

DOI: 10.3969/j.issn.1000-3142.2012.01.002

宁夏枸杞属(茄科)一新种和一新变种

陈天云¹, 蒋旭亮¹, 李清善¹, 张志耘^{2*}, Joongku LEE³

(1. 宁夏农业环境保护监测站, 宁夏 银川 750001, 中国; 2. 中国科学院植物研究所系统与进化植物学国家重点实验室, 北京 100093, 中国; 3. 韩国生物科学与生物工艺学研究所, 大田 305-806, 韩国)

摘要: 描述了宁夏茄科枸杞属一新种小叶黄果枸杞和一新变种密枝枸杞。小叶黄果枸杞与宁夏枸杞相接近, 但前者枝条成“之”字形曲折, 叶片较小, 条形、条状披针形、条状倒披针形或狭椭圆形, 花1~2朵与叶一起簇生于短枝顶端, 花萼杯状或筒状, 常2浅裂, 裂片边缘无毛; 花冠筒部与冠檐近等长, 雄蕊着生于花冠筒的喉部, 花丝连同花冠无毛或在基部仅被稀疏短柔毛, 浆果扁球形或椭圆球形, 常为淡黄色, 近透明, 长6~10 mm, 直径6~8 mm, 种子5~8枚而与后者明显不同。在外部形态上, 小叶黄果枸杞与新疆枸杞和土库曼枸杞也比较接近, 但新疆枸杞和土库曼枸杞的枝条不成“之”字形曲折, 花常2~3朵或更多与叶一起簇生于短枝顶端, 花冠筒部长约为檐部裂片长的2倍, 雄蕊着生于花冠筒的近中部, 浆果红色。尤其是土库曼枸杞的花萼为宽钟形, 常4~5裂, 花冠裂片边缘有短而稀疏的缘毛而明显有异于小叶黄果枸杞。宁夏枸杞的变种密枝枸杞与原变种的区别在于前者植株分枝多而密, 叶片小, 狭长椭圆形、倒披针形或匙形, 长1~1.8 cm, 宽1.5~2.5 mm; 雄蕊着生于花冠喉部, 长短不等, 其中两枚较短, 其余3枚较长, 花丝连同花冠无毛或在基部仅被稀疏短柔毛; 浆果卵球形或椭圆形, 长5~8 mm, 直径3~6 mm, 淡紫色, 近透明, 多汁, 味甜, 种子2~4粒。

关键词: 茄科; 枸杞属; 小叶黄果枸杞; 新种; 密枝枸杞; 新变种; 宁夏; 中国

中图分类号: Q949.4 **文献标识码:** A **文章编号:** 1000-3142(2012)01-0005-04

A new species and a new variety of *Lycium* (Solanaceae) from Ningxia, China

CHEN Tian-Yun¹, JIANG Xu-Liang¹, LI Qing-Shan¹,
ZHANG Zhi-Yun^{2*}, Joongku LEE³

(1. Ningxia Agriculture Environmental Monitoring Station, Yinchuan 750001, China; 2. State Key Laboratory of Systematic and Evolutionary Botany, Institute of Botany, the Chinese Academy of Sciences, Beijing 100093, China; 3. Korea Research Institute of Bioscience and Biotechnology, Daejeon 305-806, Korea)

Abstract: A new species of the genus *Lycium* L., *L. parvifolium* and a new variety *L. barbarum* var. *implicatum* were described from Zhongning, Ningxia Province, western China. *L. parvifolium* was closely related to *L. barbarum* but differs from the latter by the branches zigzag, leaves comparatively small, 1-2.5(-3) cm long, 1.5-2(-3) mm wide, flowers 1-2, fasciculate on short-branches with leaves, calyx cupular or tubular, stamens inserted at the throat of corolla tube, filaments along with corolla glabrous or sparsely pubescent; berry usually pale yellow, nearly translucent, compressed-globose or ellipsoidal, 6-10 mm × 6-8 mm, seeds 5-8. *L. parvifolium* was also closed to *L. dasystemum* and *L. turcomanicum*, but in the latter two species, the branches not zigzag, flowers usually 2-3 or more fasciculate on short-branches with leaves, corolla tube about 2 times as long as limb and lobes, stamens inserted at the nearly middle of corolla tube, berry usually red. Especially, in *L. turcomanicum*, calyx widely bell-shaped, usually 4-

收稿日期: 2011-02-28 修回日期: 2011-06-07

作者简介: 陈天云(1957-), 男, 宁夏中宁县人, 高级工程师, 主要从事农业植物资源开发利用和保护。

* 通讯作者: 张志耘, 女, 教授, (E-mail) zhangzy@ibcas.ac.cn。

5-lobed, corolla lobes sparsely ciliate at margin. *L. barbarum* var. *implicatum* differed from *L. barbarum* by the branches many and densely arranged, leaves comparatively small, 1–1.8 cm long, 1.5–2.5 mm wide; stamens inserted at the throat of corolla tube, unequal in length, two of them shorter, the others longer, berry pale purple, nearly transparent, ovoid or elliptical, 5–8 mm long, 3–6 mm in diam., sweet, seeds 2–4.

Key words: Solanaceae; *Lycium*; *L. parvifolium*; new species; *L. barbarum* var. *implicatum*; new variety; Ningxia; China

1. 小叶黄果枸杞 新种 图版 I: 1–5

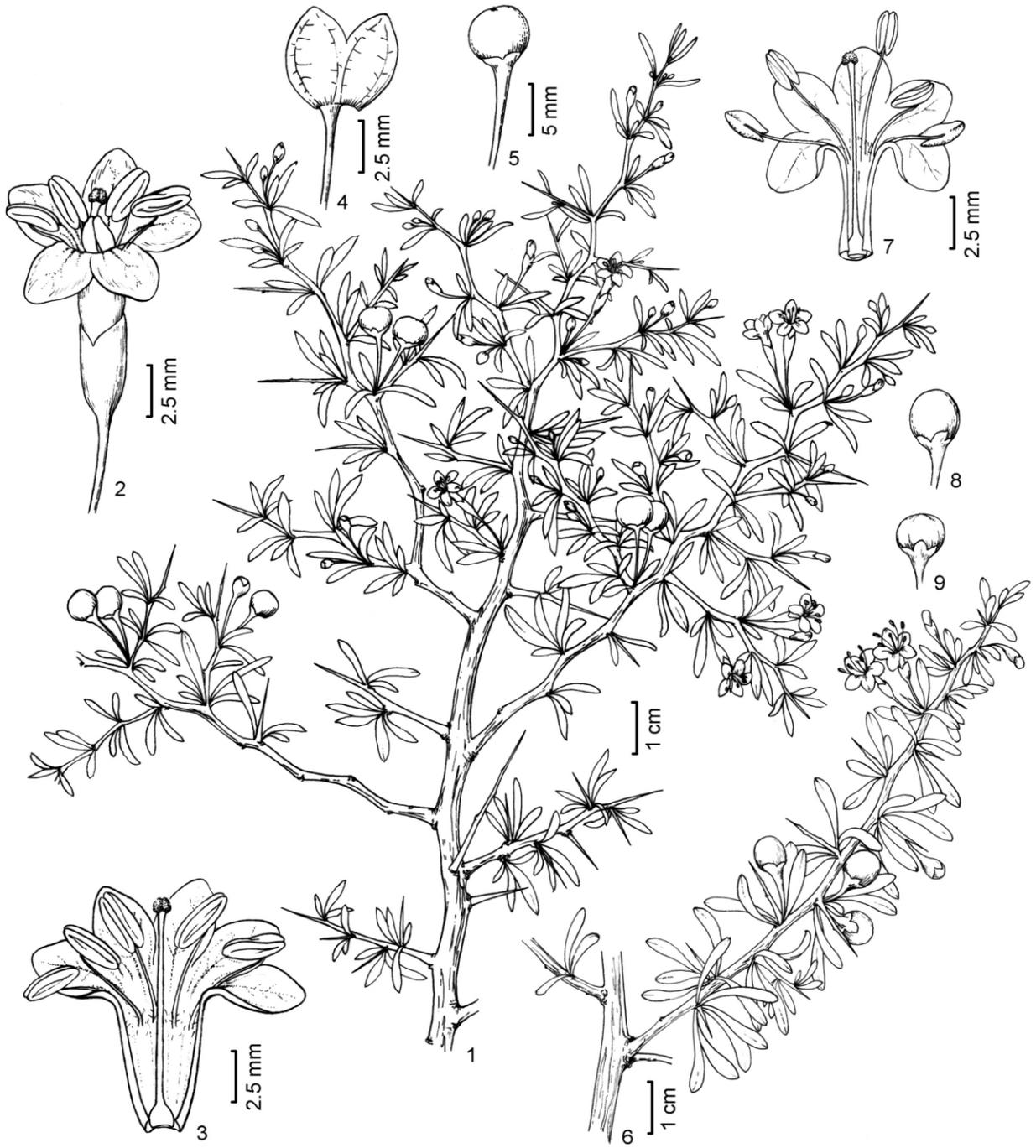
Lycium parvifolium T. Y. Chen & X. L. Jiang, sp. nov. Plate 1: 1–5

Species nova haec *Lycium barbaro* affinis est, a quo ramis fractiflexis, foliis minoribus 1–2.5(–3) cm longis 1.5–2(–3) mm latis, floribus 1–2 cum foliis ad apicem rami brevis fasciculatis, calyce cupiformi vel tubuloso saepe 2-lobato sub fructu turgido semigloboso irregulariter 2–4-lobato, lobis margine glabris, corollae tubo limbo subaequilongo 4–5 mm longo, staminibus ad corollae faucem insertis corollae subaequilongis 6–7 mm longis, filamentis cum corolla glabris vel basi tantum puberulis, bacca succinea subhyalina depresso globosa vel ellipsoidea 6–10 mm longa 6–8 mm in diam. 5–8-sperma differt.

Fructiculus erectus, 40–80 cm altus, ramosus spinosus; rami juventute albi, vetustate cinereo-albi vel cinerascanti-brunnei, raro fulvo-luteo-suffusi, recti, haud fractiflexi, rigidi, irregulariter longitudinaliterque striati, glabri, ad omnes nodos spinis 0.8–2.4 cm longis, sursum sensim sparsis et abbreviatis praediti; ramuli apice saepe in spinas transformati; internodi abbreviati; rami breves utrinque secus spinas dispositi, in ramis juvenilibus inconspicui, in ramis vetis tuberiformes. Folia in ramis longis singulariter alternata, in ramis brevibus 2–6 fasciculata, subsessilia, succulenta, crassa, lineraria, linerari-lanceolata vel linearia-oblancoolata, 1–2.5 cm longa, 1.5–2(–3) mm lata, medio vel superne latiora, apice obtuso-rotundata vel acutiuscula, basi attenuata, adaxialiter viridia, abaxialiter viridula, glabra. Flores 1–2 cum foliis ad apicem rami brevis fasciculati; pedicelli graciles, 5–8 mm longi, glabri; calyx cupiformis vel tubulosus, 3–4 mm longus, fructificatione turgidus, semiglobosus et

baccae partem inferam cingens, irregulariter 2–4-lobatus, lobis margine glabris; corolla purpurea vel caeruleo-purpurea, infundibularis, 8–13 mm longa, tubo 4–5 mm longo, 1.5–2 mm in diam., superne dilatato, limbo 5-fido, lobis oblongo-ovatis, longitudine 1/2 corollae partes aequantibus ca. 2.2–2.5 mm latis, apice rotundato-obtusis haud ciliatis; stamina ad corollae faucem inserta, corollae subaequilonga vel ea leviter breviora, 6–8 mm longa, filamentis filiformibus, 4–4.5 mm longis cum corolla glabris vel sparse puberulis, antheris luteis oblongis 2.8–3.6 mm longis; pistillum 8–10 mm longum, ovario oblongo vel subgloboso, 1.4–1.5 mm longo, 1–1.3 mm in diam., stylo gracili, stigmatate depresso globoso, 2-lobato. Bacca succinea, subhyalina depresso globosa vel ellipsoidea, 6–8 mm in diam. apice saepe retusa, semina 5–8 continens.

直立小灌木, 多分枝, 多棘刺, 高 40~80 cm, 老枝灰白色, 有明显的纵条纹, 幼枝粉白色或白色, 枝条成“之”字形曲折, 坚硬, 无毛, 小枝顶端常变成锐尖的棘刺, 节间短缩, 每节有长 0.8~2.4 cm 长短不等的棘刺, 向上棘刺渐变稀疏变短; 短枝位于棘刺两侧, 在幼枝上不明显, 在老枝上成瘤状。叶在长枝上互生, 在短枝上常 2~6 枚簇生, 肉质, 肥厚, 较小, 具极短的柄或近无柄, 条形、条状披针形、条状倒披针形或狭椭圆形, 先端钝圆或稍尖, 基部渐变狭, 近轴面绿色, 远轴面浅绿色, 长 1~2.5 cm, 宽 1.5~2(~3) mm, 中部或上部较宽, 无毛。花 1~2 朵与叶一起簇生于短枝顶端; 花梗纤细, 长 5~8 mm, 无毛; 花萼杯状或筒状, 长 3~4 mm, 常 2 浅裂, 果时膨大成半球状, 包围于果实中下部, 不规则 2~4 浅裂, 裂片边缘无毛; 花冠漏斗状, 紫色或蓝紫色, 长 8~13 mm, 筒部与冠檐近等长, 长 4~5 mm, 直径 1.5~2 mm, 向上成漏斗状明显扩大, 5 裂, 裂片长圆状卵形, 长约为花冠的 1/2, 宽 2.2~2.5 mm, 先端钝圆,



图版 I 1-5. 小叶黄果枸杞 1. 花果枝; 2. 花; 3. 花冠展开示雄蕊; 4. 花萼展开; 5. 果实。6-9. 密枝枸杞 6. 花果枝; 7. 花冠展开示雄蕊; 8-9. 果实。(根据模式标本, 李爱莉绘图)

Plate I 1-5. *Lycium parvifolium* T. Y. Chen & X. L. Jiang 1. flowering and fruiting branches; 2. flower; 3. open corolla showing stamens; 4. open calyx; 5. fruit. 6-9. *L. barbarum* L. var. *implicatum* T. Y. Chen & X. L. Jiang 6. flowering and fruiting branches; 7. open corolla showing stamens; 8-9. fruits. (from holotypes, by LI Ai-Li)

无缘毛, 雄蕊着生于花冠筒的喉部, 与花冠近等长, 长 6~8 mm, 花丝丝状, 连同花冠无毛或在基部被稀疏短柔毛, 长 4~4.5 mm; 花药长圆形, 黄色, 长 2.8~3.6 mm, 雌蕊长 8~10 mm, 子房长圆形或近圆球形, 长 1.4~1.5 mm, 直径 1~1.3 mm, 花柱纤

细, 无毛, 柱头扁球形, 2 浅裂。浆果常淡黄色, 近透明, 常为扁球形, 或椭圆球形, 长 6~10 mm, 直径 6~8 mm。种子 5~8 枚。花果期 6~9 月。

宁夏(Ningxia), 中宁县(Zhongning County), 鸣沙镇(Mingsha Zheng), Alt. 1 188 m, 生于河岸,

(along riverside), 2010-07-16, 蒋旭亮, 李清善(X. L. Jiang & Q. S. Li) 2010-02(holotype, PE; isotype deposited in Herbarium, Ningxia Agriculture Environmental Monitoring Station)。

本种与宁夏枸杞(*L. barbarum* L.) (匡可任等, 1978; Zhang 等, 1994) 相接近, 但其枝条成“之”字形曲折, 叶片明显较小而窄, 条形、条状披针形、条状倒披针形或狭椭圆形, 长 1~2.5 (~3) cm, 宽 1.5~2 (~3) mm, 花 1~2 朵与叶一起簇生于短枝顶端, 花萼杯状或筒状, 常 2 浅裂, 果时膨大成半球状, 不规则 2~4 浅裂, 裂片边缘无毛; 花冠筒部与冠檐近等长, 长 4~5 mm, 雄蕊着生于花冠筒的喉部, 与花冠近等长, 长 6~7 mm, 花丝连同花冠无毛或在基部仅被稀疏短柔毛, 浆果常淡黄色, 近透明, 常为扁球形, 长 6~10 mm, 直径 6~8 mm, 种子 5~8 枚而与后者不同。宁夏枸杞由于长期栽培, 在植物外部形态上产生了一些变异, 但其植株的枝条不成“之”字形曲折, 叶片较大而宽, 花萼钟状, 花冠筒长约为檐部裂片长的 2 倍, 雄蕊着生于花冠筒近中部, 花丝基部稍上处连同花冠筒内壁生一圈很密的绒毛等都是较为稳定的性状而与本种明显不同。

在外部形态上, 本种与分布于前苏联的哈萨克、吉尔吉斯、乌兹别克、塔吉克南部以及我国新疆西部的新疆枸杞(*L. dasystemum* Pojark.) 和分布于伊朗, 阿富汗, 前苏联的土库曼、乌兹别克、塔吉克西南部以及高加索南部的土库曼枸杞(*L. turcomanicum* Turcz. et Boiss.) (Pojarkova, 1950) 也比较接近, 但本种枝条成“之”字形曲折, 花 1~2 朵与叶一起簇生于短枝顶端, 花冠筒部与冠檐近等长, 雄蕊着生与花冠筒的喉部, 浆果淡黄色。而新疆枸杞和土库曼枸杞的枝条不成“之”字形曲折, 花常 2~3 朵或更多与叶一起簇生于短枝顶端, 花冠筒部长约为檐部裂片长的 2 倍, 雄蕊着生于花冠筒的近中部, 浆果红色。尤其是本种的花萼为杯状或筒状, 常 2 浅裂, 花冠裂片边缘无毛而明显不同于土库曼枸杞, 后者的花萼为宽钟形, 常 4~5 裂, 花冠裂片边缘有短而稀疏的缘毛。

最近利用核基因颗粒性结合淀粉合成酶基因(*GBSSI*) 片段对中国枸杞属这几个新分类群杂交起源的初探表明: 小叶黄果枸杞有一个拷贝与宁夏枸杞聚为一支, 另一个拷贝则与黑果枸杞聚为一支, 表明小叶黄果枸杞很可能是宁夏枸杞和黑果枸杞的杂交后代(吴莉莉等, 2011)。

2. 密枝枸杞 新变种 图版 I : 6-9

Lycium barbarum L. var. *implicatum* T. Y. Chen & X. L. Jiang, var. nov. Plate 1: 6-9.

A var. *barbaro* differt caulibus dense ramosis, foliis minoribus anguste longequae ellipticis oblanceolatis vel spatulatis 1-1.8 cm longis 1.5-2.5 mm latis, staminibus ad corollae faucem insertis inaequaliter longis duobus brevioribus et tribus ceteris longioribus glabris, bacca ovoidea vel ellipsoidea 5-8 mm longa 3-6 mm in diam. dilute purpurea subhyalina succida dulci 2-4-sperma.

该变种与原变种宁夏枸杞的区别在于植株分枝多而密, 叶片小, 狭长椭圆形、倒披针形或匙形, 长 1~1.8 cm, 宽 1.5~2.5 mm; 雄蕊着生于花冠喉部, 长短不等, 其中两枚较短, 其余 3 枚较长, 近无毛; 浆果卵球形或椭圆球形, 长 5~8 mm, 直径 3~6 mm, 淡紫色, 近透明, 多汁, 味甜, 种子 2~4 粒。最近利用核基因颗粒性结合淀粉合成酶基因(*GBSSI*) 片段对中国枸杞属这几个新分类群杂交起源的初探表明: 密枝枸杞两个拷贝均位于宁夏枸杞所在分支上, 但分别位于该分支不同位置(吴莉莉等, 2011), 联系到密枝枸杞的地理分布区也正好在宁夏枸杞分布范围内, 推测密枝枸杞很可能是宁夏枸杞种内杂交后代, 因此适宜把它作为宁夏枸杞的变种处理。

宁夏(Ningxia), 中宁县(Zhongning), 舟塔乡(Zhoutaxiang), Alt. 1188 m, 生于河边潮湿的盐碱地(in moist alkaline soil of riverside), 2010-07-16, 蒋旭亮, 李清善(X. L. Jiang & Q. S. Li) 2010-03(holotype, PE; isotype deposited in Herbarium, Ningxia Agriculture Environmental Monitoring Station)。

致谢 感谢王文采院士为本文悉心修改拉丁文, 李爱莉工程师为本文绘图。

参考文献:

- 匡可任, 路安民. 1978. 中国植物志(茄科)(第 67 卷第 1 分册) [M]. 北京: 科学出版社: 10
- Pojarkova A. 1950. Species generis *Lycium* L. fructibus rubris, ex Asia media et China [J]. *Not Syst Herb Inst Bot Komarova Acad Nauk SSSR*, **13**: 248-250
- Wu LL(吴莉莉), Wei RX(韦若勋), Yang QW(杨庆文), et al. 2011. Preliminary study on the hybrid origin of new taxa in *Lycium* (Solanaceae) (枸杞属(茄科)新类群杂交起源初探) [J]. *Guihaia* (广西植物), **31**(3): 304-311
- Zhang ZY, Lu AM, WG D'Arcy. 1994. Flora of China [M]. Beijing: Science Press; St. Louis: Missouri Botanical Garden, **17**: 302