



New combinations for Asian Campanulaceae

Thomas G. Lammers

Department of Botany, Field Museum of Natural History, Chicago, Illinois 60605-2496, U.S.A.

(Received May 1, 1992 ; Accepted June 1, 1992)

Abstract. Three new combinations at subspecific rank are proposed for Asian Campanulaceae : *Adenophora morrisonensis* subsp. *uehatae* (Yamamoto) Lammers, *comb. et stat. nov.* (based upon *Adenophora uehatae* Yamamoto); *Codonopsis javanica* subsp. *japonica* (Maxim. ex Makino) Lammers, *comb. nov.* (based upon *Campanumoea javanica* var. *japonica* Maxim. ex Makino); and *Lobelia al-sinoides* subsp. *hancei* (Hara) Lammers, *comb. et stat. nov.* (based upon *Lobelia hancei* Hara).

Key words: *Adenophora*; Asia; Campanulaceae; *Campanumoea*; *Codonopsis*; *Lobelia*; Nomenclature.

The following new combinations are proposed in order to make them available for a review of the Campanulaceae of Taiwan in a forthcoming symposium volume (Lammers, 1992).

Adenophora morrisonensis* subsp. *uehatae (Yamamoto) Lammers, *comb. et stat. nov.* *Adenophora uehatae* Yamamoto, J. Trop. Agric. Soc. Formos. 4: 484. 1932. *Adenophora coelestis* var. *uehatae* (Yamamoto) Masam., Trans. Nat. Hist. Soc. Formos. 29: 271. 1939, 'coelurai'. Type : Formosa, in monte Nankotaizan, ad ca. 12000 ped alt., Jun 1932, *Uehata s.n.*

Most authors have recognized two species of *Adenophora* as endemic to Taiwan, *A. morrisonensis* Hayata and *A. uehatae* Yamamoto (Shimizu, 1965; Kao and DeVol, 1974, 1978; Ying, 1975). Apparently, none of these authors ever considered that they might be closely related, much less conspecific. In the protologue, Yamamoto suggested that *A. uehatae* was most closely related to *A. tashiroi* (Makino & Nakai) Makino & Nakai, a species restricted to two islands in the Korean Strait, Fukue and Cheju (Ohwi, 1984). Shimizu (1965) disagreed, and suggested that this species was closest to *A. nikoensis* Franch. & Sav. (as *A. nipponica* Kitam.), a species endemic to alpine regions on the Japanese island of Honshu.

Hong (1983), however, reduced *A. uehatae* to synonymy under *A. morrisonensis*. These two taxa do share numerous features, including erect, angular stems; alternate, serrate, sessile or subsessile leaves; short discoid nectary; serrate calyx lobes; relatively large campanulate corolla; and included style. However, they are readily distinguishable on the basis of overall stature, number of flowers, stem pubescence, and ecology (Shimizu, 1965; Kao and DeVol, 1974, 1978; Ying, 1975). *Adenophora morrisonensis* is a tall, glabrous or sparsely pubescent, racemose plant that grows on the edges of thickets and forests in the subalpine zone at elevations between 2400 and 3000 m; *A. uehatae* is a short, hispid, uni- or biflorous plant that grows on sheltered scree in the alpine zone at elevations above 3000 m. Although I accept Hong's (1983) conclusion that these two groups of populations are conspecific, I believe that it is useful to distinguish them as ecological subspecies. The subalpine plants become the autonymic subsp. *morrisonensis* and the necessary combination for the alpine plants is proposed above.

Codonopsis javanica* subsp. *japonica (Maxim. ex Makino) Lammers, *comb. nov.* *Campanumoea japonica* Maxim., Bull. Acad. Imp. Sci. Saint-Petersburg 12: 67. 1867; *non* Siebold ex C. J. Morren, Belgique Hort. 13: 337. 1863. *Campanumoea javanica* var. *japonica* Maxim. ex Makino, Bot. Mag. (Tokyo)

22: 155. 1908. *Campanumoea maximowiczii* Honda, Bot. Mag. (Tokyo) 50: 389. 1936. *Campanumoea javanica* subsp. *japonica* (Maxim. ex Makino) Hong, Fl. Reipubl. Popul. Sin. 73(2): 71. 1983. Type: Japan, "In proximis viciniis urbis Nagasaki, ad viam Tomats versus ducentem, in intericatissimis fruticetis sylvarum muscosarum, secus rivulos..."

Codonopsis Wallich usually has been circumscribed so as to include only species with capsular fruits that are dehiscent via five small apical valves (Komarov, 1908; Chipp, 1908; Anthony, 1926; Tsoong, 1935; Kao and DeVol, 1974, 1978; Hong, 1983). Species that are otherwise similar but produce berries have been segregated as *Campanumoea* Blume. Kolakovsky (1987) has gone so far as to place *Campanumoea* and *Codonopsis* in different subfamilies of Campanulaceae s. str., the Canarinoideae Kolak. and Wahlenbergioideae Kolak., respectively. However, no other characters distinguish the two and *Campanumoea* thus would appear to be the product of the dubious practice of single-character taxonomy.

Discriminating genera on the basis of a single character might be forgiven were that character shown to be uniquely derived, i.e., a synapomorphy that defines a holophyletic group. Unfortunately, this does not appear to be the case. In most instances, the species of *Campanumoea* actually share a larger number of character states with various species of *Codonopsis* s. str. than they do with congeners. For example, one would expect *Campanumoea javanica* Blume and *Campanumoea lancifolia* (Roxb.) Merrill, as congeners, to be most similar to one another; instead, the former is closest to *Codonopsis viridis* Wallich and the latter to *Codonopsis purpurea* Wallich (Moeliono and Tuyn, 1960). This suggests that baccate fruits have evolved at least twice from capsules, making *Campanumoea* polyphyletic, and thus untenable. For these reasons, the species previously segregated as *Campanumoea* have been treated as *Codonopsis* (Moeliono and Tuyn, 1960; Hara, 1982).

All necessary combinations under *Codonopsis* are already available, save one. Hong (1983) divided *Campanumoea javanica* into two geographical subspecies: (1) subsp. *javanica*, with flowers 1.8–3 cm long and berries 1.2–3 cm in diameter, in the southern and western portions of the species' range; and (2) subsp. *japonica*, with flowers 1–1.3 cm long and berries 1–1.5

cm in diameter, in the northern and eastern portions. This classification is accepted here, and the necessary new combination under *Codonopsis* is proposed.

Lobelia alsinoides* subsp. *hancei (Hara) Lammers, *comb. et stat. nov.* *Lobelia hancei* Hara, J. Jap. Bot. 17: 23. 1941. Type: China, in uliginosis circa Canton, Aug 1869, leg. Sampson, *Hance 634*.

Lobelia chinensis var. *cantonensis* F. E. Wimmer ex Danguy in Lecomte & Humbert, Fl. Indo-Chine 3: 681. 1930. *Lobelia alsinoides* var. *cantonensis* (F.E. Wimmer ex Danguy) F. E. Wimmer, Ann. Naturhist. Mus. Wien 56: 360. 1948. Type: China.

Wimmer (1953) distinguished two varieties of *L. alsinoides* Lam.: var. *alsinoides* (incl. *L. trigona* Roxb.), with serrate leaves about as long as broad, occurring in the southern portion of the species' range; and var. *cantonensis* (incl. *L. hancei*), with less prominently toothed leaves that are longer than broad, occurring in the northern portion of the range. Several subsequent authors (Moeliono and Tuyn, 1960; Thuan, 1969; Hara, 1962; Cramer, 1983; Hong, 1983; Ohwi, 1984) have gone so far as to distinguish these two taxa as species, i.e., as *L. alsinoides* and *L. hancei*, respectively. However, given the nature of the differences and the existence of morphological intermediates, it seems better to recognize a single species comprising two geographical subspecies. The necessary combination is proposed above.

Literature Cited

- Anthony, J. 1926. A key to the genus *Codonopsis* Wall., with an account of two undescribed species. Notes Roy. Bot. Gard. Edinburgh 15: 173–190 + pl. 216–217.
- Chipp, T. F. 1908. A revision of the genus *Codonopsis*, Wall. J. Linn. Soc., Bot. 38: 374–391.
- Cramer, L. H. 1983. Campanulaceae, Lobeliaceae. In M. D. Das-sanayake (ed.), A Revised Handbook of the Flora of Ceylon, Vol. 4. Amerind Publ. Co., New Delhi, pp. 160–177.
- Hara, H. 1982. Campanulaceae. In H. Hara, A. O. Chater, and L. H. J. Williams, An Enumeration of the Flowering Plants of Nepal, Vol. 3. British Museum (Natural History), London., pp. 49–54.
- Hong, D.-Y. 1983. Flora Reipublicae Popularis Sinicae, Vol. 73(2). Science Press, Beijing.
- Kao, M. T. and C. E. DeVol. 1974. The Campanulaceae of Taiwan. *Taiwania* 19: 123–147.
- Kao, M. T. and C. E. DeVol. 1978. Campanulaceae. In H.-L. Li,

- T.-S. Liu, T. C. Huang, T. Koyama, and C. E. DaVol (eds.), *Flora of Taiwan*, Vol. 4. Epoch Publ. Co., Taipei, pp. 737-764.
- Kolakovsky, A. A. 1987. System of the Campanulaceae family from the Old World. *Bot. Zhurn. (Moscow & Leningrad)* **72**: 1572-1579.
- Komarov, V. L. 1908. Prolegomena ad floras Chinae nec non Mongoliae. VII. Revisio critica specierum generis *Codonopsis* Wall. *Trudy Imp. S.-Petarburgsk. Bot. Sada* **29**: 1-176 + pl. I-IV.
- Lammers, T. G. 1992. Systematics and biogeography of the Campanulaceae of Taiwan. In C.-I Peng (ed.), *Phytogeography and Botanical Inventory of Taiwan*. Institute of Botany, Academia Sinica, Monograph Series. **12**: 43-61.
- Moliono, B. and P. Tuyn. 1960. Campanulaceae. In C. G. G. J. van Steenis (ed.), *Flora Malesiana*, ser. 1, Vol. 6, part 1. Noordhoff-Kolff, Djakarta, pp. 107-141.
- Ohwi, J. 1984. *Flora of Japan* (in English). Smithsonian Institution, Washington.
- Shimizu, T. 1965. A taxonomic and cytological note on *Adenophora* of Taiwan. *J. Jap. Bot.* **40**: 372-376.
- Thuan, N. van. 1969. Campanulaceae. In A. Aubréville (ed.), *Flore du Cambodge, du Laos et du Vietnam*, fasc. 9. Muséum National d'Histoire Naturelle, Paris, pp. 1-54.
- Tsoong, P. C. 1935. Preliminary study on Chinese Campanulaceae. *Contrib. Inst. Bot. Natl. Acad. Peiping* **3**: 61-118 + pl. IX-XIV.
- Wimmer, F. E. 1953. Campanulaceae-Lobelioideae. II. Teil. In H. Stubbe and K. Noack (eds.), *Das Pflanzreich*, Teil 4, Abteilung 276b, Akademie-Verlag, Berlin, pp. i-viii, 261-813.
- Ying, S.-S. 1975. A list of alping (sic) plants of Taiwan (II). *Quart. J. Chin. Forest.* **8**: 123-151.

亞洲桔梗科植物學名之新組合

Thomas G. Lammers

Department of Botany, Field Museum of Natural History,
Chicago, Illinois 60605-2496, U.S.A.

本文對三種亞洲產桔梗科植物的學名做了下列的新組合：*Adenophora morrisonensis* subsp. *uehatae* (Yamamoto) Lammers, *comb. et stat. nov.* (原名 *Adenophora uehatae* Yamamoto)；*Codonopsis javanica* subsp. *japonica* (Maxim. ex Makino) Lammers, *comb. nov.* (原名 *Campanumoea javanica* var. *japonica* Maxim. ex Makino)；and *Lobelia alsinoides* subsp. *hancei* (Hara) Lammers, *comb. et stat. nov.* (原名 *Lobelia hancei* Hara).