Gardens' Bulletin Singapore **51** *(1999) 119–124.*

Eupatorium catarium, a New Name for *Eupatorium clematideum* Griseb., *non* Sch.Bip. (Compositae), a South American Species Naturalized and Spreading in SE Asia and Queensland, Australia

J.F. VELDKAMP

Rijksherbarium/Hortus Botanicus,
P.O. Box 9514, NL-3200 RA Leiden
The Netherlands

Abstract

Eupatorium catarium Veldk. (Compositae) is a new name for *Eupatorium clematideum* Griseb., *non* Sch.Bip., also known as *Praxelis clematidea* R.M. King & H. Rob.. The species has been introduced in S. China and Queensland, Australia, where it appears to be spreading rapidly.

Introduction

During a visit in 1998 to Hong Kong, Macao, and Queensland, I was shown a recent introduction, *Eupatorium clematideum* Griseb. (Compositae). This species is spreading rapidly there and now occurs in mainland S China, at least in the Shenzhen region in Guangdong as well.

It has been regarded as a member of *Eupatorium* Tourn. section *Praxelis* (Cass.) Baker, e.g. by Aristeguieta (1974), Cabrera and Vittet (1954), Cabrera (1974), Cabrera *et al.* (1996) and Liogier (1996).

King and Robinson (1970, 1987) have split *Eupatorium* Tourn. into a number of genera, of which *Praxelis* Cass. is one, and have called the species *Praxelis clematidea* R.M. King & H. Rob.. Their elevation of infrageneric groups in *Eupatorium* to genera is still under debate and is not generally accepted.

Eupatorium clematideum was described by Grisebach (1879) based on Argentine and Paraguay material, but this is an illegitimate name as prior to that, in 1866, Schultz Bipontinus had made the same combination for a Nepalese taxon: "*Mikania clematidea* DC.! pr. V. 191 n. 32 ist nach einem von mir im britisch Museum untersuchten Originalexemplar ein *Eupatorium* (*clematideum* Sz-Bip.)". This specimen is a Wallich collection (no. *3173*; IDC microfiche 7394). The combination was reduced by Uniyal (1995) to *E. chinense* L.. However, S.-W. Chung and C.-I Peng (1998) have accepted *E. clematideum* Sch. Bip. as a distinct species with two varieties in Taiwan.

Jackson (1895) mentioned another earlier *Eupatorium clematideum* Less. cited as having been published by Baker (1876), but the latter had included it as a synonymous manuscript name for *Mikania phaeoclados* Mart. *ex* Baker and so it was invalidly published.

The combination made by Schultz Bipontinus makes that of Grisebach a later homonym. Consequently, *Praxelis clematidea* R.M. King & H. Rob. (1970) is not a 'comb. nov.', but a 'nom. nov.' [see ICBN Art. 58.1.(b) and 58.3] and correct in *Praxelis*. In *Eupatorium*, however, the species has no available epithet, and I propose to call it *E. catarium* Veldk. The epithet refers to the fairly disagreeable smell of the plant ('of cats').

As descriptions of *Eupatorium* sect. *Praxelis* and *Eupatorium clematideum sensu* Griseb. and *Praxelis clematidea* King & H. Rob. are not readily available in SE Asia and Australia, I give them here, together with the synonymy.

Eupatorium L. sect. ***Praxelis*** (Cass.) Benth. *ex* Baker in Mart., Fl. Bras. 6, 2 (1876) 341. — *Praxelis* Cass. in Cuvier, Dict. Sc. Nat. 43 (1826) 261. — Type: *Praxelis villosa* Cass. [= *Praxelis diffusa* (Rich.) Pruski = *Eupatorium pauciflorum* Kunth; *non E. diffusum* Vahl].

Ooclinium DC., Prod. 5 (1836) 133. — Lectotype: *Ooclinium grandiflorum* DC. [= *Praxelis grandiflora* (DC.) Sch.Bip.] [designated by R.M. King & H. Robinson, Sida 3 (1969) 338].

Annual or perennial herbs or undershrubs. Capitules long-pedicelled, solitary to few in a lax panicle. Phyllaries 15–25, in 3–5 indistinct series, unequal, deciduous before the fruits, 3–6-nerved. Receptacle conical to ellipsoid, glabrous. Corolla of marginal flowers without expanded outer lobes. Anther collar [see Robinson & King (1977) t. 2] with the cell walls with prominent ornate banding, below with many quadrate cells with oblique or vertical banding, above with elongated cells with transverse bands, exothecal cells usually as long as wide [see Robinson & King (1977) t. 5], anther appendage large, serrate to lobed [see Robinson & King (1977) t. 11]. Style without basal node. Achenes more or less flattened, 3- or 4-costate; carpopodium distinct, highly asymmetric, cells clear, quadrate or elongated, walls thin, firm. Pappus of 20–40 long, scabrous bristles, apical cells pointed.

Distribution: 15 species in S. America [fide Bremer *et al.* (1994)]: Argentine, Bolivia, Brazil, Colombia, Guyana, Paraguay, Peru, Venezuela; 1 recently introduced in S China (e.g. Hong Kong, Macao, Shenzhen region in Guangdong) and N Australia (Queensland).

Eupatorium catarium Veldk., **nom. nov.**

Eupatorium clematideum Griseb., Abh. Konigl. Ges. Wiss. Gottingen 24 (1879) 172, *non* Sch.Bip. (1866). — Syntypes: *Balansa 936* (GOET?, P?, n.v.), *Lorentz s.n.* 'Cordoba' (GOET?, n.v.). — *Eupatorium urticifolium* L.*f.* (1781, *non* Reichard, 1780) var. *clematideum* Hieron. *ex* Kuntze, Rev. Gen. 3 (1898) 148, comb. incorr. — *Praxelis clematidea* R.M. King & H. Rob., Phytologia 20 (1970) 194, nom. nov.

Eupatorium urticifolium L.*f.* (*non* Reichard) var. *nanum* Hieron., Bot. Jb. 22 (1897) 783 (*'nana'*), comb. incorr. — Type: Kuntze Sept. 1892 (B, holo, extant?; NY?), S. Paraguay, Villa Florida.

Eupatorium pauciflorum auct. non Kunth.

Eupatorium urticifolium auct. non Reichard (1780) nec L.*f.* (1781).

Perennial (already flowering in its first season), 0.3–1 m tall, caudex woody, erect, branched, branches terete, angular, septate hirsute, laxly foliate, malodorous. Internodes 3–16 cm long. Petioles 0.3–2 cm long, blades ovate to rhomboid, 2.5–6 by 1–4 cm, septate hirsute and gland-dotted on both sides especially underneath, base rounded to cuneate, 3-nerved, margins coarsely dentate, teeth 5–8 on each side, acute, apex acute. Inflorescence of many capitules in terminal, dense, corymbiform, few-headed cymes. Pedicels septate hirsute, 2–10 mm long. Involucre cylindrical campanulate, 7–10 by 4–5 mm. Phyllaries in 4 or 5 series, yellowish with 3–5 green nerves, distally purplish, glabrous to distally appressed strigose, the outer ones smallest, lanceolate, apex acuminate, the inner linear, acute. Flowers 25–30, somewhat purplish blue or lilac; corolla 3.5–4.8 mm long, shortly (4- or) 5-dentate. Achenes 2–3 mm long, black, distally hispidulous; pappus bristles 15–40, white. n = 31I.

Distribution: N Argentina, Bolivia, S Brazil, Paraguay, Peru. Introduced into Hong Kong around 1980, *fide* Corlett and Shaw (1995), Macao, Shenzhen region in Guangdong, and no doubt elsewhere in S China (Waterhouse and Corlett, 1996; not mentioned by Shi, 1985). The first records in Australia date from November 1993 near S Johnstone, Queensland. In 1994 it was found to be abundant and widespread in the Tully and Bingil Bay Districts of N Queensland, where it may have been introduced at least ten years earlier (perhaps already in the late 1960s) as seeds from S. America. It now occurs from Townsville to the Daintree region, and on the Atherton Tablelands.

Habitat: Roadsides, railway lines, disturbed areas, urban wasteland, beneath fences, rural paths; altitude 0–700 m in Hong Kong, 0–800 m in Queensland, (0–)350–3050 m in S America.

Ecology: In Australia, in 1998 it occurred in areas with a mean annual rainfall of 945–4000 mm, and mean maximum January (summer) temperatures between 28.1°C and 31.3°C, and mean minimum July (winter) temperatures of 9.6°C to 17.0°C. There are occasional night frosts on the Atherton Tablelands.

In Hong Kong, the mean annual rainfall is 1500–2500 mm, with mean monthly temperatures at sea level varying between 15.8°C for January and 28.8°C for July. On the Peak of Hong Kong where night frosts occur, a specimen with a well-developed woody caudex was collected (*Veldkamp 8772*, L) indicating it had been growing there for some time. Waterhouse and Corlett (1996) reported that minimum temperatures of 3–4°C causes minor damage to the flowers, but not to the leaves.

There seem to be no such observations for S America, but in Bolivia it occurs up to 3050 m altitude suggesting frost-resistance.

Specimens collected at sea level on 18 September 1998 in Macao (*Veldkamp 8793*, L) were dried and after arrival some days later in Leiden were frozen to -30°C for about 48 hours. On 25 October about a dozen seeds placed in a small container in my office germinated within two days, indicating that they are quite frost and drought resistant. I put a plant outside in March/April, 1999. There followed occasional night frosts with some snow, and daily temperatures never reached 10°C. It grew slowly and apparently was only slightly affected by these low temperatures; it was more stocky and darker and the leaves were smaller than the rather etiolated ones kept inside.

Extermination: Reported to be more resistant to herbicides than *Ageratum conyzoides* L. because of its more robust rootstock and longer growing and flowering seasons.

Toxicity: Anecdotal reports suggest that it may be poisonous to livestock and humans if ingested.

Notes: *Eupatorium catarium*, according to B.L. Robinson (1920) and which he called *E. clematideum*: "is very closely related to *E. pauciflorum* Kunth ('H.B.K.'), but is considerably stouter and has much shorter pedicels and in consequence decidedly denser cymes giving it a characteristic habit. It seems best to accord it specific rank".

In China and Australia, *E. catarium* has been mistaken for an odd *Ageratum conyzoides*, which differs in its flat to convex receptacle, persistent phyllaries in distinct rows, and 60–75, white or violet flowers per capitule. Corlett and Shaw (1995) erroneously reported the presence of 50–65 flowers per capitule in Hong Kong plants.

Acknowledgements

I want to thank Dr. R.T. Corlett, Hong Kong, for showing me around the island, Ms. C.M. Kooij, Hong Kong, for taking me on a trip to Macao, Ms. B.M. Waterhouse, Mareeba (Queensland), for allowing me to cite from her manuscript and Corlett for discussions on the history and ecology of the species in Hong Kong and Australia, and the anonymous referees of this paper, who suggested crucial changes for the better.

References

Aristeguieta, L. 1974. Compositae. In: T. Lasser, *Flora de Venezuela.* **5**, 1: 120, 180–184. Instituto Botanico, Caracas.

Baker, J.G. 1876. Compositae. In: C.F.P. von Martius, *Flora Brasiliensis.* **6**, 2: 256. Mus. C.R. Pal. Vind.; Munchen.

Bremer, K., A.A. Anderberg, P.O. Karis & J. Lundberg. 1994. Tribe Eupatorieae. In: K. Bremer (ed.), *Asteraceae: Cladistics and Classification.* p. 656. Timber Press, Portland (OR).

Cabrera, A.L. 1974. Compositae. In: A. Burkart (ed.), *Flora ilustrada de Entre Rios.* **6**: 175, t. 85, f. i—l. INTA, Buenos Aires.

Chung, S.-W. & C.-I Peng. 1998. *Eupatorium.* In: T.-C. Huang. *Flora of Taiwan.* **4**: 953–956, t. 451,452, photo 450. Dept. Botany, National Taiwan University, Taipei, Taiwan. 2nd ed.

Cabrera, A.L. & N. Vittet. 1954. Catalogo de las Eupatorieas argentinas (Compositae). *Revista del museo de La Plata, Bot.* **8**: 242–243.

Cabrera, A.L., W.C. Holmes & S. McDaniel. 1996. *Flora del Paraguay.* **25**: 63, t. 19-F/H, map 21. Conservatoire et Jardin Botaniques de la Ville de Geneve, Switzerland & Missouri Botanical Garden, St. Louis, USA.

Corlett, R.T. & J.C. Shaw. 1995. *Praxelis clematidea*: yesterday South America, today Hong Kong, tomorrow the world? *Memoirs Hong Kong Natural History Society.* **20**: 235–236.

Grisebach, A.H.R. 1879. Symbolae ad floram argentinam. *Abhandlungen der Königlichen Gesellschaft der Wissenschaften zu Göttingen.* **24**: 172.

Jackson, B.D. 1895. *Index Kewensis.* **1**: 916-a. Clarendon Press, Oxford.

King, R.M. & H. Robinson. 1970. Studies in the Eupatorieae (Compositae). XXVIII. The genus *Praxelis*. *Phytologia.* **20**: 193–195.

King, R.M. & H. Robinson. 1987. The genera of the Eupatorieae (Asteraceae). *Monograph Systematic Botany Missouri Botanic Garden.* **22**: 380–382, 535, 551.

Liogier, A.H. 1996. La flora de la Espanola. VIII. *Universitie Central del Este.* 72. Ser. Sci. **29**:120.

Robinson, B.L. 1920. The Eupatoriums of Bolivia. *Contributions Gray Herbarium.* n.s. **61**: 72.

Robinson, H. & R.M. King. 1977. Eupatorieae — systematic review. In: V.H. Heywood and J.B. Harbourne.(eds.). *The Biology and Chemistry of the Compositae.* pp. 446–448. Academic Press, London.

Schultz Bipontinus, C.H. 1866. Beitrag zur Geschichte und geographischen Verbreitung des Cassiniaceae des Pollichiagebietes. *Jahresbuch Pollichia.* **22–24**: 258.

Shi, C. 1985. *Eupatorium* L. In: Y. Ling & Y.-L. Chen, *Flora Reipublicae Popularis Sinicae.* **74**: 54–69. Science Press, Beijing.

Uniyal, B.P. 1995. Eupatorieae. In: P.K. Hajra, R.R. Rao, D.K. Singh & B.P. Uniyal. (eds.). *Flora of India.* **12**: 352–353. Botanical Survey of India, Calcutta.

Waterhouse, B.M. & R.T. Corlett. 1996. Overlooked but still invading: *Praxelis clematidea*, the unknown weed. *Proceedings XIth Australian Weeds Conference*, Melbourne, 1996: 4 pp ms.