

# 中国橐吾属(菊科-千里光族)的分类学研究(四): 康定橐吾和*Senecio ficariifolius*的名实订正

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**摘要:** 将康定橐吾(*Ligularia kangtingensis* S. W. Liu)处理为细茎橐吾[*L. hookeri* (C. B. Clarke) Hand.-Mazz.]的异名。*Senecio ficariifolius* H. Lév. & Vaniot 长期以来被处理为细茎橐吾的异名,但我们检查模式材料后发现其头状花序盘状,与头状花序辐射状的细茎橐吾明显不同,而与头状花序盘状的贵州橐吾[*L. leveillei* (Vaniot) Hand.-Mazz.]没有区别,故将其处理为贵州橐吾的异名。

**关键词:** 菊科; 千里光族; 橐吾属; 分类学

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## Taxonomic Studies on the Genus *Ligularia* Cass. (Asteraceae, Senecioneae) from China (IV): The Identities of *L. kangtingensis* and *Senecio ficariifolius*

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**Abstract:** *Ligularia kangtingensis* S. W. Liu is reduced herein to the synonymy under *L. hookeri* (C. B. Clarke) Hand.-Mazz. The name *Senecio ficariifolius* H. Lév. & Vaniot has long been placed in synonymy under *L. hookeri*, a species with radiate capitula. Examination of the type specimens of *S. ficariifolius* has shown that it has discoid capitula, and thus is readily distinguishable from *L. hookeri*, but not essentially different from *L. leveillei*. We therefore place *S. ficariifolius* in synonymy under *L. leveillei*.

**Key words:** Asteraceae; Senecioneae; *Ligularia* Cass.; Taxonomy

*Ligularia kangtingensis* S. W. Liu was described on the basis of a collection from Kangding County, western Sichuan, China, i.e. H. L. Tsiang & J. H. Xiong 36535<sup>[1]</sup>. In the protologue, the author compared it with *L. retusa* DC., a *Cremanthodium*-like Sino-Himalayan species and in China known only from southeastern Xizang (Tibet) and northwestern Yunnan, but did not compare it with *L. hookeri* (C. B. Clarke) Hand.-Mazz., also a *Cremanthodium*-like Sino-Himalayan species but more widespread

in China [Shaanxi (Taibai Shan), Sichuan, Xizang, and Yunnan] than *L. retusa*. Examination of the type specimens of *L. kangtingensis* (Fig. 1: A–C) has shown that they are indistinguishable from the Kangding material of *L. hookeri* (Fig. 1: D). In fact, an isotype of *L. kangtingensis* (Fig. 1: B) kept at the Herbarium of Guangxi Institute of Botany, Guangxi Zhuang Autonomous Region and Chinese Academy of Sciences (IBK) and very likely not seen by S. W. Liu, the author of *L. kangtingensis*, was correctly identified as

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*L. hookeri* by Y. L. Chen, a Chinese synantherologist. We therefore reduce *L. kangtingensis* to the synonymy under *L. hookeri* herein.

The generic placement, specific circumscription and infraspecific division of *Ligularia hookeri* have long been in dispute. The species was regarded by some authors as a member of the genus *Cremanthodium* Benth., i.e. *C. hookeri* C. B. Clarke<sup>[2-4]</sup>. In 1929, Good<sup>[3]</sup> pointed out that *C. hookeri* is “the most complex and difficult group in the whole genus, and it doubtless represents a junction of *Ligularia* and *Cremanthodium*”. He divided the species into two subspecies, subsp. *clarkei* R. Good (the correct name should be subsp. *hookeri*) and subsp. *polycephala* R. Good., and further divided each subspecies into several forms. He reduced *Senecio feddei* H. Lév. and *S. saccoso-flabellatus* H. Lév., both described on the basis of material from northeastern Yunnan, China (see below), to the synonymy under subsp. *clarkei* f. *angustiligulatum* R. Good (the correct name should be subsp. *hookeri* f. *hookeri*), and reduced *S. ficariifolius* H. Lév. & Vaniot and *S. leveillei* Vaniot, both described on the basis of material from Guizhou, China (see below) to the synonymy under subsp. *polycephalum* f. *regulare* R. Good. In 1936, Handel-Mazzetti<sup>[5]</sup> treated *S. leveillei*, a plant with discoid capitula and thus readily distinguishable from *L. hookeri*, a plant with radiate capitula, as an independent species in the genus *Ligularia* Cass., i.e. *L. leveillei* (Vaniot) Hand.-Mazz. In 1938, Handel-Mazzetti<sup>[6]</sup> pointed out again that Good<sup>[3]</sup> had adopted a too broad concept of *C. hookeri* in merging such different species as *L. leveillei* into it, and that it is unnecessary to divide *C. hookeri* into two subspecies. Handel-Mazzetti transferred *C. hookeri* to the genus *Ligularia* and recognized two varieties instead, namely *L. hookeri* (C. B. Clarkei) Hand.-Mazz. var. *hookeri* and *L. hookeri* var. *polycephala* (R. Good) Hand.-Mazz. Although Handel-Mazzetti, as mentioned above, correctly reinstated the specific status of *S. leveillei* (= *L. leveillei*), a plant from Guizhou, he still followed Good in referring *S. ficariifolius*, also a plant from Guizhou, to *L. hookeri* var. *polycephala*. In 1976,

Lauener<sup>[4]</sup> stated that “irrespective of whether one regards “*hookeri*” as *Cremanthodium* or *Ligularia*, Good’s treatment under *Cremanthodium* represents a more practical division of the variation”, and thus he almost totally adopted the view held by Good except not referring *S. feddei*, which has three capitula, to subsp. *clarkei*, but to subsp. *polycephala* instead. It is not understandable that Lauener did not recognize *L. leveillei* as an independent species, still referring it to *C. hookeri* subsp. *polycephala* f. *regulare*. Most of the authors agreed to treat *L. hookeri* as a member of *Ligularia*, but they had different opinions as to its infraspecific classification. Some authors, such as Liu<sup>[7-9]</sup>, and Liu and Illarionova<sup>[10]</sup>, did not recognize any infraspecific taxa in *L. hookeri*, treating it as a polymorphic species, but other authors, such as Hu<sup>[11]</sup>, Wu<sup>[12]</sup>, Chen and Liu<sup>[13]</sup>, Chen and Li<sup>[14]</sup>, and Min<sup>[15]</sup>, accepted Handel-Mazzetti’s treatment, recognizing two varieties under *L. hookeri*, var. *hookeri* and var. *polycephala*. It should be noted that the distributional information given by these authors for *L. hookeri* and its varieties is not accurate. Chen and Liu<sup>[14]</sup> referred *S. ficariifolius* to var. *polycephala*, but they did not mention the occurrence of the variety in Longli County of Guizhou (the type locality of *S. ficariifolius*); they mentioned only its occurrence on Fanjing Shan. Min<sup>[15]</sup> referred *S. feddei*, *S. ficariifolius*, and *S. saccoso-flabellatus* all to var. *hookeri*, but he did not mention the occurrence of the variety in Guizhou. Liu<sup>[7-9]</sup>, and Liu and Illarionova<sup>[10]</sup> also referred *S. feddei*, *S. ficariifolius*, and *S. saccoso-flabellatus* all to *L. hookeri*, but they did not mention the occurrence of the species in Guizhou and northeastern Yunnan (see below for detailed information on the type localities of *S. feddei*, *S. ficariifolius* and *S. saccoso-flabellatus*). It seems likely that none of these authors have carefully investigated the type localities of the three names and checked the type specimens.

We have checked the type material of *Ligularia leveillei* (Fig. 2: A–B) and confirmed it to be an independent species of its own. We have also checked the type material of *S. saccoso-flabellatus* (Fig. 3: A) and *S. feddei* (Fig. 3: B) and agreed to merge

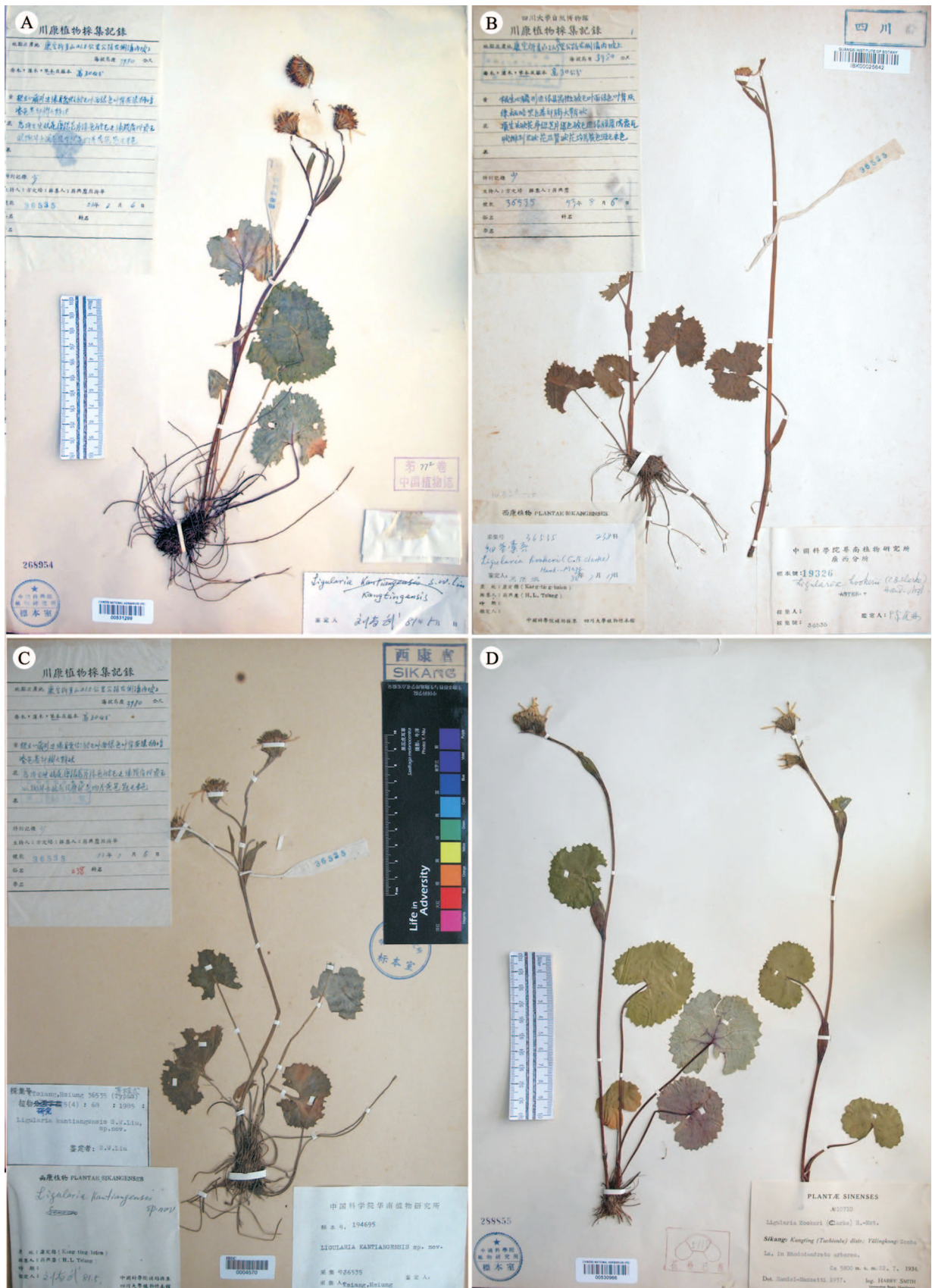


Fig. 1 *Ligularia hookeri* (C. B. Clarke) Hand-Mazz. A: H. L. Tsiang & J. H. Xiong 36535 (isotype of *L. kantianensis* S. W. Liu, PE), Zheduo Shan, Kangding, Sichuan, China; B: H. L. Tsiang & J. H. Xiong 36535 (isotype of *L. kantianensis*, IBK); C: H. L. Tsiang & J. H. Xiong 36535 (isotype of *L. kantianensis*, IBSC); D: Harry Smith 10710 (PE), Yulingkong (= Yulingong), Kangding, Sichuan, China.

them into *L. hookeri*. The type collections of both *S. feddei* and *S. saccoso-flabellatus* were made from northeastern Yunnan, with that of *S. feddei* (Maire s.n., E) from Io-chan (= Yao Shan), Qiaojia County, and that of *S. saccoso-flabellatus* (Maire s.n., E) from Ié-ma-tchouan (Ye-ma-chuan), Huize County (Lauener<sup>[4]</sup> wrongly attributed the locality Ié-ma-tchouan to Guizhou). Our examination of the type material of *S. ficariifolius* (Fig. 2: C–D), however, has shown that it has discoid capitula, and is indistinguishable from *L. leveillei*, a species from Guizhou as mentioned above. The type collection of *S. ficariifolius* (Cavalerie 3366) was also made from Guizhou (Ma-jo, Longli County). Clearly *S. ficariifolius* is conspecific with *L. leveillei*. It seems likely that Handel-Mazzetti also did not see the type material of *S. ficariifolius*, as material of it in the Edinburgh Herbarium (E) was not determined by him; otherwise he should have referred *S. ficariifolius* to *L. leveillei*. Although Lauener<sup>[4]</sup> checked the type material of *S. ficariifolius*, he did not understand well the concept of “*Cremanthodium hookeri*”, wrongly referring plants with discoid capitula to it.

Through extensive herbarium survey, we found that *Ligularia hookeri*, as a widely distributed species, is itself indeed somewhat variable in the leaf shape and particularly in the number and size of capitula, but obviously the variability has been greatly exaggerated with the placement of such different taxonomic entity as *L. leveillei* in synonymy under it by Good<sup>[3]</sup> and Lauener<sup>[4]</sup>. We also found that the variation in the number and size of capitula of *L. hookeri* seems not to be correlated with the geographical distribution or any habitat preferences, we therefore follow Liu<sup>[7–9]</sup>, and Liu and Illarionova<sup>[10]</sup> in treating *L. hookeri* as a polymorphic species, not recognizing any infraspecific taxa.

On the basis of the above analyses, we make the following taxonomic treatments.

1. *Ligularia hookeri* (C. B. Clarke) Hand.-Mazz. in Bot. Jahrb. Syst. **69**: 127. 1938; S. W. Liu in Fl. Reipubl. Popularis Sin. **77(2)**: 62. 1989, p.p.; S. W. Liu & I. D. Illar. in Fl. China **20–21**: 407. 2011, p.p.;

T. L. Min in Fl. Yunnan. **13**: 490. 2004, p.p. — *Cremanthodium hookeri* C. B. Clarke, Comp. Ind. 169. 1876. Type : India. Sikkim: without precise locality, 13000–15000 feet, J. D. Hooker 16 (holotype, K!).

*L. kangtingensis* S. W. Liu in Bull. Bot. Res., Harbin **5(4)**: 68. 1985; S. W. Liu in Fl. Reipubl. Popularis Sin. **77(2)**: 21. 1989; S. W. Liu & I. D. Illar. in Fl. China **20–21**: 384. 2011. syn. nov. Type: China. Sichuan: Kangding County, Zheduo Shan, on slopes in ravine, alt. 3980 m, Aug. 6, 1953, X. L. Jiang & J. H. Xiong 36535 (holotype, SZ; isotypes, IBK!, IBSC!, PE!).

For a fuller citation of literature and synonyms of this species, see Liu<sup>[8]</sup>, and Liu and Illarionova<sup>[2]</sup>, but *Senecio ficariifolius* should be moved to the synonymy under *Ligularia leveillei*.

**Additional specimens examined. China. Shaanxi:** Foping, P. C. Kuo 1705 (CDBI, IBSC, PE, WUK); Taibai, T. N. Liou & P. C. Tsoong 1198 (PE), T. P. Wang 1820 (PE, WUK). **Sichuan:** Jiulong, Z. A. Liu et al. 22874 (CDBI), 22929 (CDBI), Q. Q. Wang et al. 22710 (CDBI, WUK); Kangding, D. E. Boufford et al. 27631 (P), W. G. Hu & Z. He 10608 (PE, WUK), A. E. Pratt 465 (P), Harry Smith 10710 (PE), J. A. Soulié 814 (P), 2145 (P); Muli, J. F. Rock 16658 (P), 17864 (P), T. T. Yu 6808 (PE, KUN), Q. S. Zhao 6410 (CDBI), 6445 (CDBI). **Yunnan:** Dali, Delavay 204 (P), 686 (P), 688 (P), Forrest 28125 (PE), 30783 (PE), T. N. Liou 21159 (PE), 21253 (PE), H. T. Tsai 53874 (IBSC, KUN, PE), 53946 (IBSC, KUN, PE), 53979 (KUN, PE), Y. Tsiang 11480 (IBSC, KUN, WUK), H. C. Wang 1239 (KUN, PE), 1244 (KUN, PE), 4549 (IBSC, KUN, PE), 4812 (PE), 4813 (PE), NW Yunnan Exped. 10520 (KUN, PE), Zhongdian Exped. 3799 (KUN), 3931 (KUN); Deqen, K. M. Feng 5406 (KUN, PE), 6569 (KUN), Qinghai-Xizang Exped. 2710 (CDBI, KUN), 2289 (KUN), T. T. Yu 10198 (KUN, PE), C. W. Wang 68986 (PE); Eryuan, Delavay 3056 (P), 3800 (P), 4493 (P), NW Yunnan Exped. 6088 (KUN, PE), 6132 (KUN, PE); Gongshan, T. T. Yu 22164 (KUN, PE), 22305 (IBSC, KUN, PE), 22325 (KUN), 22327 (IBSC, KUN, PE); Heqing, R. C.



Fig. 2 *Ligularia leveillei* Hand.-Mazz. A: Martin & Bodinier 1911(holotype, E), neighborhood of Gan-pin and Tsin-tchen, Guizhou, China; B: Martin & Bodinier 1911(isotype, P); C: Cavalerie 3366 (holotype of *Senecio ficariifolius* H. Lév. & Vaniot, E), Ma-jo, Longli, Guizhou, China; D: Cavalerie 3366 (isotype of *Senecio ficariifolius*, P).



Fig. 3 *Ligularia hookeri* (C. B. Clarke) Hand.-Mazz. A: E. E. Maire s.n. (holotype of *Senecio saccoso-flabellatus* H. Lév., E), Ié-ma-tchouan (Ye-machuan), Huize, northeastern Yunnan, China; B: E. E. Maire s.n. (holotype of *S. feddei* H. Lév., E), Io-chan (= Yao Shan), Qiaojia, northeastern Yunnan, China.

Ching 23988 (KUN, PE); Lijiang, Z. G. Zhao 30462 (KUN, PE); Qiaojia, Anonymous 2313 (KUN); Weixi, J. F. Rock 17159 (P); Yangbi, Zhongdian Exped. 4211 (KUN); Zhongdian, K. M. Feng 1614 (KUN, PE), 1801 (KUN, PE), 2103 (KUN), C. Y. Wu 4335 (KUN), T. T. Yu 12283 (KUN, PE), Zhongdian Exped. 1411 (HIB, KUN, PE), 1412 (KUN, PE). **Xizang:** Yadong, G. X. Fu 457 (PE), G. X. Fu & J. W. Zhang 1138 (PE), Qinghai-Xizang Exped. 2348 (KUN, PE).

**Distribution and habitat.** *Ligularia hookeri* is widely distributed in Bhutan, China [Shaanxi (Taibai Shan), Sichuan, Xizang (Tibet), northwestern and northeastern Yunnan], India (Sikkim), and Nepal. It grows on grassy slopes, in forests or alpine meadows at altitudes of 3000–4500 m. The record of the occurrence of *L. hookeri* var. *polyccephala* on Fanjing Shan, Guizhou, China by Chen and Liu<sup>[13]</sup>, may be

based on a misidentification. A collection from Fanjing Shan, Sino-American Guizhou Bot. Exped. 441 (PE), is clearly referable to *L. nanchuanica* S. W. Liu, a species somewhat similar to *L. leveillei*. The plant identified as *L. hookeri* var. *polyccephala* by Chen and Liu very likely belongs to *L. nanchuanica*.

2. *Ligularia leveillei* (Vaniot) Hand.-Mazz., Symb. Sin. 7: 1136. 1936; et in Bot. Jahrb. Syst. 69: 128. 1938, p.p.; S. W. Liu in Fl. Reipubl. Popularis Sin. 77(2): 63. 1989; S. W. Liu & I. D. Illar. in Fl. China 20–21: 406. 2011. — *Senecio leveillei* Vaniot in Bull. Acad. Int. Géogr. Bot. 11: 346. 1902. Type: China. Guizhou: neighborhood of Gan-pin and Tsin-tchen, 4–13 Sept., 1897, Martin & Bodinier 1911 (holotype, E!; isotypes, P!).

*Senecio ficariifolius* H. Lév. & Vaniot in Rep.

Sp. Nov. 8: 359. 1910. Type: China. Guizhou: Ma-jo, Longli County, 14 Nov., 1907, Cavalerie 3366 (holotype, E!; isotype, P!).

**Additional specimens examined. China. Guizhou:** Gan-chouen, Cavalerie s.n. (P); Pingba, S. W. Teng 931A (IBSC), 932B (IBSC); Zhenning, Zhenning Exped. 150 (GZTM).

**Distribution and habitat.** *Ligularia leveillei* is distributed in central Guizhou, China. It grows in grasslands at altitudes of 2000–2200 m.

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