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ONE NEW AND ONE REDISCOVERED SPECIES OF *CLINOPODIUM* (*LABIATAE*) FROM PERU

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The new species *Clinopodium jacquelinae* (*Labiatae*) is described from Peru. Distribution and morphological variability of *Clinopodium cylindrostachys* are examined and discussed.

Keywords. *Clinopodium cylindristachys*, *Clinopodium cylindrostachys*, *Clinopodium jacquelinae*, Peru, *Satureja* s.l.

INTRODUCTION

The *Satureja* s.l. complex (*Labiatae*, subfamily *Nepetoideae*, tribe *Mentheae*) has been the source of much confusion and dissent about the delimitation of its genera. All neotropical species belonging to the complex, once treated as several separate genera including *Gardoquia* Ruiz & Pav. and *Xenopoma* Willd., have recently been provisionally placed in *Clinopodium* L. by Harley & Granda Paucar (2000), although many of the combinations were previously made by Govaerts (1999; see also Kadereit, 2004). In the present paper, I report on two noteworthy discoveries in *Clinopodium* made in northern Peru.

Clinopodium jacquelinae Schmidt-Lebuhn, **sp. nov. Fig. 1.**
Folia elliptica ad fere obovata, 12–22 × 6–13 mm, margine indistincte crenata, apice plerumque obtusa sed subacuminata, basi in petiolo 2–6 mm longo angustata. Species nova differt a *C. folioloso* tubo calycis dentibus longiore, a *C. sphenophyllo* et *C. cylindrostachyde* inflorescentia composita ex 4–6 verticillastris discretis vel contractis constructa, floribus 6–10 in verticillastro et maioribus et a speciebus olim ad sectionem *Gardoquiam* attributis corolla alba flore evidenter melittophilo. – Type: From cultivation at the Botanical Garden of Göttingen University, Germany, 5 viii 2003, *A.N. Schmidt-Lebuhn* 654 (holo USM; iso E, GOET).

Small erect shrub up to 50 cm, aromatic, the smell resembling that of *Thymus vulgaris*. *Stems* quadrangular, papillose when young, the bark smooth and brown when older. *Leaves* (Fig. 1C) opposite, undivided; leaf blades 12–22 × 6–13 mm, nearly elliptic to slightly obovate, the margin very weakly and inconspicuously crenate, the apices usually rounded and very weakly acuminate, in some slender leaves acute, the base decurrent into the petiole, the petioles 2–6 mm long; adaxial

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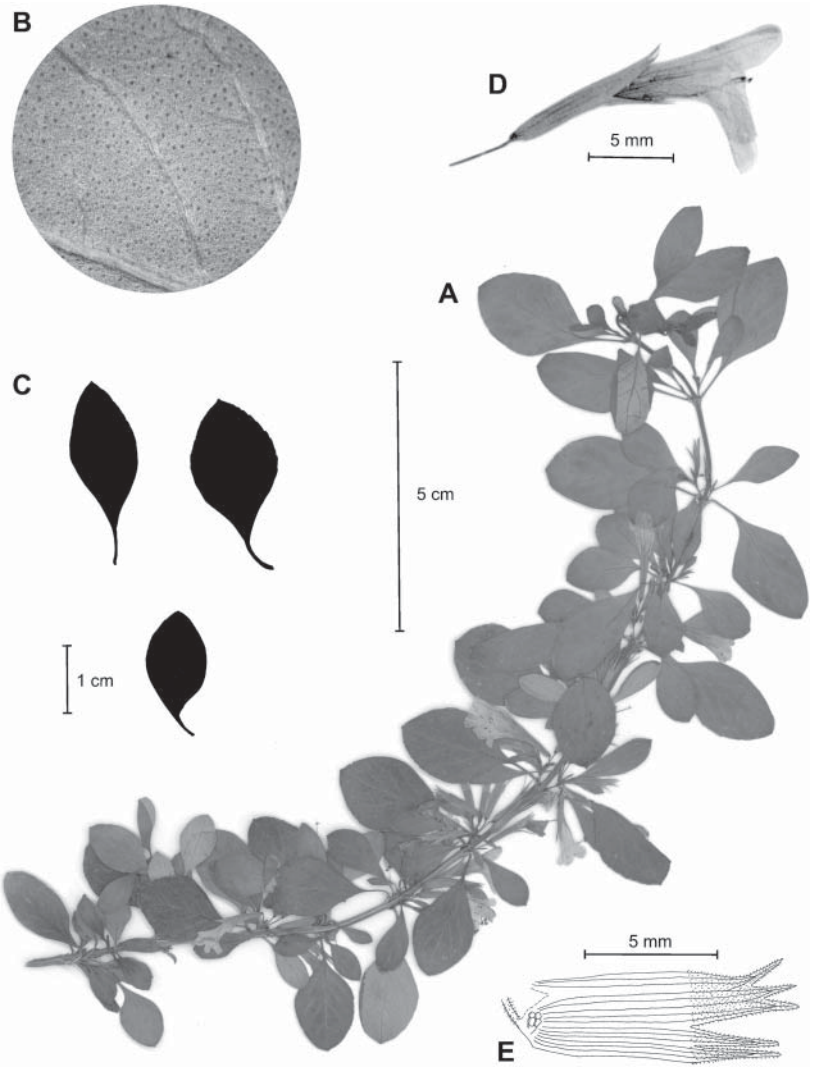

FIG. 1. *Clinopodium jacquelinae* Schmidt-Lebuhn. A, part of type specimen; B, abaxial leaf surface; C, leaf shapes; D, flower; E, calyx, inner surface (A, B & D from *Schmidt-Lebuhn* 654; C & E from *Schmidt-Lebuhn* 445).

leaf surfaces freshly green, sparsely papillose, with numerous glands; abaxial leaf surfaces (Fig. 1B) paler green, sparsely papillose, with numerous glands, the veins somewhat prominent. *Inflorescence* (Fig. 1A) with 4–6 pseudowhorls on each axis, the apical ones sometimes crowded with subtending leaves reduced in size, and sometimes sparsely pilose; *cymes* dense, partly with bracteoles resembling the leaves but smaller, consisting of c.3–5 flowers. *Flowers* pedicellate with pedicels 1–3 mm long. *Calyx* (Fig. 1D & E) 10×2–3 mm, distinctly 2-lipped, tube pilose outside,

without annulus, 6.5 mm long, the lips 3.5 mm, pilose outside and inside, the upper lip divided into three lobes free for only c.1.5 mm and sharing seven veins, the lower lip divided into lobes free to the mouth of the tube, each with three veins. *Corolla* (Fig. 1D) 14–20 mm long, white, sometimes with a violet hue, often turning yellowish with age, upper lip emarginate, 3 mm long, lower lip 3–4 mm long, three-lobed, the lobes 2–3 mm long, dotted with lilac nectar guides. *Stamens* 4, anthers slightly exserted. *Style* glabrous, 20–25 mm; *stigma* branched, the upper branch c.0.5 mm, the lower branch c.1.0 mm; *nutlets* c.1.5 × 0.8 mm, blackish, slightly rugose.

Additional specimen examined. PERU. Departamento Amazonas, Provincia Chachapoyas: Chachapoyas–Mendoza road, dry shrubby slopes near Chachapoyas, 4 viii 2002, *A.N. Schmidt-Lebuhn* 445 (USM).

Etymology. Named after Jacqueline Mislow, in recognition of her family's support of botanical research.

While conducting field work in South America for a revision of *Minthostachys* (Benth.) Spach, another genus in subfamily *Nepetoideae*, I routinely collected specimens of all *Clinopodium* for comparison. On a dry slope near Chachapoyas, Peru (Fig. 3), an aromatic shrub was found that, because of its odour and characters of the calyx, was recognized as belonging to this group. As the plant was past flowering, no corollas were found, but because of a vegetative resemblance to *Clinopodium mathewsii* (Briq.) Govaerts it was preliminarily assumed to belong to section *Gardoquia*. Section *Gardoquia* is characterized by large, red, hummingbird-pollinated flowers. At the Botanical Garden of Göttingen University seeds were taken from the dried specimen to see if a plant could be grown to harvest flowering inflorescences. Surprisingly, the plants eventually developed relatively large, white and clearly bee-pollinated flowers. An attempt was made to identify this material using the key from Epling & Játiva (1964), but the plant could not even be placed in one of their sections. Later publications of Epling & Játiva (1966a, 1966b, 1968) on American *Satureja* s.l. were also taken into account, but no species with these characters could be found. The checklist by Harley & Granda Paucar (2000) and *Index Kewensis* were consulted in order not to overlook a more recent species description, but it appears that the plant in question belongs to a new species which is here described as *Clinopodium jacquelinae*.

Owing to its relatively large leaves and corollas, this new species could be allied only to species in Epling & Játiva's (1964) sections *Gardoquia* and *Discolores*. While resembling *Clinopodium taxifolium* (Kunth) Govaerts vegetatively except for the wider leaves, it differs from all species described in section *Gardoquia* in corolla colour and pollination syndrome. The Venezuelan and Colombian *Clinopodium foliosum* (Benth.) Govaerts (*Satureja discolor* (Kunth) Briq., non *Clinopodium discolor* (Diels) C.Y.Wu & S.J.Hsuan ex H.W.Li), the only species in section *Discolores*, shares with the new species the white to violet flowers and a similar leaf shape. However, *Clinopodium jacquelinae* can be clearly distinguished by its larger calyx, the lobes of which are much shorter than the tube (subequal in *C. foliosum*),

and the lack of pubescence on the abaxial leaf surfaces. The other large-leaved and white-flowered species in neotropical *Clinopodium*, *C. sphenophyllum* (Epl.) Govaerts and *C. cylindrostachys* (Epl. & Játiva) Govaerts, differ in their serrate leaf margins and richer cymes with significantly smaller flowers.

Clinopodium cylindrostachys (Epl. & Játiva) Govaerts, World Checklist of Seed Plants 3(1): 16–19 (1999), as *Clinopodium cylindristachys*. – *Satureja cylindrostachys* Epl. & Játiva, Brittonia 18: 263 (1966), as *Satureja cylindristachys*. – Type: Peru, Dep. Amazonas, Prov. Bongara, Pomacochas road, c.km 315 E of Olmos, between Pomacochas and Río Utcubamba, steep mountain slopes, 1700 m, 29 i 1964, *P.C. Hutchinson & J.K. Wright* 3869 (holo UC; iso F, K, MICH, MO, NY, UC, UCLA, US, USM). **Fig. 2.**

Erect shrub up to 100 cm. Aromatic with a minty odour. *Stems* quadrangular, with sparse to dense, slightly curly, white hairs of up to 1 mm, the bark smooth and brown. *Leaves* (Fig. 2C) opposite, undivided; leaf blades 10–20(–30) × (3–)5–10 (–15) mm, ovate, the margins weakly serrate to shallowly crenate, the apices usually obtuse with the tips weakly acuminate, rarely attenuate, the bases rounded to rounded-attenuate, the petioles 2–3(–6) mm long; adaxial leaf surfaces subglabrous to sparsely hairy with very short, curved, white hairs, and numerous glands present; abaxial leaf surfaces (Fig. 2B) moderately to very densely hairy with slightly curly, white hairs of up to 1 mm, and numerous glands present, the veins prominent. *Inflorescence* (Fig. 2A) with 3–8(–14) pseudowhorls on each axis, in the lower part sometimes distantly spaced with bracts as leaves though reduced in size, in the upper part, or sometimes in the entire inflorescence, congested into a long, apparently ebracteate, dense or rarely weakly congested, slender pseudospike; *cymes* dense, consisting of numerous flowers, bracteoles linear, 1–1.5 mm long. *Flowers* pedicellate with pedicels c.1 mm long. *Calyx* (Fig. 2D & E) 3–4.5 × 1 mm, distinctly 2-lipped, sparsely to moderately pilose outside with very short, slightly curved, white hairs, annulus present, tube 2.5–3.5 mm long, lips 0.5–1 mm long, the upper lip divided into three lobes free only in the upper half of the lip and sharing seven veins, the lower lip divided into two lobes free to the mouth of the tube, each with three veins. *Corolla* (Fig. 2D) 4–7 mm long, white, upper lip emarginate, c.2 mm long, lower lip three-lobed, the lobes c.2 mm long. *Stamens* 4, anthers exserted. *Style* glabrous, 5–8 mm; *stigma* branched, the upper branch c.0.4 mm, the lower branch c.0.6 mm; *nutlets* 0.8–1 × 0.4–0.5 mm, dark brown to blackish, shallowly reticulate.

Distribution. Peruvian departments of Amazonas, Ancash and Cajamarca, at elevations of 1600–2550 m.

In the vicinity of Chachapoyas, and later between Leymebamba and Celendín, I found a small aromatic shrub which at first sight I misidentified as a species of *Minthostachys* but which is actually *Clinopodium cylindrostachys* (Epl. & Játiva) Govaerts, as confirmed by a comparison with digitized photographs of isotype

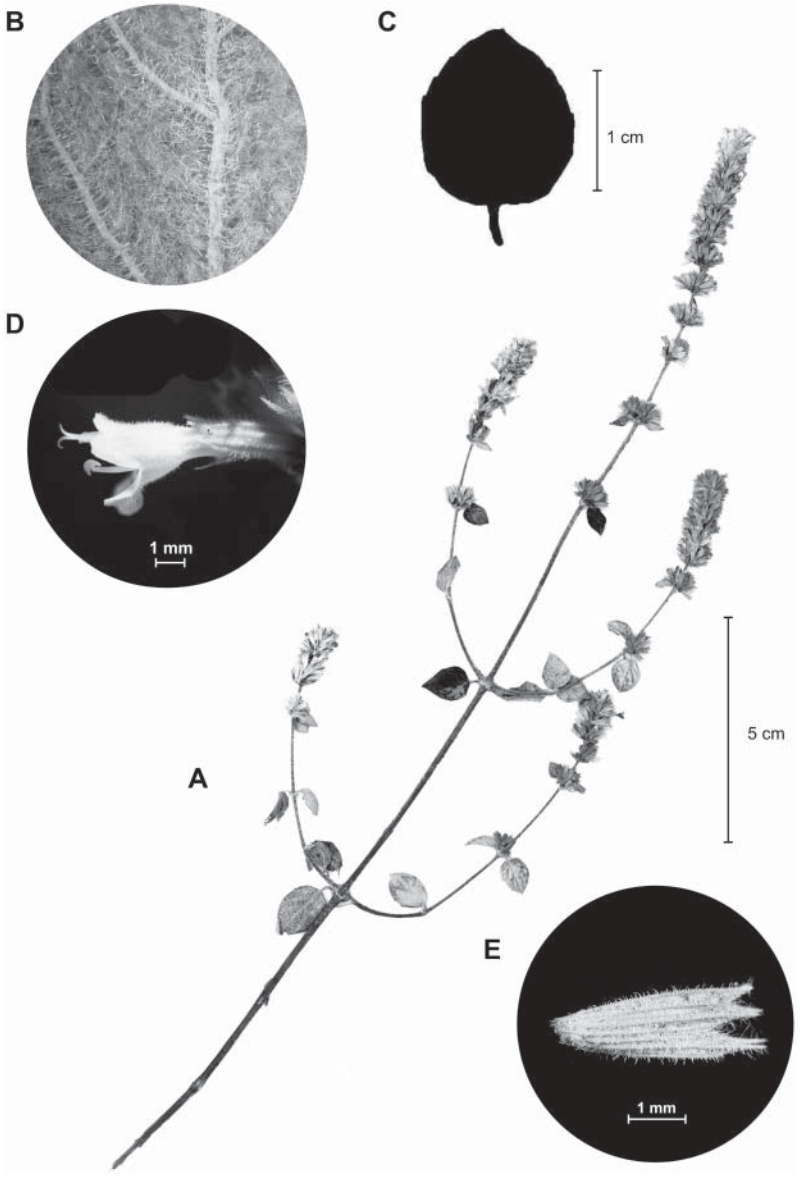

FIG. 2. *Clinopodium cylindrostachys* (Epl. & Játiva) Govaerts. A, branch with inflorescences; B, abaxial leaf surface; C, leaf shape; D, flower; E, calyx (A–E from *Schmidt-Lebuhn* 486).

material in the databases of NY and US. As shown by specimens of the same species at USM which were labelled as *Minthostachys mollis* (*R. Ferreyra* 15066), *M. setosa* (*J. Gómez* 137), *M. tomentosa* (*J. Mostacero* 933, 974) or simply *M.* indet. (*C. Díaz* 3454), this species has been identified as *Minthostachys* by several other botanists.

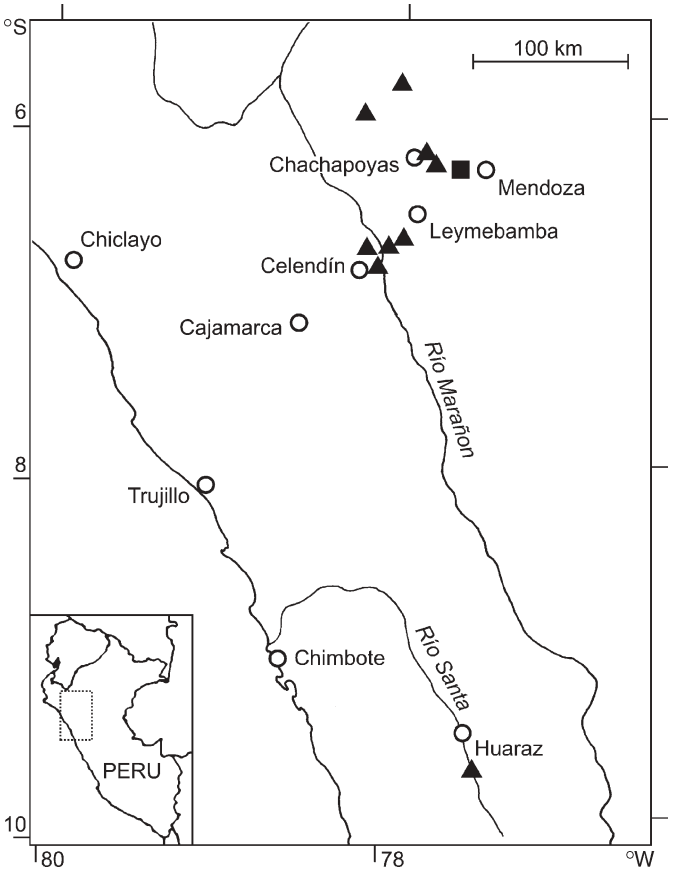

FIG. 3. Map of NW Peru showing the collection sites of *Clinopodium cylindrostachys* (triangles) and the type locality of *C. jacquelinae* (square).

This is not surprising considering that the plant in question resembles *Minthostachys* in general appearance, size, leaf margin, and the minty scent of the leaves as well as the numerous small, white flowers. The pseudowhorls, however, are usually arranged in long, ebracteate pseudospikes as opposed to the pseudowhorls of *Minthostachys* which are at most congested to short pseudospikes with gradually reduced bracts. In addition, molecular data also support a clear separation of this species from superficially similar *Minthostachys* (Schmidt-Lebuhn, unpubl. data). Because of the frequent misidentifications of collected material, Brako & Zarucchi (1993) listed this species as 'known from Peru only from the type locality'.

One case of the aforementioned misidentification merits special attention. The oldest known collection of *Clinopodium cylindrostachys*, *Mathews* 3157, is a specimen mounted on the same herbarium sheet as the type specimen of *Bystropogon tomentosus* Benth. (= *Minthostachys tomentosa* (Benth.) Epl.), *Ruiz & Pavón* s.n., at

K. Both specimens are provisionally labelled with the same name, but nevertheless *Mathews* 3157 can be ruled out as part of the holo- and isotype material of that species because the two specimens are mounted and labelled in a way that allows a clear assignment of the collectors to the respective specimens, and the description of *B. tomentosus* (Bentham, 1832) cites only the *Ruiz & Pavón* specimen. With the ample, now correctly determined, material at hand, a summary of the distribution (Fig. 3) and an assessment of the morphological variability of the species can be given here.

Additional specimens examined. PERU. Dep. Amazonas: Prov. Chachapoyas, Chachapoyas, *Mathews* 3157 (K); Prov. Chachapoyas, Chachapoyas–Mendoza road, near Chachapoyas, dry shrubby slopes, 4 viii 2002, *A.N. Schmidt-Lebuhn* 443 (GOET, USM); Prov. Chachapoyas, Leymebamba–Celendín km 66, 7 viii 2002, *A.N. Schmidt-Lebuhn* 486 (GOET, USM); Prov. Chachapoyas, Marañón River Valley, Celendín–Chachapoyas road, c.15 km from Puente Chocanto, dry shrubland with patches of dry forest, 1600–1920 m, 24 v 1984, *D.N. Smith & J. Cabanillas* 7067 (USM); Prov. Luya, Comporredondo: Fundo Cedro, 2450–2550 m, 24 v 1989, *C. Díaz, J. Campos & L. Campos* 3454 (USM). Dep. Ancash: Prov. Recuay, Dto. de Marca (Pariap), monte de arbustos, 2700 m, 12 viii 1963, *J. Gómez* 137 (USM). Dep. Cajamarca: Prov. Celendín, encima de la Hacienda Limón, entre Balsas y Celendín, ladera subxerófila con monte bajo, 2200–2400 m, 22 vi 1963, *R. Ferreyra* 15066 (UC, US, USM); Prov. Celendín, Llanguat, ladera, 2500 m, 28 vii 1985, *J. Mostacero, E. Alvítez, F. Mejía & F. Peláez* 974 (F, HUT); Prov. Celendín, Llanguat, ladera, 2550 m, 28 vii 1985, *J. Mostacero, E. Alvítez, F. Mejía & F. Peláez* 933 (F, HUT).

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