

中国四川蓼科荞麦属一新种——皱叶野荞麦

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Fagopyrum crispatifolium J. L. Liu, a new species of Polygonaceae from Sichuan, China

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Abstract *Fagopyrum crispatifolium* J. L. Liu, a new species of the Polygonaceae from Luojiangshan, Puge, Sichuan Province, China, is described. This species is closely related to *F. gracilipes* (Hemsl.) Damm. & Diels, but differs in having leaf blade bullate on the surface, margin corrugated with irregular sinuous-crenate, crenate or crenellate, cyme conferted. It is tetraploid with $2n=4x=32$.

Key words Chromosome number, *Fagopyrum*, *Fagopyrum crispatifolium* J. L. Liu, new species, Sichuan, China.

摘要 描述了蓼科Polygonaceae一新种——皱叶野荞麦*Fagopyrum crispatifolium* J. L. Liu。本种近似于细柄野荞麦*F. gracilipes* (Hemsl.) Damm. & Diels, 但以其叶片表面泡状突起, 叶缘皱波状, 具不规则波状圆齿、圆齿或小圆齿, 聚伞花序密集与之相区别。此外, 还报道了该物种的染色体数目, 发现它是一个四倍体, 染色体数目为 $2n=4x=32$ 。

关键词 染色体数目; 荞麦属; 皱叶野荞麦; 新种; 四川; 中国

荞麦属*Fagopyrum* Mill. 约有21种2亚种和2变种, 广布于亚洲及欧洲温暖地区; 我国有15种2亚种和2变种, 约占世界荞麦属种总数的83%以上, 主要分布在中国西南部(林汝法, 1994; 李安仁, 1998)。荞麦*F. esculentum* Moench和苦荞麦*F. tataricum* (L.) Gaertn.为北温带国家广为栽培(叶能干, 苟光前, 1993; Chen, 1999)。该属植物的形态学、细胞学以及遗传学已有较多的研究(Chen, 1999; Zhao et al., 2002; 周忠泽等, 2003)。由于以前调查不够, 最近还有新种类报道(Ohnishi & Yasui, 1998)。本文报道了采自四川省凉山州的一新种以及该种的染色体数目。

1 材料和方法

首先比较了疑似新种标本和近缘种细柄野荞麦*F. gracilipes* (Hemsl.) Damm. & Diels的形态特征, 并考察了其生境和历史分布状况。两个分类群的染色体研究均使用来自同一产地的种子, 经蒸馏水浸泡数小时后置培养皿内, 放置在25 °C恒温培养箱内24 h左右, 待根尖长至1–2 cm时取生长旺盛的根尖, 用冰水混合物预处理, 卡诺液(冰醋酸:酒精=3:1)固定。利用1 mol/L HCl解离8–10 min, 改良苯酚品红染色观察。

2 结果和讨论

我们在四川省凉山州普格县螺髻山镇发现一个野生荞麦族群, 与细柄野荞麦在形态上极为相似, 但叶表面泡状突起和叶缘皱波状, 具不规则波

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状圆齿、圆齿或小圆齿,聚伞花序紧密。根据这些特征,我们判断这是一个新分类群,命名为皱叶野荞麦 *F. crispatifolium* J. L. Liu。在生长、开花和结果期间,我们多次到该新种原产地及其周边地区进行广泛和深入的实地调查,并走访了熟知这个野生荞麦种类的当地老乡。经调查了解,在周边地区未发现该物种的生长和分布,该物种只生于海拔1900 m左右的田埂上和杂草丛中,分布区域十分狭窄。我们还注意到在产地也有细柄野荞麦同域分布,具有相似的生态环境,但二者之间未发现有过渡类型。这个新种可能在产地生存已久,由于人为活动影响,导致植株数量极为稀少(2006年4株,2007年2株,2008年3株),以至于近乎灭绝。为了观察这个新种的遗传性状,连续三年将这个野生荞麦的果实播种在花盆中,发现所有植株(2006年8株,2007年5株,2008年7株)形态特征均与野外生长的一致,其遗传性状十分稳定。

鉴于新种外部形态特征极近似于细柄野荞麦,我们还对二者进行了染色体数目研究,发现它们都是四倍体(图1),染色体数目均为 $2n=4x=32$ 。荞麦属野生种中多数为二倍体(如小野荞麦 *F. leptopodium* (Diels) Hedb., $2n=2x=16$ (Ohnishi, 1989; Yasui et al., 1998), 线叶野荞麦 *F. lineare* (Sam.) Harald., $2n=2x=16$ (Yasui et al., 1998), 大野荞 *F. megaspartanium* Q. F. Chen, $2n=2x=16$ (Chen, 2001)以及毛野荞 *F. pilus* Q. F. Chen, $2n=2x=16$ (Chen, 2001)等),只有少数物种为四倍体(如左贡野荞 *F. zuogongense* Q. F. Chen, $2n=4x=32$ (Ohnishi & Yasui, 1998; Chen, 2001))。

3 新种描述

皱叶野荞麦 新种 图2

Fagopyrum crispatifolium J. L. Liu, sp. nov.

Fig. 2

Species nova *F. gracilipedi* (Hemsl.) Damm. & Diels affinis, sed foliis supra pustulatis margine crispatis irregulariter sinuoso-crenatis crenatis vel crenulatis, cymis confertis differt.

Herba annua, 45–88.5 cm alta, subprostrata vel erecta, basi vel infra medium ramosissima. Caulis et rami teretes, tenuiter longistrorsum striati, virides, viridi-brunnei vel purpureo-brunnei, albo-pubescentes et laxe villosi, e basi ad apicem omnino foliati, nodis laxis vel densis, internodiis (0.5–)1.4–6.2(–8.2) cm longis. Folia alternata, laminae chartaceae, late ovatae, ovatae, interdum subrotundatae vel longe ovatae, (2.0–)2.7–7.7 cm longae, (1.5–)2.1–6.8 cm latae, apice breviter acuminatae, acutae, interdum acuminatae, basi profunde cordatae vel late cordatae, auriculis rotundatis vel obtusis, supra atrovirentes vel virides, manifeste pustulatae, subtus virides, utrinque laxe patenter villosae, nervis basilaribus 7–9, nervis lateralibus 5–8-jugatis, et reti venularum supra impresso infra prominulo, margine crispatae, irregulariter sinuosae, repando-crenatae vel crenulatae; petioli (2.2–)2.9–7.8(–8.3) cm longi, virides vel viridi-brunnei, laxe albo-villosi, supra tenuiter longistrorsum sulcati, laxe patenter villosi, subtus rotundato-protuberantes, glaberi; ochreae tenuiter membranaceae, obliquae, unilatera refringentes, 4–8 mm longae, 7–16-viridi-striatae, dense vel laxe pilosae, apice acuminatae, longe acuminatae usque ad caudato-acuminatae. Cymae racemosae vel capitatae, confertae,

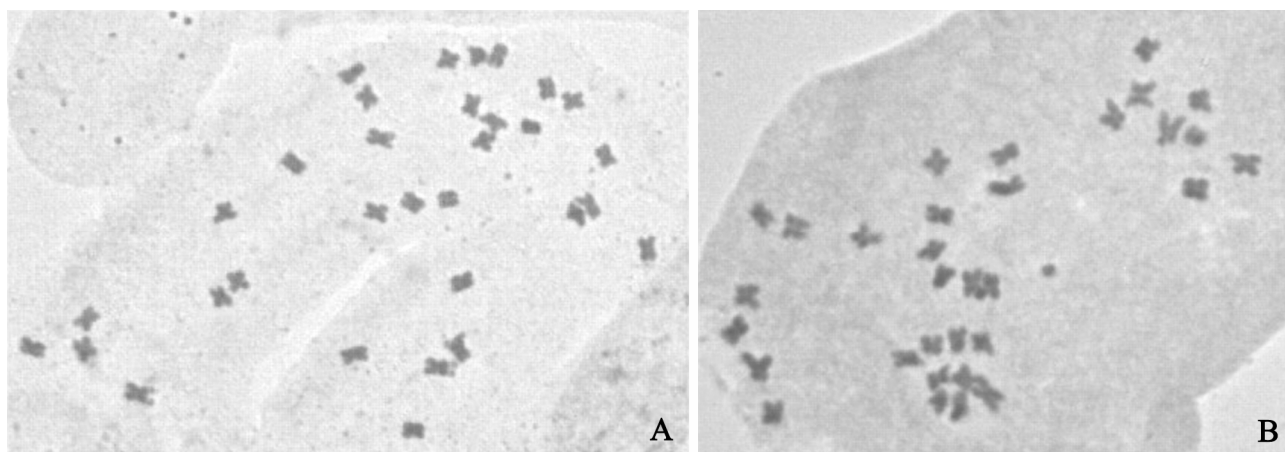


图1 两种荞麦属植物的染色体数目 A. 皱叶野荞麦。B. 细柄野荞麦。

Fig. 1. Chromosome number of two *Fagopyrum* species. A, *F. crispatifolium*. B, *F. gracilipes*.

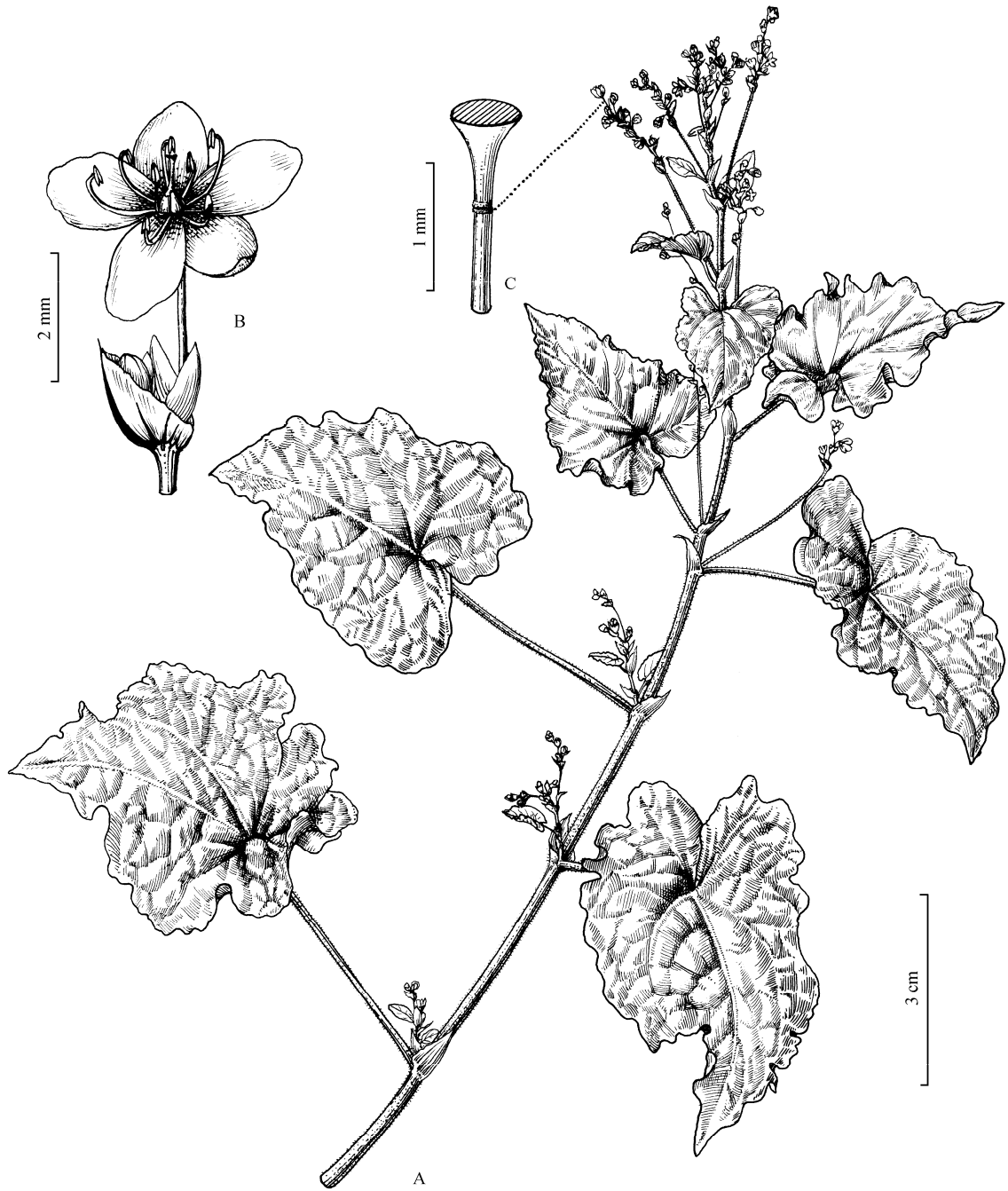


图2 皱叶野荞麦 A, 植株(部分); B, 花(放大); C, 花柄放大, 示关节。(孙英宝根据刘建林5730号标本绘)

Fig. 2. *Fagopyrum crispatifolium* J. L. Liu. A, a part of habit; B, enlarged flower; C, enlarged flower stalk, showing an article. Drawn by Y. B. Sun from J. L. Liu 5730.

axillares et terminales, (1.5-)2.5-4.7 cm longae; in quaque axilla bracteae 3-5-florae, rhachidibus quadriangulis dense vel laxe villosis et pubescentibus; bracteae oblique infundibulares, 2.5-3 mm longae, 3-7-viridi-striatae, apice mucronatae. Flores densi vel comparate densi; pedicelli filiformes, 2-4 mm longi,

albi, glaberi, ad apicem manifeste vel obscure articulati; sepala 5, externa 2, interna 3, elliptica, late ovata, late ovato-elliptica, vel late obovata, 1.8-2 mm longa, (1-)1.2-1.8(-2) mm lata, praeter basin viridem vel viridulam alba vel subrosea, apice obtusa vel rotundata; stamina 8, 2-verticillata (externa 5, interna

3), filamentis 1–1.5 mm longis albis glaberis, antheris ellipticis 0.2–0.3 mm longis; ovarium ovoideo-triangulum, 0.5–0.7 mm longum, viridulum vel luteo-virideum, stylis 3, circ. 1 mm longis albis, glabris, stigmatibus parvis capitatis. Achenia globoso-triangula, ovoideo-triangula vel late ovoideo-triangula, (2.5–) 2.7–3 mm longa, 2.4–2.7 mm diam., maturitate luteolo-brunnea, vel atro-brunnea, sepalis persistentibus circumdata, stylis persistentibus curvatis.

一年生草本植物, 高45–88.5 cm, 近平卧或直立, 基部或中下部多分枝; 茎枝圆柱形, 具细纵棱纹, 绿色, 绿褐色或紫褐色, 被白色短毛和疏长毛, 从基部至顶端均具叶; 节稀疏或较密集, 节间长(0.5–)1.4–6.2(–8.2) cm。单叶互生, 叶片纸质, 阔卵形, 卵形, 有时近圆形或长卵形, 长(2.0–)2.7–7.7 cm, 宽(1.5–)2.1–6.8 cm, 先端短渐尖, 锐尖或有时渐尖, 基部深心形或阔心形, 两侧耳状基部圆形或钝形, 上面深绿色或绿色, 明显泡状突起, 下面绿色, 两面疏被直立长毛, 基生脉7–9条, 侧脉5–8对, 在上面和网脉一起凹陷, 下面凸起, 边缘皱波状, 具不规则波状圆齿、圆齿或小圆齿; 叶柄长(2.2–)2.9–7.8(–8.3) cm, 绿色或绿褐色, 疏被白色长柔毛, 在上面具细凹槽, 疏被直立长毛, 下面圆凸, 无毛。托叶鞘薄膜质, 斜生, 一侧开口, 长4–8 mm, 具7–16条绿色脉纹, 密或疏被长毛, 先端渐尖, 长渐尖至尾状渐尖。聚伞花序呈总状或头状, 密集, 腋生或顶生, 长(1.5–) 2.5–4.7 cm, 花序轴绿色, 褐绿色或绿褐色, 四棱状, 密或疏被长毛和短毛; 苞片斜漏斗状, 长2.5–3 mm, 具3–7条绿色脉纹, 中脉凸出呈小尖头, 每苞片内有小花3–5朵; 花密集, 着生于花序轴上部至顶部; 花梗线形, 长2–4 mm, 白色, 无毛, 在顶端具明显或不明显关节; 花被片5(外面2片较小, 内面3片较大), 椭圆形, 阔卵形, 阔卵状椭圆形, 阔倒卵形, 长1.8–2 mm, 宽(1–)1.2–1.8(–2) mm, 除基部绿色或淡绿色外, 白色, 淡粉红色, 先端钝或圆形; 雄蕊8枚, 排为2轮(外轮5, 内轮3), 花丝长1–1.5 mm, 白色, 无毛, 花药椭圆形, 长0.2–0.3 mm; 子房卵状三棱形, 长0.5–0.7 mm, 淡绿色或黄绿色, 花柱3, 长约1 mm, 白色, 无毛, 柱头小头状。瘦果圆状三棱形, 卵圆状三棱形或阔卵圆状三棱形, 长(2.5–)2.7–3 mm, 直径2.4–2.7 mm, 成熟后黄褐色, 黑褐色至黑色, 被宿存花被紧裹; 花柱宿存, 向下弯曲。

China. Sichuan (四川): Liangshan (凉山), Puge (普格), Luojishan (螺髻山), alt. 1900 m, in thick growth of grass on ridge of fields, 2008-09-28, *J. L. Liu* (刘建林) 5730 (holotype, PE), 2008-07-28, *J. L. Liu & Q. Luo* (刘建林, 罗强) 5728, 2007-08-18, *J. L. Liu* (刘建林) 5729, 2005-10-06, *J. L. Liu & Q. Luo* (刘建林, 罗强) 4975, *J. L. Liu* (刘建林) 5005 (Xichang College, Sichuan).

本种近似于细柄野荞麦 *F. gracilipes* (Hemsl.) Damm. & Diels, 但以叶表面泡状突起, 叶缘皱波状, 具不规则波状圆齿、圆齿或小圆齿, 聚伞花序密集而不同。

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