 9 mm in diametro; pedicellus 1.3–1.5 cm longus, basi et apice sparse pubescens; sepala 5–6, supra alba, subtus dilute purpurea, obovata vel elliptico-obovata, 4–6 mm longa, 2.5–4 mm lata, apice rotundata vel obtusa, raro retusa, glabra; stamina circ. 40, 1.5–2.2 mm longa, glabra, filamentis linearibus 0.8–1.6 mm longis, antheris late ellipticis vel late ovatis 0.8–1 mm longis 0.4–0.8 mm latis, pollenis granulis tricolpatis, tectis spinulosis; carpella 3, circ. 2.2 mm longa, glabra, ovariis valde bilateraliter compressis late oblongis 1.2 mm longis, stylis rectis vel leviter curvatis 1 mm longis. Achenia ignota.

多年生小草本。根状茎垂直, 近圆柱形, 长约3 cm, 粗7 mm, 顶端有一丛枯基生叶残余, 向下生出2–3条长约7 cm, 粗3 mm的根。基生叶约12, 丛生; 叶片纸质, 轮廓五角形, 长1–2.5 cm, 宽2–3.5 cm, 基部心形, 3全裂, 一回中央裂片无柄或具柄, 宽菱形, 宽1.2–2 cm, 3深裂, 二回中央裂片楔状倒卵形, 有3牙齿或3浅裂, 二回侧裂片斜狭倒卵形, 不等2浅裂, 一回侧裂片无柄或具短柄, 不等2深裂或2全裂, 二回裂片不等大, 具少数小裂片, 叶片两面无毛, 基部有疏柔毛; 叶柄长4–7 cm, 基部具狭鞘, 被疏柔毛。花葶1条, 高6–7 cm, 上部有疏柔毛。聚伞花序有1花; 总苞苞片3, 无柄或近无柄, 稍不等大, 菱形或菱状卵形, 长0.6–1.1 cm, 宽5–9 mm, 3深裂或3全裂, 全裂片菱形或狭长圆形, 有2–3小裂片, 上面被绢状柔毛。花直径约9 mm; 花梗长1.3–1.5 cm, 基部和顶端有疏毛; 萼片5–6, 上面白色, 下面淡紫色, 倒卵形或椭圆状卵形, 长4–6 mm, 宽2.5–4 mm, 顶端圆形或钝, 稀微凹, 无毛; 雄蕊约40, 长1.5–2.2 mm, 无毛, 花丝条形, 长0.8–1.6 mm, 花粉粒具3沟, 覆盖层具小刺; 心皮3, 长约2.2 mm, 无毛, 子房强烈两侧扁压, 宽长圆形, 长1.2 mm, 花柱直或稍弯曲, 钻形, 长1 mm。瘦果不详。

China. Hebei (河北): Mt. Xiaowutai (小五台



图1 小五台银莲花 A, 植株; B, 花(自主模式); C, 基生叶; D, 花; E, 一外轮雄蕊(右)和一内轮雄蕊(左); F, 心皮(自主模式)。(孙英宝根据刘冰983号标本绘)

Fig. 1. *Anemone xiaowutaishanica* W. T. Wang & Bing Liu. A, habit; B, flower (from holotype); C, basal leaf; D, flower; E, two stamens, one outer (right), and another inner (left); F, carpel (from paratype). Drawn by Y. B. Sun from Bing Liu 983 (holotype, PE).

山), Shanjiankou (山涧口), alt. 1692 m, in grassy-place by stones on shrubby slope in valley, herb, 10 cm tall, sepals adaxially white, abaxially purplish, 2007-09-15, B. Liu (刘冰) 983 (holotype, PE); the same locality, flowers white, 2006-09-03, B. Liu (刘冰) 415 (paratype, PE).

小五台山是我国北部最高山, 最高峰海拔2882 m (Hunan cartographic publishing house, 2005), 拥有

丰富的植物区系, 从19世纪70年代起到现在, 有很多植物学家或采集家到此山进行植物学考察, 在新中国成立前先后有W. Hancock (英国人, 1876), O. F. von Moellendorff (德国人, 1879), F. N. Meyer (美国人, 1913), Y. Nagai (日本人, 1914), E. Licent (法国人, 1917和1929), H. Smith (瑞典人, 1921), J. Hers (比利时人, 1922), Y. Takenako (日本人, 约1940)。国人中最早到小五台山进行植物学考察的是前北

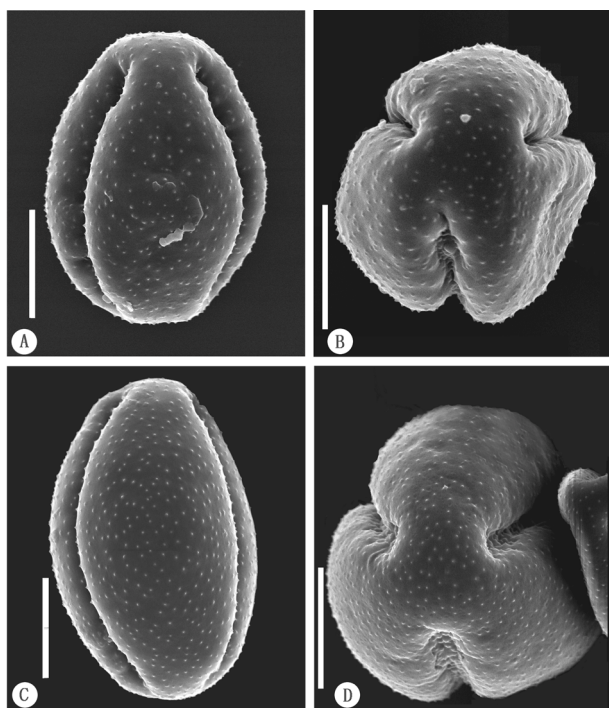


图2 花粉粒(扫描电镜照片) A, B. 小五台银莲花(自刘冰 983)。A. 赤道观。B. 极面观。C, D. 疏齿银莲花(自黄秀兰 1763)。C. 赤道观。D. 极面观。

Fig. 2. Pollen grains (SEM photomicrographs). A, B. *Anemone xiaowutaishanica* (from B. Liu 983). A, Equatorial view. B, Polar view. C, D, *Anemone obtusiloba* ssp. *ovalifolia* Brühl (from X. L. Huang 1763). C, Equatorial view. D, Polar view.

Scale bars=10 μ m.

平研究院植物研究所的孔宪武和王作宾二先生,他们在1933年左右对此山的植物区系进行研究,采到1326号有花植物标本,根据鉴定结果发表“小五台山有花植物”一文(Kung & Wang, 1934),文中包含83科325属615种,还给出各科的分属和分种检索表;王作宾先生在文中发表罂粟科Papaveraceae紫堇属*Corydalis* DC.一新种——小五台延胡索*C. hsiaowutaishanensis* T. P. Wang,这是中国人发现的紫堇属第一个新种。也在那时,静生生物调查所的王启无和刘瑛二先生也到该山考察,采集植物标本。以后,清华大学生物系的杨承元先生研究了该山的森林植被,并发表了研究论文(Yang, 1937)。新中国成立后,北京市、河北省等有关研究机构及高等院校的研究人员、教师等都曾多次到该山考察。

经过130多年对小五台山多次考察之后,到去年秋季才在此山的一山谷中发现了本文的新种小五台银莲花,这个情况说明此新种是具有很小分布区的狭域分布种。此外,根据此新种所具有的上述进化形态特征,我们推测此种可能是过去地质时期中起源较晚的一个新特有种(Wang, 1992; Ying et al., 1993)。本种的居群小,包含少数个体,应注意保护。

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