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The identity of *Ligularia euryphylla* (Asteraceae, Senecioneae)

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Abstract: Study of the type material of *Senecio euryphyllus* C. Winkl. (= *Ligularia euryphylla* (C. Winkl.) Hand.-Mazz.) in the LE, K and PE herbaria revealed that each of the three sheets consists of a mixture of two different taxa: *L. tongolensis* (Franch.) Hand.-Mazz. and *Nannoglottis carpesioides* Maxim. Lectotypes for *Senecio euryphyllus*, *S. tongolensis* Franch. (= *L. tongolensis*) and *S. monbeigii* H. Lév. are designated. *Ligularia euryphylla* joins *S. monbeigii* as a synonym of *L. tongolensis*.

Key words: taxonomy, nomenclature, typification, lectotype, China, Asteraceae, Compositae, Senecioneae, *Ligularia euryphylla*, *Ligularia tongolensis*, *Nannoglottis carpesioides*

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Introduction

The Eurasian genus *Ligularia* Cass., consisting of approximately 150 species, has its centre of species diversity in SW China. One of many species described from this region is *Senecio euryphyllus* C. Winkl. (1895). The name was based on specimens collected in Sichuan Province, China, by the famous Russian geographer, ethnographer and naturalist Grigory Potanin. Later H. Handel-Mazzetti (1938) made the combination for it in *Ligularia*, but he mentioned that he had not seen any type specimens. S. W. Liu (1989) included this species in *L. sect. Corymbosae* (Franch.) Hand.-Mazz. ser. *Lapathifoliae* S. W. Liu. This decision was based on the corymbose inflorescence and pinnately veined leaves. The species is known only from the type material, which includes three sheets: one kept in the Saint Petersburg herbarium (LE; Thiers [continuously updated]) and two duplicate sheets sent to the Kew (K) and Beijing (PE) herbaria. Study of these specimens revealed that the parts of plants present on each herbarium sheet belong to species in two different genera: *L. tongolensis* (Franch.) Hand.-Mazz. and *Nannoglottis carpesioides* Maxim.

Results and Discussion

Each of three type sheets of *Senecio euryphyllus* includes a sterile basal rosette with large leaves and a stem with inflorescence. The sheet in LE (Fig. 1) has also a separate portion of the lower half of a stem with three cauline leaves. I have identified the stems with ovate-cordate leaves and corymbose inflorescence as *Ligularia tongolensis* (Franch.) Hand.-Mazz. However, the plants with basal rosettes of ovate-lanceolate leaves with winged petioles and both surfaces of the leaf blade white pilose are very different. Also, the roots of these plants are not typical for *Ligularia* species. I suspected that these plants consisting of lower parts belonged to another genus. After examination of the LE Asteraceae collection I found specimens of *Nannoglottis carpesioides* Maxim. collected by Grigory Potanin in the same locality as the specimens of *S. euryphyllus*: “Ta-t sien-lu, supra pagum Tshungu” and with the same collection date “16 VII 1893”. Two sheets of *N. carpesioides* include upper halves of stems with cauline leaves and inflorescence (Fig. 3). These specimens are identical to the lower portion of the stem mounted on the type sheet of *S. euryphyllus* in LE.

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Fig. 1. Lectotype of *Senecio euryphyllus* C. Winkl. – LE01013442, the left-hand stem with the inflorescence. – Reproduced with permission, © Komarov Botanical Institute of the Russian Academy of Sciences.



Fig. 2. Isolectotype of *Senecio euryphyllus* C. Winkl. – PE00030201, the stem with the inflorescence in the centre of the sheet. – Reproduced with permission, © Chinese National Herbarium, Institute of Botany, Chinese Academy of Sciences.



Fig. 3. Specimen of *Nannoglottis carpesioides* Maxim. – LE01013826. – Reproduced with permission, © Komarov Botanical Institute of the Russian Academy of Sciences.

In the protologue of *Senecio euryphyllus*, C. Winkler (1895) gave the collection date as “16/VIII 1893”. This same date we can see on the label of the sheet in LE (although the figure 15 was changed to 16). But this specimen also has a field label with the printed date “16 Июля [July] 1893”. The specimen in K (viewable via JSTOR Global Plants: <http://plants.jstor.org>) has the date “1893. 15/VIII ” on a label. The third specimen in PE (Fig. 2) is dated “1893. 16/VII ”. In the LE and K herbaria I also found specimens of *Ligularia tongolensis* with labels “China occidentalis, prov. Szechuan, Ta-tsien-lu, 15 Jul 1893, G. N. Potanin” and identified by C. Winkler as “*Senecio tongolensis* Franch.” According to V. L. Komarov (1928), Grigory Potanin visited “pagum Tshzhungu” on 15 July 1893 (in the Julian calendar, not the Gregorian calendar of modern times). I suppose that the differences in collection dates are the result of confusion on the labels. Undoubtedly these three specimens of *S. euryphyllus* are parts of a single gathering. Also they all have the name “*Senecio euryphyllus* C. Winkl.” on their labels in Winkler’s hand. These three specimens should be regarded as original material.

Because the original material used by the author consists of several specimens and contains parts belonging to different taxa, a lectotype should be chosen (McNeill & al. 2012: Art. 9.11 & 9.14). I designate the left-hand plant with an inflorescence on the sheet at LE (LE01013442) as the lectotype of *Senecio euryphyllus*. Only this stem belongs to the genus *Ligularia* and is thus suitable to fix the application of the name *S. euryphyllus*. Also this part of the material on the sheet better matches the description in the protologue than do the parts belonging to *Nannoglottis carpesioides*. The left-hand plant with an inflorescence on the sheet at K (K000814811) and the stem with an inflorescence in the centre of sheet (with separated leaf on right-hand) at PE (PE00030201) are the isolectotypes, the other material on those sheets being *N. carpesioides*. Since I consider the lectotype material of *S. euryphyllus* to belong to what is currently known as *L. tongolensis*, the names *S. euryphyllus* and *L. euryphylla* become synonyms of *L. tongolensis*.

The type material of *Ligularia tongolensis* consists of two specimens at P belonging to separate gatherings made by J. A. Soulié in Sichuan Province: Ta-tsien-lou, *Soulié 144* (P00723341!) and Tongolo, *Soulié 137* (P00723340). Because A. Franchet (1893) cited the specimens in the protologue but did not indicate one of them as the type, they are syntypes and a lectotype can be designated. I select the specimen from Tongolo (*Soulié 137*) because it is in better condition, corresponds with the description and also reflects the specific epithet.

As was mentioned previously (Liu 1989; Liu & Ilarionova 2011), *Senecio monbeigii* H. Lév. is conspecific with *Ligularia tongolensis*. The original material of *S. monbeigii* kept at E consists of two specimens belonging to a single gathering made by E. E. Maire in Sichuan Province. Since H. Lévillé (1915) cited this gathering in

the protologue but did not specify a herbarium where it was conserved and did not annotate either specimen at E as the type, those two specimens are syntypes. Lauener (1976) cited the same Maire gathering as “holo. *S. monbeigii*, E” but without specifying which of the specimens he considered the holotype, which therefore constitutes a first-step lectotypification (McNeill & al. 2012: Art. 9.17 & 9.9). I now designate specimen E00413253, which better corresponds with the description in the protologue, as the second-step lectotype of *S. monbeigii*.

Senecio tongolensis Franch. in Bull. Soc. Bot. France 39: 305. 1893; Diels in Repert. Spec. Nov. Regni Veg. Beih. 12: 509. 1922 = *Ligularia tongolensis* (Franch.) Hand.-Mazz., Symb. Sin. 7: 1136. 1936; id. in Bot. Jahrb. Syst. 9: 109. 1938; id. in Acta Horti Gothob. 12: 302. 1938; S. Y. Hu in Quart. J. Taiwan Mus. 20: 74. 1967; Lauener in Notes Roy. Bot. Gard. Edinburgh 34: 371. 1976; S. W. Liu in Fl. Xizang. 4: 831. 1985; id. in Fl. Reipubl. Popularis Sin. 77, 2: 46. 1989; T. L. Min in Fl. Yunnan. 13: 486. 2004; S. W. Liu & I. D. Illar. in Fl. China 20–21: 395. 2011 = *Senecillis tongolensis* (Franch.) Kitam. in Acta Phytotax. Geobot. 8: 87. 1939. – **Lectotype (designated here)**: China, “Setchuen oriental., Bois à Tongolo”, Aug 1891, R. P. [J. A.] Soulié 137 (P00723340!).

= *Senecio euryphyllus* C. Winkl. in Trudy Imp. S.-Peterburgsk. Bot. Sada 14: 156. 1895; Diels in Repert. Spec. Nov. Regni Veg. Beih. 12: 508. 1922 = *Ligularia euryphylla* (C. Winkl.) Hand.-Mazz. in Bot. Jahrb. Syst. 69: 108. 1938; S. Y. Hu in Quart. J. Taiwan Mus. 20: 58. 1967; S. W. Liu in Fl. Reipubl. Popularis Sin. 77, 2: 45. 1989; S. W. Liu & I. D. Illar. in Fl. China 20–21: 395. 2011 = *Senecillis euryphylla* (C. Winkl.) Kitam. in Acta Phytotax. Geobot. 8: 87. 1939. – **Lectotype (designated here)**: “China occidentalis, prov. Szechuan, Ta-tsien-lu supra pagum Tshungu (Chungu vel Tchungu)”, 16 Aug 1893, G. N. Potanin s.n. (LE01013442! – left-hand stem with inflorescence only [Fig. 1]; isolectotypes: K000814811! – left-hand stem with inflorescence, PE00030201! – stem with inflorescence in centre of sheet [Fig. 2]).

= *Senecio monbeigii* H. Lév. in Bull. Géogr. Bot. 25: 17. 1915. – **Lectotype** (first-step, Lauener 1976: 371; **second-step, designated here**): China, Yunnan, “pâtures – plateau de Ta-hai”, 3200 m, Aug 1912, E. E. Maire s.n. (E00413253!; isolectotype: E00413254!).

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