

New and overlooked Acanthaceae taxa from D.R.Congo, Rwanda and Burundi: (1) the genus *Barleria*

Dominique Champluvier

Jardin botanique national de Belgique, Domaine de Bouchout, Nieuwelaan 38, BE-1860 Meise, Belgium
Email: champluvier@br.fgov.be

Background and aims – This is a first contribution describing novelties in the Acanthaceae, discovered on the occasion of the preparation of the families' instalment for the 'Flore d'Afrique centrale'. It deals with the genus *Barleria*.

Methods – Material from BR, BRLU, BM and K was examined. Flowers were boiled in water and examined under a Wild M5 lens. Others measurements were made on dry material.

Results – Two new species representing cases of vicariance and four other novelties belong to sect. *Barleria*. A vicariant pair of sect. *Fissimura* and a new species of sect. *Caviostrata* are presented. The identity of the overlooked *Barleria kaessneri* (sect. *Somalia*) is clarified. The eight new species come from the Zambezi centre of endemism (some of them transgressing in the Guineo-Congolian centre). Drawings or photographs are provided for most species.

Key words – *Barleria*, Acanthaceae, D.R.Congo.

INTRODUCTION

During the revision of the Acanthaceae for the 'Flore d'Afrique Centrale', we found in the unidentified material of BR 37 new species, one new subspecies and two new varieties in various genera. This series of papers formally publishes the novelties and also draws attention to species hitherto overlooked for the area of the 'Flore'. This first contribution concerns the genus *Barleria*, of which eight new species are presented. The identity of the overlooked *Barleria kaessneri* is moreover clarified. Partial keys are composed to compare closely allied or morphologically similar species. Extensive descriptions and distributions maps are provided. Several cases of vicariance are highlighted.

Barleria is a pantropical genus of herbs and shrubs comprising some 300 species. Its greatest representation is in Africa (particularly the eastern parts) and Asia, with its greatest centre of diversity in tropical East Africa. Although *Barleria* is very variable, it is easily recognized by a combination of three features: (1) a 4-partite calyx with two large outer lobes and two smaller inner ones; (2) a globose, honeycombed pollen, and (3) the predominance of double cystoliths in the epidermal cells.

Balkwill & Balkwill (1997) published an attempt at an infrageneric classification of *Barleria*. It was improved by Darbyshire (2008). We have tried to place every of the new species described below in their classification. The new species presented occur in the Zambezi centre of endemism

or are linking species of the Guineo-Congolian/Zambezi Regional Transition Zone.

RESULTS

Description and discussion of the species

1. Three vicariant species of section *Barleria* – The Katangan novelty *B. velutina* is closely related, morphologically very similar to *B. nyasensis* and *B. sunzuana* which differ mainly by the well developed upper lobes of their corolla, upper lobes which are lacking or extremely reduced in *B. velutina*. The other differences include spiny bracteoles ('interpeltular spines' of various authors), calyx lobe margins provided with straight stiff-tipped teeth in *B. nyasensis* and *B. sunzuana* whereas soft bracteoles and upwards-curved soft-tipped teeth characterize the calyx lobe margins in *B. velutina*. The ecology and altitude ranges seem also to be different, as indicated below after the lists of the collected specimens of *B. nyasensis* and *B. sunzuana*.

B. nyasensis and *B. sunzuana* were put in sect. *Barleria* by Balkwill & Balkwill (1997); this section is characterized by simple axillary inflorescences, toothed calyx lobes, corolla lobes in a 2 + 3 configuration, and two fertile stamens with three staminodes. *B. velutina* can be placed without any doubt in the same section. Another species of that section, *B. bremekampii* Oberm., although morphologically distant from

Key to *B. velutina* and its vicariant species

1. Upper lobes of corolla lacking or extremely reduced and not more than 2 × 2 mm; bracteoles soft, not spiny; teeth of the calyx lobes soft, curved upwards, less than 1 mm wide at the base or, if wider, then doubly toothed.....*Barleria velutina*
1. Upper lobes of corolla well developed, 10–15 × 5–10 mm; bracteoles with a hard tip, spiny or moderately so; teeth of calyx lobes spiny or moderately so, straight, triangular, 1 mm wide or more at the base.....2
2. Posticous calyx lobes 2.5–3.5 cm long with 3–4 mm long teeth; leaves up to 4.5 × 1.7 cm.....*Barleria sunzuana*
2. Posticous calyx lobes 1.5–2.5 cm long with teeth not exceeding 1.5 mm long; leaves up to 5 × 1.5 cm, often much smaller.....*Barleria nyasensis*

B. velutina, has also extremely reduced upper corolla lobes (see drawing in Balkwill & Balkwill 1997: 556, B1).

***Barleria velutina* Champl., sp. nov.**

Barleria grandicalicis Lindau similis sed planta inermis foliis ellipticis vel ovatis nec obovatis, floribus in capitulis vel brevibus spicis terminalibus condensatis, calycis lobis sericeis-lanatis, papyraceis in fructibus, corollaque sine labio supero bene distinguitur; *B. sunzuanae* Brummitt & Seyani et *B. nyasensis* C.B.Cl. valde affinis sed planta inermis, corollaque sine labio supero, sepalorum dentibus sursum incurvatis inermis nec deltatis rectis spinulosisque bene distinguitur. – Type: D.R.Congo, District du Haut-Katanga, Shinkolobwe, alt. 1300 m, May 1985, *Malaisse & Goetghebeur* 885, fl (holo-: BR; iso-: B, C, CAS, K, LISC, MO, P, UPS, WAG).

Suffrutescent plant without spines. **Stem** pubescent-hirsute. **Lamina** of the leaves ovate or elliptic, sometimes narrowly elliptic, more or less coriaceous, 1.7–4.5 × 0.9–2.8 cm, acute at the tip, cuneate to subcordate at the base, with prominent nerves below, villous above, silky-wooly below; leaves sessile or petiole up to 5 mm long. **Inflorescences** in heads or short spikes 2–10 cm long, terminal or sometimes also on short lateral shoots; **bracteoles** linear-elliptic, acuminate, 10–15 mm long, up to 2 mm wide. **Flowers**: anticous and posticous **calyx** lobes ovate-elliptic to ovate, toothed, about (15–)20–30 × (10–)15–20 mm, accrescent, papyraceous and 25–35 × 15–25 mm in fruit, silky-wooly outside, more sparsely hairy inside, lateral lobes 10–13 × 2 mm; **corolla** (2.5–)3–4 cm long, without upper lobes or these strongly reduced, not more than 1.5–2 × 1.5–2 mm, white or pale pink to deep pink or mauve or pale blue to blue-violet; tube 3–5 mm wide at the throat; lateral lower lobes 23–25 × 7–19 mm, median lower lobe 25–27 × 8–17 mm, all provided outside with numerous long thin glandular multicellular hairs; **filament of stamens** 15–20 mm long, glabrous; **anthers** 4–5 mm long, black-violet; **style** 18–25 mm long, provided with scattered short glandular hairs; stigma capitate. **Capsule** ellipsoid, blackish, glabrous, 17 × 5 mm, 2-seeded. Figs 1 & 3A.

Distribution. Species of the Zambezi centre of endemism. *Barleria sunzuana*, *B. nyasensis* and the novelty can be considered as vicariant (fig. 2).

Other collections examined – D.R.Congo. District du Haut-Katanga: Chute Mulamba, Bianco, Oct. 1984, *Bodenghien* 280,

fr (BR); Kaponda, Apr. 1957, *Detilleux* 908, fl (BR); 15 km W de Shinkolobwe, s.d. *Duvigneaud* 2608, fl (BRLU); Kasompi W, Apr. 1957, *Duvigneaud* 2146 A, fl (BRLU); colline de Menda, Apr. 1957, *Duvigneaud* 2933B (BRLU); Menda, Apr. 1957, *Duvigneaud* 2934 B, fl (BRLU); région de Kasompi, Apr. 1957, *Duvigneaud* 2941 B, fl (BRLU); Menda, May 1957, *Duvigneaud* 3315 Ac1 (BRLU); *ibid.*, *Duvigneaud* 3317 (BRLU); Kolwezi, May 1957, *Duvigneaud* 3219, fl (BRLU); *ibid.*, *Duvigneaud* 3220 B, fl (BRLU); Kanoni, Jun. 1957, *Duvigneaud* 3379 Ac4, fl (BRLU); Kolwezi, Jun. 1957, *Duvigneaud* 3509 B (BRLU); *ibid.*, *Duvigneaud* 3510 Ba (BRLU); *ibid.*, 1959/1960, *Duvigneaud* 5458 (BRLU); Kasompi E, s.d., *Duvigneaud* 3218 B (BRLU); Kanoni, fl., Jun. 1957, *Duvigneaud* 3379 Ac4 (BRLU); Kasompi, 1956, *Duvigneaud & Timperman* 2052 B, 2056, 2061 B, 2085 B, 2123, 2136, 2146 (BRLU); Mukumbi, Jul. 1956, *Duvigneaud & Timperman* 2033 B1 (BRLU); Menda, Jul. 1956, *Duvigneaud & Timperman* 2093, fr (BRLU); Ruwe, 1957, *Le Docte* 6, fl (BRLU); Shinkolobwe, Jun. 1981, *Malaisse* 11800, fl (B, BR, CAS, K, MO); Tshilongo, Apr. 1988, *Pauwels* 7056, fl (BR); Shaba, alt. 1225 m, Sep. 1986, *Schajies* 3118, fl (BR); Lubudi, alt. 1500 m, May 1952, *Schmitz* 3968, fl (BR); km 40 Katofio–Kasenga, Jul. 1950, *Schmitz* 2902, fl. (BR); Mankebwe, Apr. 1962, *Schmitz* 7698, fl (BR); Kipopo, Nov. 1957, *Schmitz* 5953, fl (BR, K).

Zambia: Kabompo, Jun. 1974, *Chisumpa* 168, fl (K); Mwinilunga, Kalene Hill, May 2000, *Congdon* 585, fl (K); 17 miles S of Mwinilunga on Kabompo road, Jun. 1963, *Edwards* 675, fl (K); *ibid.*, *Loveridge* 820, fl (K); *ibid.*, *Loveridge* 832, fl (K); Mwinilunga, Isombo River, May 1969, *Mutumushi* 3222, fl (K); Solwezi, Luamisa River, May 1969, *Mutumushi* 3298, fl (K); Matonchi farm, Mwinilunga distr., 1936, *Patterson* 7 (K).

Habitat – *Brachystegia spiciformis*, or *B. floribunda*, or *Brachystegia* and *Marquesia* woodlands, grasslands; steppes with *Cryptosepalum*, *Loudetia simplex*; 'Isenga' woodlands (Zambia); steppes and dambos on cobalt, copper, nickel and uranium deposits, alt. 1200–1300 m.

Barleria sunzuana Brummitt & Seyani (Brummitt & Seyani 1978: 721–722). – Type: Zambia, Sunzu Mt, Abercorn distr., alt. 2250 m, Apr. 1962, *Richards* 16369, fl (holo-: K).

Other collections examined – Zambia: Sunzu Hill, Abercorn distr., alt. 1980 m, Apr. 1936, *Burtt* 6101, fl (K, BM, BR); Sunzu summit, alt. 2065 m, Jun. 1955, *Lawton* 213, fl (K); Sunzu Mt, alt. 1800 m, Apr. 1961, *Richards* 15077, fl, fr (K); *ibid.*, alt. 2100 m, Apr. 1962, *Richards* 16368, fl (K); *ibid.*, alt. 2250 m, Mar. 1966, *Richards* 21380, fl (K); Saisi Valley, Zambia Govnt Ranch, Mbala distr., alt. 1500 m, May 1968, *Richards* 23274, fl (K, BR).

Habitat – Rocky slopes, alt. (1500–)1800–(?)2250 m. Endemic to Sunzu Mt. Brummitt (1978), commenting on Rich-

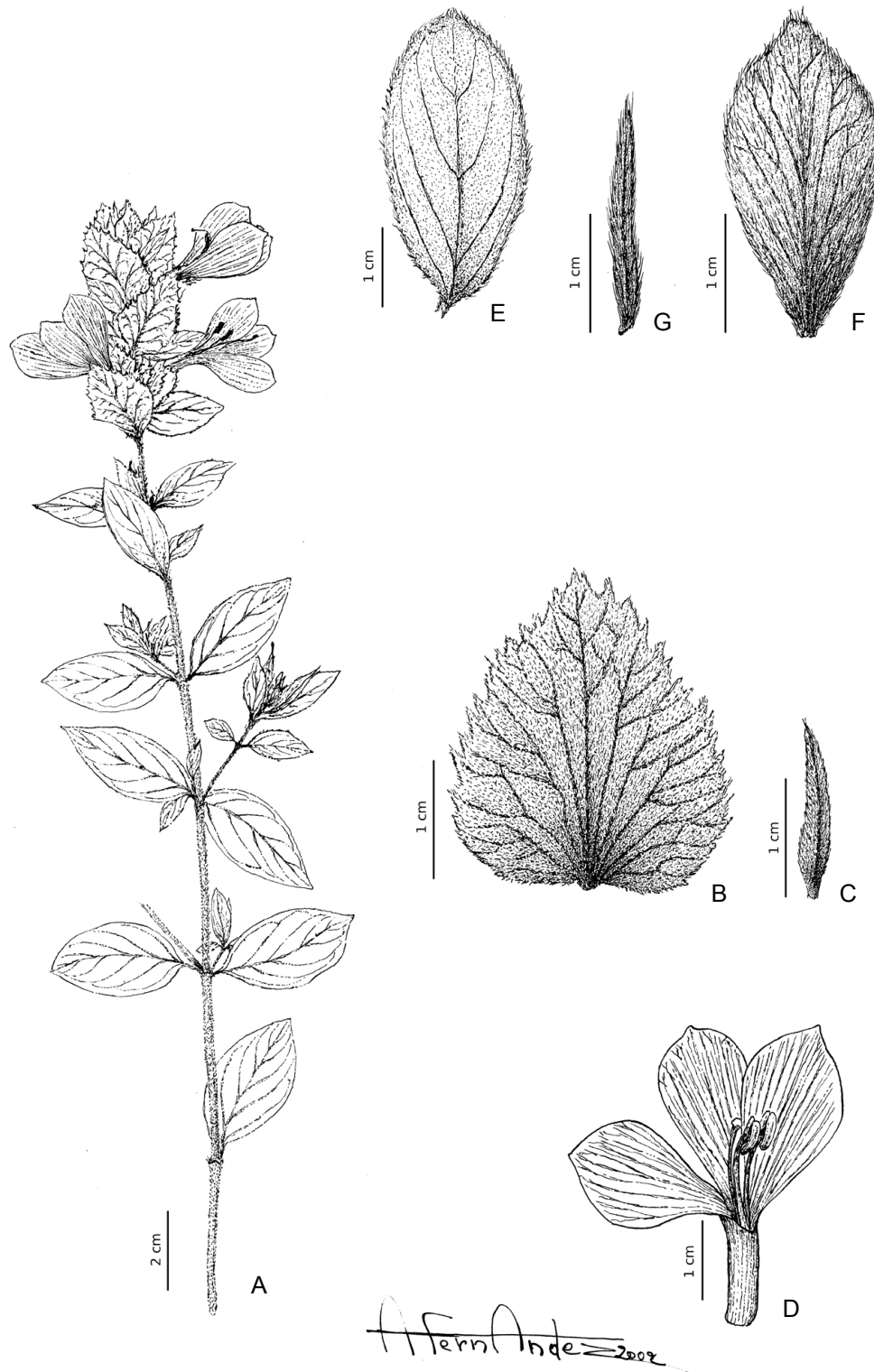


Figure 1 – *Barleria velutina* (A–D) and *B. obtecta* (E–G). *Barleria velutina*: A, habit; B, posticus calyx lobe; C, lateral calyx lobe; D, one-lipped corolla. *Barleria obtecta*: E, leaf; F, posticus calyx lobe; G, lateral calyx lobe (A–D, Schmitz 7698; E–G, Desenfans 676).

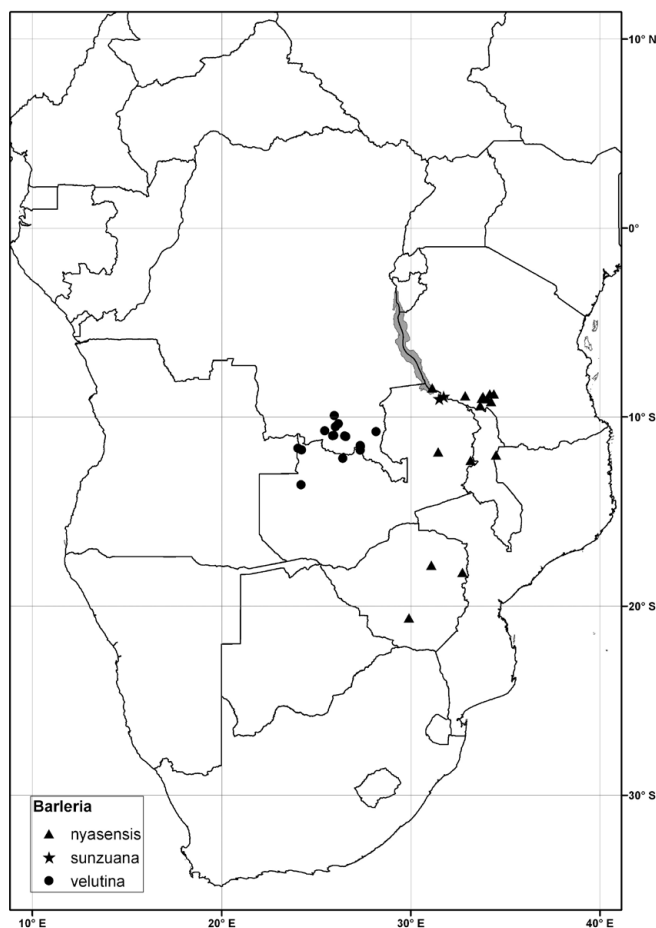


Figure 2 – Distribution map of *Barleria velutina*, *B. nyasensis* and *B. sunzuana*.

ard's collections, stated that there must be some mistake in the recording of the altitudes as the summit of Sunzu mountain is only 2065 m.

Barleria nyasensis C.B. Clarke (Clarke 1900) – Type: Mozambique, Mountains E of Lake Nyassa, Apr. 1884, *Johnson* s.n., fl (holo-: K).

Other collections examined – **Tanzania:** 4 km up track to Matamba into Porotos, S of Chimala, alt. 1850 m, Jun. 1990, *Carter, Abdallah & Newton* 2586, fl (K); Ndumbi Gorge, Chimala–Matamba road, alt. 1700 m, May 1986, *Congdon* 83, fl (K); Ikuwo Escarpment on Ndumbe-Ikuwo road near Chimala, alt. 1250 m, May 1991, *Congdon* 311, fl (K); Ussanga, Kinga Berge, alt. 1500 m, 1899, *Goetze* 1015, fl (BR); Igawa, alt. 1000 m, Sep. 1932, *Gulinger* 2113, fl (K); Ishinga East Escarpment by falls, alt. 2300 m, Sep. 1979, *Leedal* 5567 (K); Makete hills above Ndumbi Valley, alt. 1400 m, Apr. 1988, *Lovett* 3246, fl (K); Kimani waterfall, Makete distr., alt. 1500 m, Jun. 1990, *Lovett & Kayombo* 4726, fl (K); Nyengenge Falls, Kimani river, alt. 1500 m, Jun. 1991, *Lovett & Kayombo* 463, fl (K, BR); Ufipa district Escarpment, Kasanga road, alt. 900 m, Jun. 1957, *Richards* 10132, fl, fr (K, BR).

Habitat – Rocky or stony soils, in woodlands, serpentine outcrops, *Uapaca* dry scrubs or fringing woodlands by falls, alt. 900–1850(–2300) m.

2. A vicariant pair in sect. *Barleria* – *B. molensis* Wild, en-

demical of the southern serpentines of the Great South Dyke in Zimbabwe, is closely allied and very similar to the novelty *B. glutinosa*; it can be considered as a vicariant species (fig. 4). There are twenty endemic species of the serpentines of the Great Dyke; Wild (1965) explains that these endemics could have arisen by depletion of “various metal non-tolerant biotypes which formerly allowed the species to exploit a greater variety of habitats”, species of which only serpentine-tolerant biotypes would have survived on the deposits of the Great Dyke.

Following Balkwill & Balkwill (1997), *B. molensis* belongs to sect. *Barleria*; the closely related *B. glutinosa* can therefore be considered as a member of that section, as it has spiny bracteoles, solitary flowers, a corolla with 2 + 3 configuration, two fertile stamens and three staminodes.

B. aromatica, from Zimbabwe, superficially resembles *B. glutinosa*, but the plant is not at all glandulous, the leaves are 2 × 0.6 cm, the flowers are rather smaller, with the outer calyx lobe 13 × 6 mm, the corolla tube 2.5 cm long, the upper lobes 1.5 × 0.8 cm, the lower one 1.5 × 1.1 cm and the lateral ones 1.5 × 1 cm.

Barleria glutinosa Champl., sp. nov.

B. molensis affinis sed propter spinas multo parviores, usque ad 1.2 cm nec 1.3–3 cm longas, corollam brevior, 4–5 cm nec 6.5–9 cm longam, tubo brevior, 2.8–3.3 cm nec 5–7 cm longo, extus pilis glandulosis et pilis simplicibus brevis nec sole pilis simplicibus munito, capsulam parvior, 1.5 cm contra 2.5 cm bene differt; ab omnibus alteribus speciebus *Barleriae* propter omnes partes valde glutinosas villosasque, flores solitarias pedicellatas, corollae tubum in dimidio inferiore cylindricum et in dimidio superiore infundibuliformem bracteolasque patentes bene distinguitur. – Type: D.R. Congo, District du Haut-Katanga, Mt Mumbwelume, alt. 1820 m, Apr. 1987, *Kisimba & Muzinga* 46, fl (holo-: BR; iso-: CAS, EA, K, LISC, MO)

Suffrutex 30–40 cm high, entirely glutinous by the presence of a dense glandular pubescence, all parts also villous. **Lamina** of the leaves ovate-elliptic, up to 3.3 × 1.6 cm; petiole up to 5 mm long. **Flowers** with pedicels 5–7 mm long, solitary or by two on peduncles (1–)2–3 cm long; **bracteoles** spreading, lanceolate, spiny, up to 12 mm long and 2 mm wide at the base; **calyx** lobes lanceolate, the posterior one acute at the tip, 15 × 4 mm, the anterior one bifid at the tip, 14 × 4 mm, the lateral ones smaller and much narrower; **corolla** 4–5.5 cm long, pale blue or pink, rarely white, with purple marks in the throat; tube 2.8–3.3 cm long, 4.5–5.5 wide at the throat, cylindrical in the lower half, infundibuliform in the upper half, covered with long glandular hairs and short sparse simple hairs; lobes 1.8–2 × 1–1.3 cm, elliptic, mucronate at the tip, the two upper ones slightly smaller than the three lower ones; **filament of the two fertile stamens** 2.2 cm long, villous at the base, anthers 5 mm long, the three staminodes with filament 5 mm long and reduced anther (stamens from corolla 5 cm long); **style** 4–5 cm long. **Capsule** about 15 × 5 mm, glabrous, black, glossy.

Distribution – Species from the Zambezian centre of endemism. Fig. 4.

Key to the vicariant pair *B. molensis* / *B. glutinosa*

1. Spines 1.3–3 cm long; corolla pure white, 6.5–9 cm long, tube 5–7 cm long, provided outside only with non-glandular hairs; capsule 2.5 cm long.....*B. molensis*
1. Spines shorter, up to 1.2 cm long; corolla pale blue or pink, rarely white, with purple marks in the throat, 4–5 cm long, tube 2.8–3.2 cm long, provided outside with rather sparse long glandular hairs and numerous short non-glandular hairs; capsule 1.5 cm long.....*B. glutinosa*



Figure 3 – Plants in flower. A, *Barleria velutina* (photo: Michel Schaijjes); B, *Barleria cinnabarina* (photo: Luc Pauwels); C, *Barleria pauciflora* (photo: Michel Schaijjes); D, *Barleria kaessneri* (photo: Michel Schaijjes).

Other collections examined – **Zambia:** Rufunsa, Jun. 1958, *Fan-shawe* 4542, fl, fr (K); 50 miles E of Lusaka, alt. 1300 m, Jun. 1956, *King* 381, fl (K); 18 km E of Rufunza, Lusaka distr., alt. 1000 m, Sep. 1972, *Kornas* 2057, fl, fr (K); 17 miles E of Rufunsa, alt. 1100 m, May 1961, *Leach & Rutherford-Smith* 11095, fl, young fr (K); Luangwa River, Jun. 1957, *Munch* 460, fl, fr (K); 116 miles E of Lusaka on Great East Road, Apr. 1952, *White* 2692, fl (K, BR); 10 miles W of Kacholo Rest House, Great East road, May 1952, *White* 2888, fl (K).

Habitat – *Brachystegia* woodlands, around 1800 m in D.R.Congo; sandy stony soil on hillsides, *Brachystegia allenii* and *B. mango* woodlands on escarpments with quartzitic shallow soils or on steep rocky slopes, dry rocky roadside scarps, alt. 1000–1300 m, in Zambia.

***Barleria molensis* Wild (Wild 1965)** – Type: Zimbabwe, Mhlaba Hill, W Windsor, Great Dyke, Jan. 1961, *Wild* 5604, fl (holo-: SRGH; iso-: K, BR).

Other collections examined – **Zimbabwe:** Umvuma–Que Que road, c. 1 km E of Lalapanzi turn-off on Great Dyke, *Biegel* 5297 (K); 10 km N of Que Que on Salisbury main road, *Biegel* 5312 (K); Great South Dyke, N of Ngezi Dam, 1 km N of Lalipunzi turn-off, Aug. 1988, *Carter & Coates-Palgrave* 2685, fl (K); Que Que, near main Bulawayo road, Jun. 1975, *Cross* 164, fl (K); Lalapanzi, alt. 900 m, *Ingle* 4 (K); *ibid.*, alt. 1150 m, *Mullen* 7/51 (K); *ibid.*, alt. 1150 m, *Walters* 2415 (K); Umgezi Poort, Que Que distr., Dyke, Mar. 1964, *West* 4774, fl (K); Sebakwe Dam, Great Dyke, Jan. 1961, *Wild* 5618, fl (K, BR); *ibid.*, Apr. 1975, *Wild* 7999, fl (K).

Habitat – Strictly bound to serpentines with chrome seams, in bushland, around 1000 m.

Key to novelties allied to *B. velutina*

1. Plant without long bracts hiding the calyces; corolla (2.5)3–4 cm long, upper lobes of corolla absent.....2
1. Plant with long bracts hiding the calyces, corolla 4–4.5 cm long; upper lobes of corolla present.....
.....*B. sceptrum-katanganum*
2. Calyx lobes entire; corolla lobes orbicular-obovate, 15 × 16 mm, capsule 27 mm long.....*B. obtecta*
2. Calyx lobes toothed; corolla lobes elliptic, 25–27 × 8–17 mm, capsule 17 mm long..... *B. velutina*

3. Two novelties allied to *B. velutina* (sect. *Barleria*) – *Barleria obtecta* is very closely allied to *B. velutina*, and pertains to the same section, *Barleria*. The same holds for *B. sceptrum-katanganum*, allied to *B. velutina* by its hairiness and the shape of calyces and leaves; it differs by its strongly erect stem which is broader than in *B. velutina*, by its leafy spike, the leafy bracts hiding the calyx lobes which are not visible unlike in *B. velutina*, by the constant presence of the upper lobes of corolla, which are much larger than those of *B. velutina* when present in the latter, and by its considerably larger leaves.

***Barleria obtecta* Champl., sp. nov.**

Barleriae velutinae Champl. similis sed propter calycis lobos integros nec dentatos et corollam cum lobos rotundatos-obovatos nec ellipticos bene differt – Type: D.R.Congo, District du Haut-Katanga, Mitwaba, *Desenfans* 730 (holo-: BRLU).

Suffrutescent plant 50–70 cm high. Stem densely hairy. Lamina of the leaves elliptic, coriaceous, 2.5–4 × 1.3–2 cm, cuneate to subrounded at the base, obtuse at the tip, with up to 5 lateral ascendent nerves, glabrous to sparsely hairy above, silky-villous below, sessile or subsessile; bracts three or four times narrower than the leaves; calyx lobes elliptic, papery, entire, densely silky, posterior and anterior one about 2.3 × 1.2 cm, lateral ones lanceolate, 1.5 cm long; corolla 3 cm long, glandular outside, without upper lobes and with three orbicular-obovate lower lobes 15 × 16 mm and with a cylindrical tube 15 mm long, 3–4 mm wide at the throat. Stamens not seen at anthesis, anthers 4 mm long in bud; style about 25 mm long. Capsule black, ellipsoid-oblong, 27 mm long and 10 mm wide, apparently 2-seeded (*Desenfans* 663). Fig. 1.

Distribution – Species from the Zambezian centre of endemism. Endemic from Katanga. Fig. 4.

Other collections examined – D.R.Congo: District du Haut-Katanga, Sokele, *Desenfans* 663 (BRLU); s.l. *Desenfans* 676 (BRLU).

Habitat – Not given.

***Barleria sceptrum-katanganum* Champl., sp. nov.**

Barleriae velutinae affinis sed propter habitum robustiorem, caulem rectam largiorem, spicam longiorem, bracteas foliaceas magnas calyces occultantes et corollam lobis superioribus semper praesentibus vel majoribus, foliaque majora bene differt. – Type: D.R.Congo, District du Haut-Katanga, Dubié, Jun. 1956, *Duvigneaud* 3676 Ac3, fl (holo-: BRLU; iso-: BR, K).

Suffrutex 25–60 cm high with a thick woody rootstock; stems erect, robust, 3–6 mm in diameter, densely and antrorsely yellowish-hairy. Leaves subsessile; lamina narrowly elliptic to lanceolate, acute at the tip, cuneate to subrounded at the base, densely and softly adpressed-hairy below, scabridulous above, 5.5–12.5 × 1.8–3 cm, 3.5 × 0.8 cm on young resprouting shoots; (4–)6–9 lateral nerves, all nerves prominent below, inconspicuous above. Inflorescence a terminal dense subcylindrical spike 4–15 × 3.5–5 cm (up to 7 cm wide at the base in fruits), with imbricate foliar bracts hiding the calyces; bracts narrowly elliptic, similar to the leaves but smaller, 2.5–4 × 0.6–1.5 cm; bracteoles smaller and narrower, tri-parallel-nerved; calyx with posterior and anterior

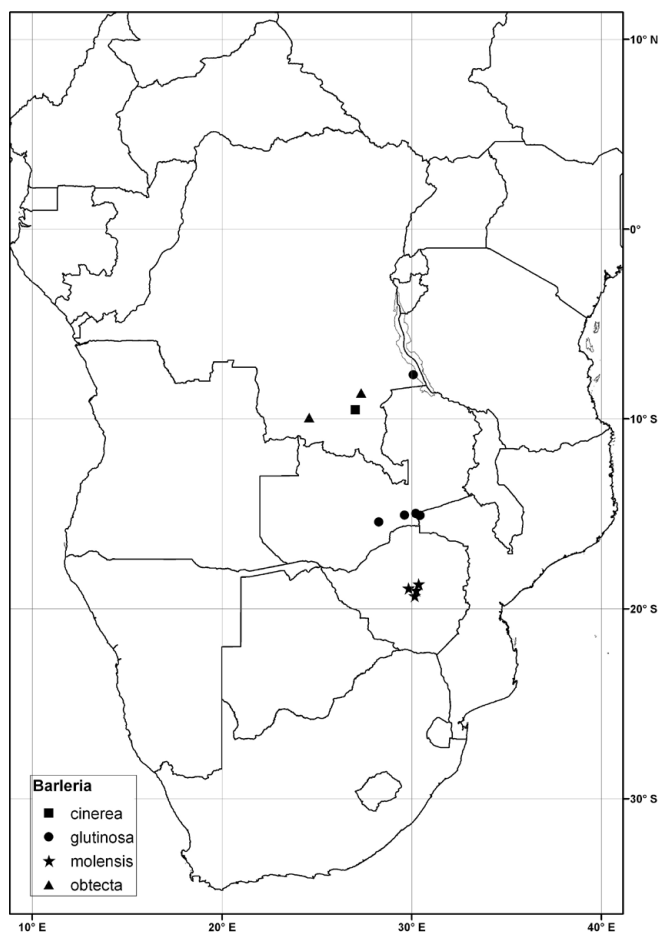


Figure 4 – Distribution map of *Barleria glutinosa*, *B. molensis*, *B. cinerea* and *B. obtecta*.

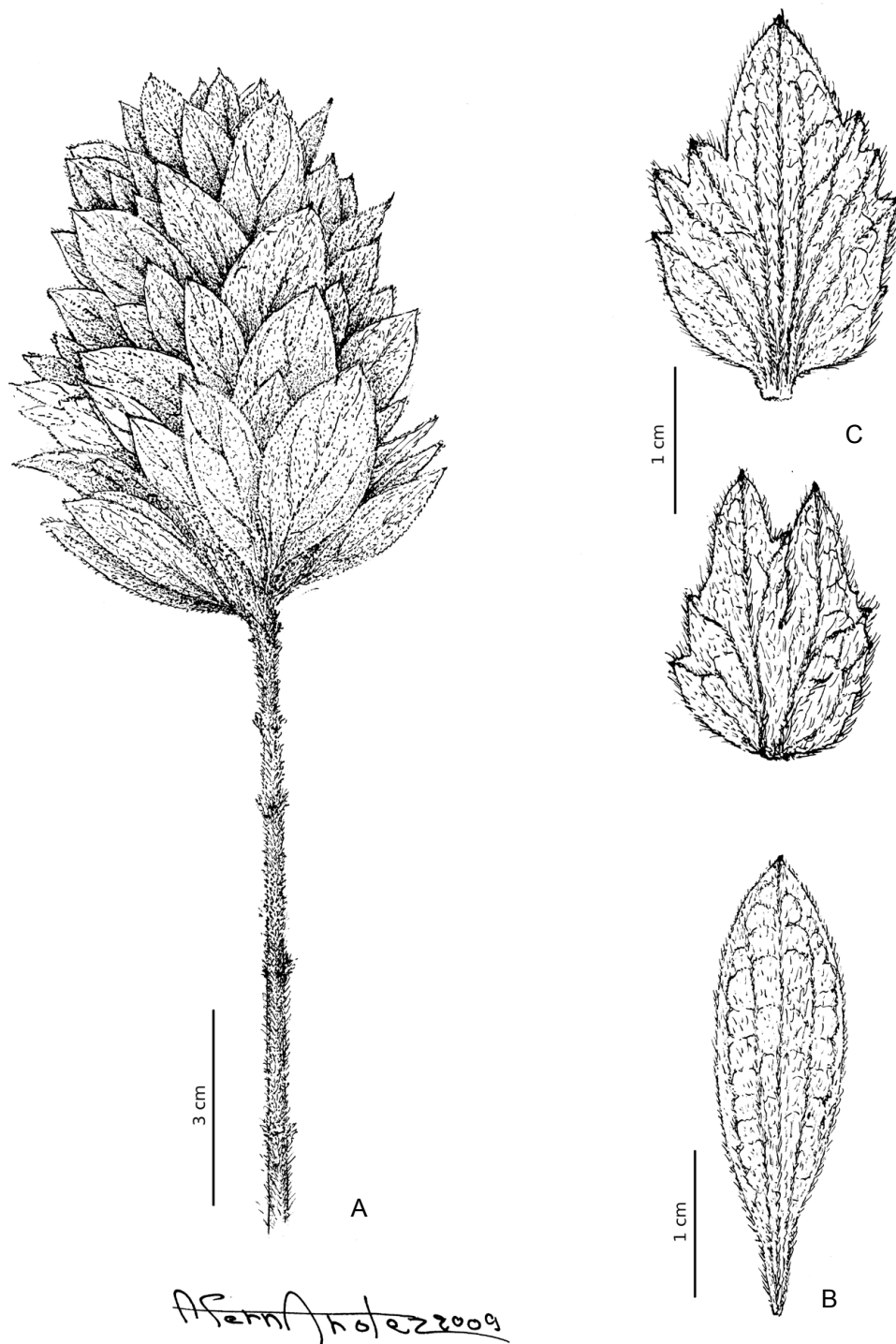


Figure 5 – *Barleria sceptrum-katanganum*. A, habit in fruit; B, bract; C, from above to beneath, posticus and anticous calyx lobes (A–C, Duvigneaud & Timperman 2742).

lobes similar but the anterior one slightly shorter and sometimes emarginate, both elliptic to widely ovate, irregularly and coarsely toothed in the upper 2/3 to 3/4 of their length, 2–2.5 × 1.4–2 cm, densely and softly adpressed hairy on both faces; corolla white, fading pale blue, 4–4.5 cm long, tube

2.5–3.3 cm long, subcylindrical, a bit narrowed at 10–14 mm high; limb with two upper lobes almost twice smaller than the three lower ones; upper lobes elliptic-oblong, 10–11 × 4–5 mm, rounded at the tip; lower lobes obovate, rounded and mucronate at the tip, the median one 17 × 14 mm, the lateral

ones 17×11 mm; filament of stamens shortly and sparsely hairy at the base, filament of the two fertile stamens 12.5 mm long, anthers 2.8 mm long; three staminodes, the median with a filament 2 mm long, the two lateral ones with a filament 3.5 mm long, all bearing reduced anther with one theca 1 mm long and the other very tiny, but both types of thecae containing apparently well developed pollen grains; style about 3 cm long, glabrous, stigma short, infundibuliform. Capsule glabrous, rather shiny, brown to black, $17\text{--}20 \times 5\text{--}6$ mm, normally 4-seeded, but containing only two mature seeds, with in addition one very reduced, not matured seed and one completely aborted. Seeds oblong, 8×5 mm, with hygroscopic hairs at the margin. Fig. 5.

Distribution – Species of the Zambezan centre of endemism. Fig. 6.

Other collections examined – D.R.Congo. **District du Haut-Katanga**: Rivière Lofoi, 1891, *Descamps* s.n., fl (BR); colline Lusanga, Jun. 1954, *Desenfans* 6375 (BRLU); 25 km W de Kasenga, s.d., *Duvigneaud* 1395, fr (BRLU); Mitwaba–Kimbo, 1956, *Duvigneaud* 2742, fr (BRLU, BR); Fungurume, alt. 1165 m, Apr. 1940, *Quarré* 6375, fl (BR).

Zambia: Kitwe, Mar. 1964, *Mutumushi* 674, fl, young fr (K).

Habitat – *Brachystegia bussei* or *Brachystegia utilis-Monotes* woodland, *Pseudoberlinia* woodland around 1150 m (D.R.Congo); museshi woodland (Zambia).

4. Two other new species in sect. *Barleria*

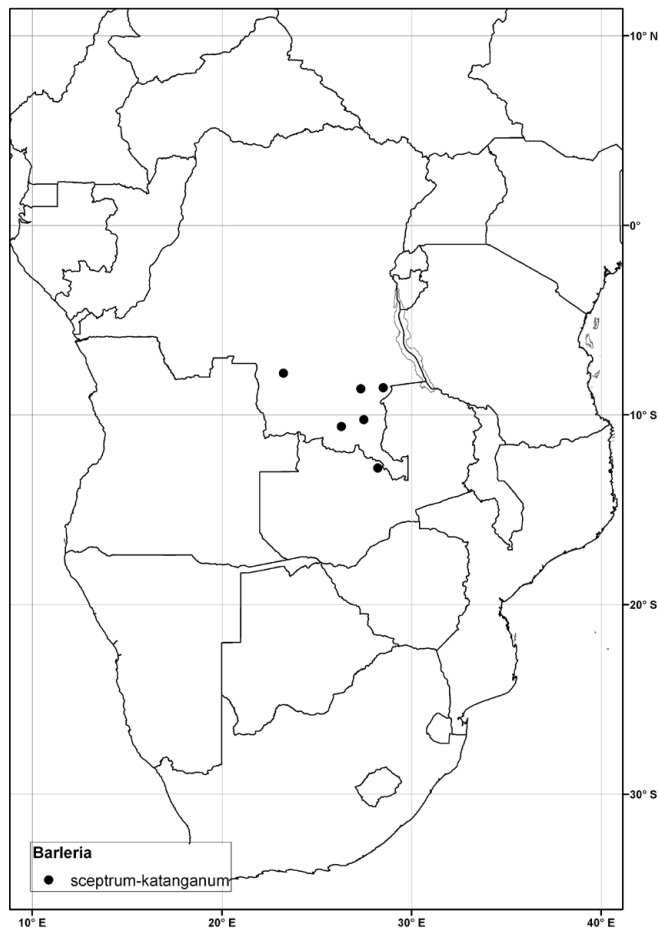


Figure 6 – Distribution map of *Barleria sceptrum-katanganum*.

Barleria lobelioides Champl., sp. nov.

Ab omnibus speciebus *Barleriae* propter calycis lobos maximos acuminatos-cuspidatos et integros differt; propter flores in capitulis crassis terminalibus vel axillaribus dispositas foliisque numerosis subtentas proprius est; *B. macrostegiae* similis sed propter calycis lobos multo angustiores; propter bracteas, calycis lobos foliaque majores non coriaceos dense pilososque et propter distributionem valde differt. – Type: D.R.Congo, District du Haut-Katanga, Fungurume, alt. 1300 m, May 1985, *Malaisse & Goetghebeur* 515, fl (holo-: BR; iso-: B, C, CAS, K, LISC, MO, P, UPS, WAG).

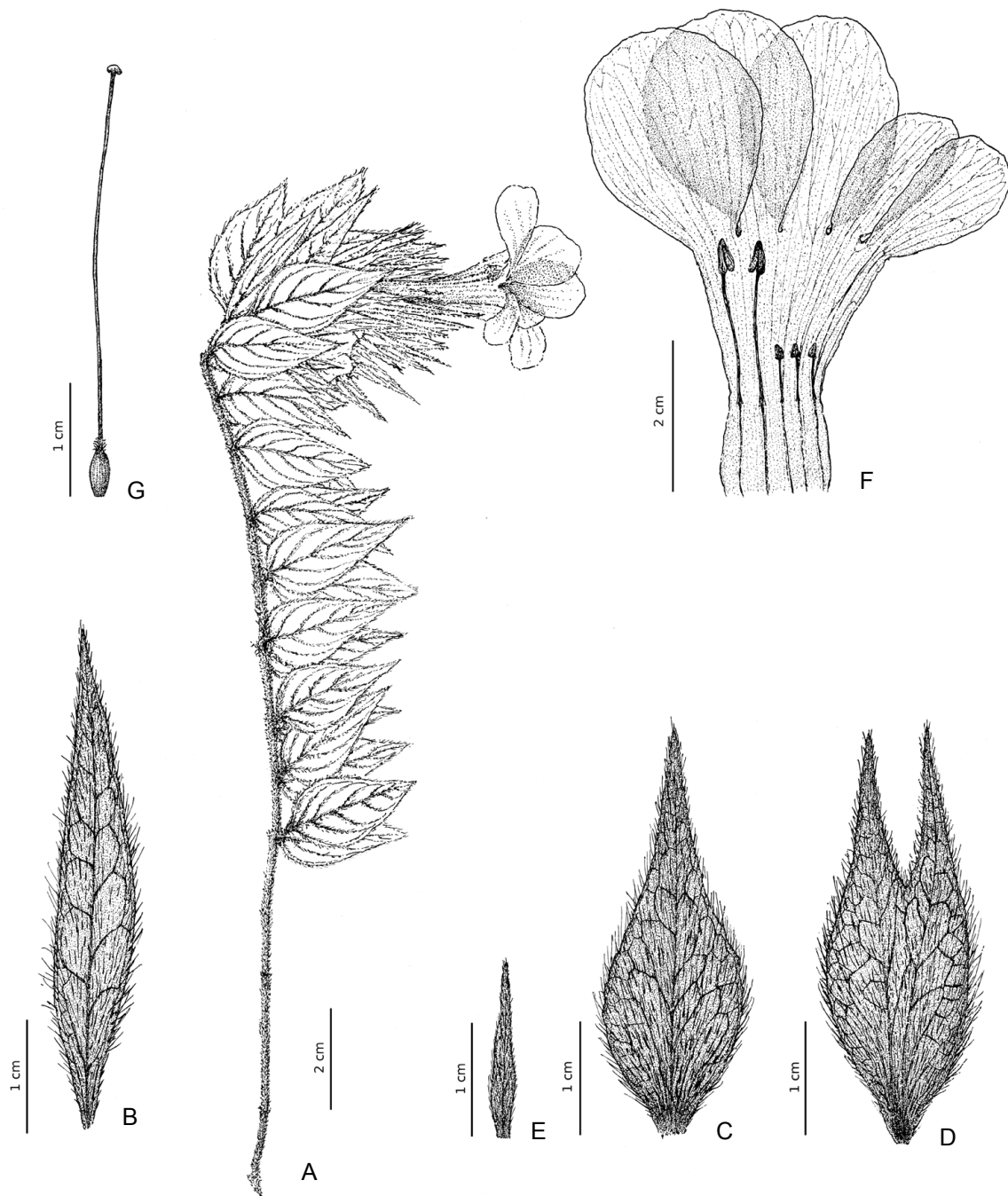
Prickless suffrutescent more or less prostrate plant. Stems densely covered with long spreading hairs. Lamina of the leaves ovate to ovate-elliptic, cuneate to subrounded at the base, acute at the tip, $2.5\text{--}4.8(-7.5) \times 1.2\text{--}2.5$ cm, covered with long thin more or less adpressed hairs; nerves somewhat depressed above, prominent below; leaves sessile or petiole up to 5 mm long. Inflorescences capitate or in dense short (more rarely rather long) spikes, terminal or on short lateral shoots and subtended by leaves; bracts, bracteoles and calyx covered with long fine adpressed hairs and with shorter rather flexuous hairs and glandular hairs; bracts elliptic, $2.5\text{--}3.7 \times 1.2\text{--}1.8$ cm, acuminate; bracteoles narrowly elliptic, rather asymmetric, cuspidate, $3.3\text{--}4 \times 0.4\text{--}0.7$ cm; calyx with posticous lobe narrowly elliptic, cuspidate, $3\text{--}3.6 \times 0.8\text{--}1$ cm, anticous lobe $2.9\text{--}3.5 \times 0.8\text{--}1.3$ cm, similar to the posticous one but bifid on $5\text{--}15$ mm long, with the two teeth cuspidate; corolla white, $3.5\text{--}5$ cm long, tube $2.3\text{--}3$ cm long, $6\text{--}10$ mm wide at the throat, slightly pubescent and glandular outside; lobes elliptic to suborbicular, upper lobes $12\text{--}16 \times 6\text{--}9$ mm, median lower lobe $13\text{--}22 \times 10\text{--}15$ mm, lateral lower lobes $12\text{--}15 \times 6\text{--}14$ mm; fertile stamens 2, with filament 16 mm long and black anther $3\text{--}4$ mm long, included in the tube; staminodes 2–3, included, with filament $2\text{--}7$ mm long and reduced anther; style $25\text{--}32$ mm long, stigma capitate. Capsule (submature) ellipsoid, blackish, glabrous, 20×7 mm. Fig. 7.

Distribution – Species of the Zambezan centre of endemism. Endemic from Katanga, strictly bound to metalliferous deposits. Fig. 8.

Other collections examined – D.R.Congo. **District du Haut-Katanga**: Tenke, May 1957, *Duvigneaud* 3023 A, fl (BRLU); Kwatebala, May 1980, *Malaisse* 10906, fl (BR); Fungurume, 1956, *Duvigneaud* 2250 B, fr (BRLU); *ibid.*, May 1957, *Duvigneaud* 3019Ac, fl (BRLU); *ibid.*, May 1957, *Duvigneaud* 3023A, fl (BRLU); *ibid.*, Jun. 1957, *Duvigneaud* 3446Ac, fl (BRLU); *ibid.*, alt. 1230 m, Jun. 1997, *Malaisse, Kisimba & Muzinga* 9, fl (BR); Tilwizembe, May 1957, *Duvigneaud* 3081Ac, fl, fr (BRLU); *ibid.*, May 1957, *Duvigneaud* 3138A, fl, fr (BRLU); Mambilima, alt. 1300 m, Jun. 1997, *Malaisse, Kisimba & Muzinga* 19, fl (BR); Kwatebala, alt. 1500 m, Jun. 1997, *Malaisse, Kisimba & Muzinga* 50, fl (BR); Kabwelunono, alt. 1475 m, Jun. 1997, *Malaisse, Kisimba & Muzinga* 139, fl (BR); Fungurume, alt. 1170 m, Apr. 1974, *Malaisse* 7732, fl (BR); *ibid.*, alt. 1200 m, Apr. 1980, *Malaisse* 10524, fl (BR); *ibid.*, alt. 1200 m, Feb. 1978, *Malaisse & Grégoire* 123 (BR); *ibid.*, alt. 1170 m, Apr. 1990, *Tropmetex* 148, fl (BR); Tilwizembe, alt. 1300 m, Apr. 1990, *Tropmetex* 242, fl (BR).

Habitat – Steppes and savannas, *Uapaca robynsii* bushy savannas; on cobalt and copper deposits only, 1170–1500 m.

B. lobelioides has the same kind of habit and inflorescence as *B. macrostegia*, a species confined to Namibia, Zim-



Aferrin Inole 2001

Figure 7 – *Barleria lobelioides*. A, habit; B, bract; C, posticous calyx lobe; D, anticous calyx lobe; E, lateral calyx lobe; F, opened corolla; G, pistil (A, Brooks et al. 148; B–G, Duvigneaud 3023 A).

babwe, Botswana and South Africa. *B. macrostegia* is less robust, having coriaceous, glabrous leaves, much broader, widely elliptic coriaceous calyx lobes and a smaller corolla with an almost cylindrical tube. The leaves and calyx lobes of *B. lobelioides* are not coriaceous and are villous, the calyx

lobes being narrowly elliptic, and the corolla is larger with an infundibuliform tube. After Balkwill & Balkwill (1997), *B. macrostegia* belongs to sect. *Barleria*. That section is characterized, inter alia, by the strongly different shape and size of the outer and inner calyx lobes; it is not the case in *B. lo-*

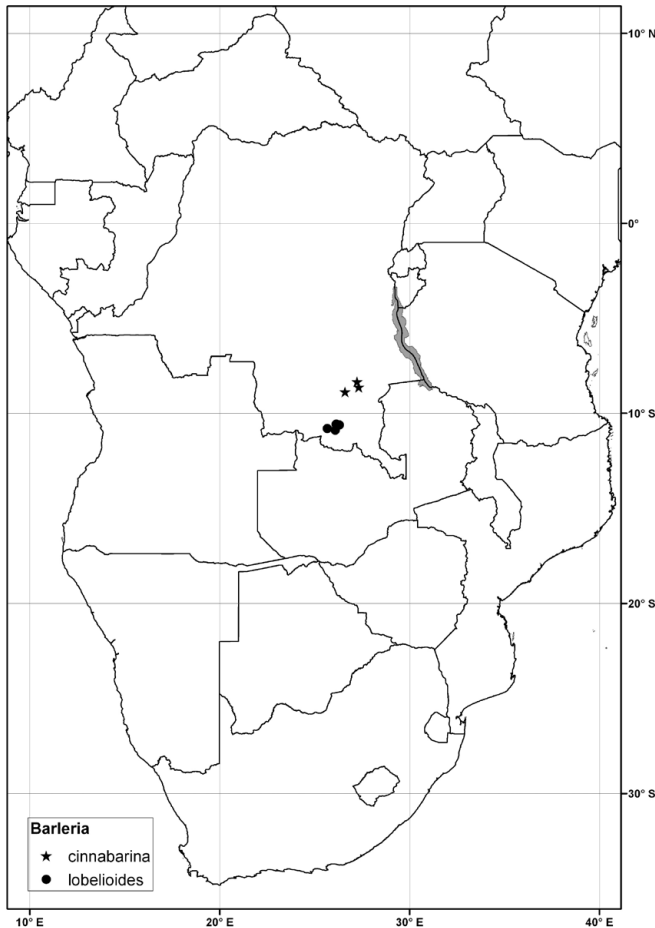


Figure 8 – Distribution map of *Barleria lobelioides* and *Barleria cinnabarina*.

belioides, but all the other characters match these of that section and, in our opinion, *B. lobelioides* can be considered as a peripheral member of the latter. It is remarkable to notice that almost all the specimens have been collected since 1980 only.

***Barleria cinnabarina* Champpl., sp. nov.**

Ab omnibus *Barleriae* speciebus propter corollam cinnabarinam cum lobos superos minutissimos, folia minutissima in spine desinentia, ramos crassos et habitum fruticosum bene distinguitur. – Type: D.R.Congo, District du Haut-Katanga, Mitwaba–Manono, Jun. 1988, *Pauwels* 7153, fl (holo-: BR; iso-: CAS, K, MO).

Prostrate subshrub or bushy erect shrub 1–2 m high; **branches** tomentose, dark brown, thick. Leaves subsessile, **lamina** of the leaves very small, elliptic, thick, 8–17 × 3–10.5 mm, densely pubescent on both faces, cuneate at the base, tip abruptly ending in a sharp spine 1.5–3 mm long; nerves depressed above (fresh material), prominent below. **Flowers** solitary, terminal and axillary on short lateral branches; **bracteoles** spiny, linear, 2 cm long, divergent; **calyx** lobes papery; posticous calyx lobe elliptic, 14–19 × 4.5–8 mm, acute-spiny at the tip; anticous one similar, 12–16 × 4.5–8 mm; lateral lobes 9 × 2 mm; **corolla** vermilion red, 36–38 mm long, tube 21–22 mm long, 6–8.5 mm wide under the lobes; upper lobes

rudimentary, 2–3 × 1.75–2 mm, recurved laterally; lower lobes widely elliptic, the median one 14–15 × 9.5–10 mm, the lateral ones 15–16 × 10–11 mm; **fertile stamens** 2, filament 37–39 mm long, exerted, glabrous; **anther** 4.5 mm long and, in addition, two or three **staminodes** with or without shorter anthers; **style** 29 mm long, exerted, glabrous, stigma cylindrical. **Capsule** ellipsoid, blackish, 14–18 × 5 mm. **Seeds** two, dark brown when dry. Figs 3B & 9.

Distribution – Species of the Zambezi centre of endemism. Endemic to Katanga. Fig. 8.

Other collections examined – **D.R.Congo. District du Haut-Katanga:** Kibara, Jul. 1952, *Delvaux* 420, fl (BR); région de Mitwaba, *Desenfans* s.n., sterile (BRLU); Kitshinje, alt. 1400 m, May 1953, *Desenfans* 3074, sterile (BRLU); route Selkibara S, Aug. 1953, *Desenfans* 3877, fl (BRLU); Makomo, Aug. 1953, *Desenfans* 3887 (BR, BRLU); P.N. Upemba, Aug. 1953, *Desenfans* 3887, fl, fr (BR); 15 km S de Mitwaba, Jan. 1960, *Duvigneaud* 5080 Ac, sterile (BRLU); Mitwaba, 1956, *Duvigneaud & Timperman* 2702 Ba, fr (BRLU); Km 20 Mitwaba–Manono, Jul. 1952, *Galoux* 180, fl, fr (BR); 10 km nord de Mitwaba, Sep. 1959, *Schmitz* 6617, fl, fr (BR); s.l., s.d., *Vandenbrande* M 204, sterile (BRLU).

Habitat – Savannas on rocky soils, seepings on granites, dry bushy savannas and woodlands on quartzites, rocks, alt. 1400–1600m.

The red corolla with extremely reduced upper lobes and the scarious calyx lobes – both latter characters also present in *B. bremekampii* from sect. *Barleria* (Balkwill & Balkwill 1997) – allow to place *B. cinnabarina* in the same section. The only difference, two seeds instead of four, is perhaps due to possible abortion of two of the ovules and to the scarcity of fruiting material and of the number of specimens, not allowing a representative set of fruits.

B. bremekampii differs in its leaves reaching 1.5 × 0.9 cm, without terminal spine and not coriaceous, its spiny bracteoles 1.6 cm long, its outer calyx lobe 12 × 4 mm, its 2.4 cm long corolla with a tube 2 cm long, upper lobes 3 × 3 mm, not recurved laterally, lateral ones 10 × 7 mm and the lower one 10 × 9 mm, its 15 mm long stamens and 4 mm long anthers, and its 2 cm long style.

5. A vicariant pair in sect. *Fissimura* – Our novelty *B. pauciflora* is similar and closely related to *Barleria neurophylla*, a species described by Clarke (1900) from D.R.Congo. There is no isotype nor any identified material of that species in BR where it has hitherto been overlooked as being a species from Central Africa. The holotype (*Carson* s.n., K) comes from Kavala Island, in the Congolese part of Tanganyika Lake. There is a second Congolese collection from the western shore of the lake, *Kässner* 3048 (K). *B. neurophylla* is endemic from that part of the lake and from the next Mahali mountains, a small range fringing the eastern shore of the lake in Tanzania (fig. 11).

B. neurophylla is very closely related to *B. pauciflora* and has the same ecology, also growing in gallery forests, but several minor differences in characters and the disjunct distribution of the two taxa justify their treatment as distinct species. They may be considered as vicariant taxa. Several specimens of *B. neurophylla* were found in K and a duplicate from K in the unidentified material of BR.

As *B. neurophylla* is placed by Balkwill & Balkwill (1997) in sect. *Fissimura*, *B. pauciflora* should be placed

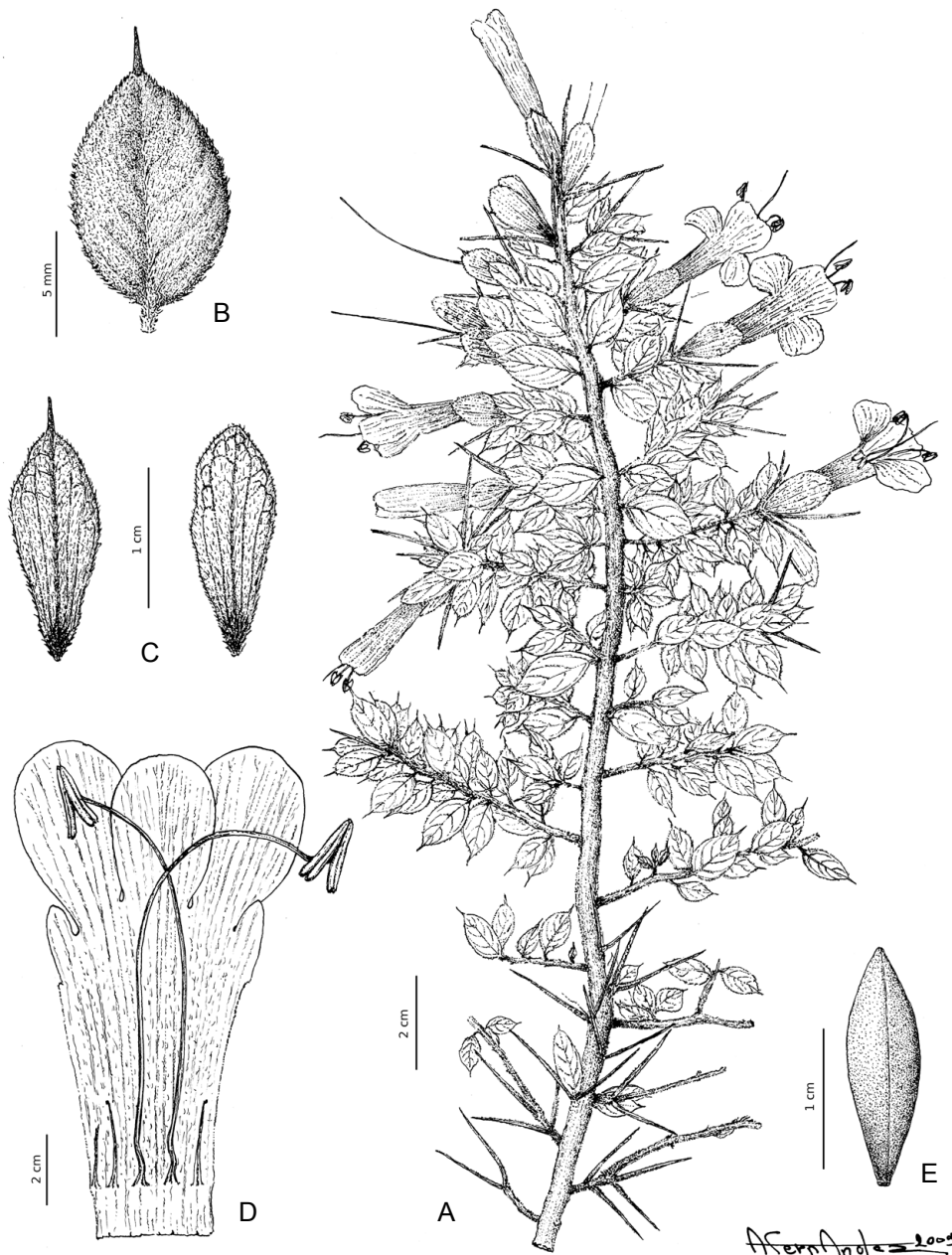


Figure 9 – *Barleria cinnabarina*. A, habit; B, leaf; C, from left to right, anticous and posticus calyx lobes; D, opened corolla showing stamens and staminodes; E, capsule (A, Pauwels 7158; B, Galoux 180; C, D & E, Delvaux 420).

there as well. It is an unarmed plant, with bracteoles never spinous, and a corolla with 4 + 1 configuration.

***Barleria pauciflora* Champl., sp. nov.**

B. neurophylla C.B.Cl. valde affinis sed propter calycis lobos integros, nec minute dentatos vel erosos nec extra marginem longe patenter ciliatos, nec subscariosos; propter folia longitudinalinis in latitudine rationem 3,6 nec 2,5 et corollae lobos satis multo angustiores bene differt – Type: D.R.Congo, District du Haut-Katanga, chutes Dikolongo, près de Lubudi, alt.

1230 m, Apr. 1985, Malaisse & Goetghebeur 283, fl (holo-: BR; iso-: B, CAS, K, MO, P, WAG).

Suffrutescent plant up to 70 cm high. Stem with two opposite bands of rather sparse antrorse hairs or antrorsely pubescent all around. Lamina of the leaves elliptic to narrowly elliptic or oblanceolate, acute to acuminate at the tip, cuneate to attenuate at the base, 3.3–12.5 × 0.9–3.9 cm, sparsely covered with short adpressed hairs; 4–8 lateral nerves; petiole 3–8 mm long. Inflorescence terminal, capitate, few-flowered, sometimes with solitary axillary flowers at one or two nodes below the terminal part or with small lateral inflorescences

Key to the vicariant pair *B. neurophylla* / *B. pauciflora*

1. Calyx lobes minutely toothed or erose, margin transcended at length by thin spreading bristles; leaves maximum 2.5 times longer than wide, with long adpressed hairs up to 2 mm long; corolla lobes 9–14 mm wide.....*B. neurophylla*
1. Calyx lobes entire, margin not transcended by long thin spreading bristles but provided with short adpressed-antrorse hairs; leaves 3.6 times longer than wide, with short adpressed hairs less than 1 mm long; corolla lobes 3–10 mm wide.....*B. pauciflora*

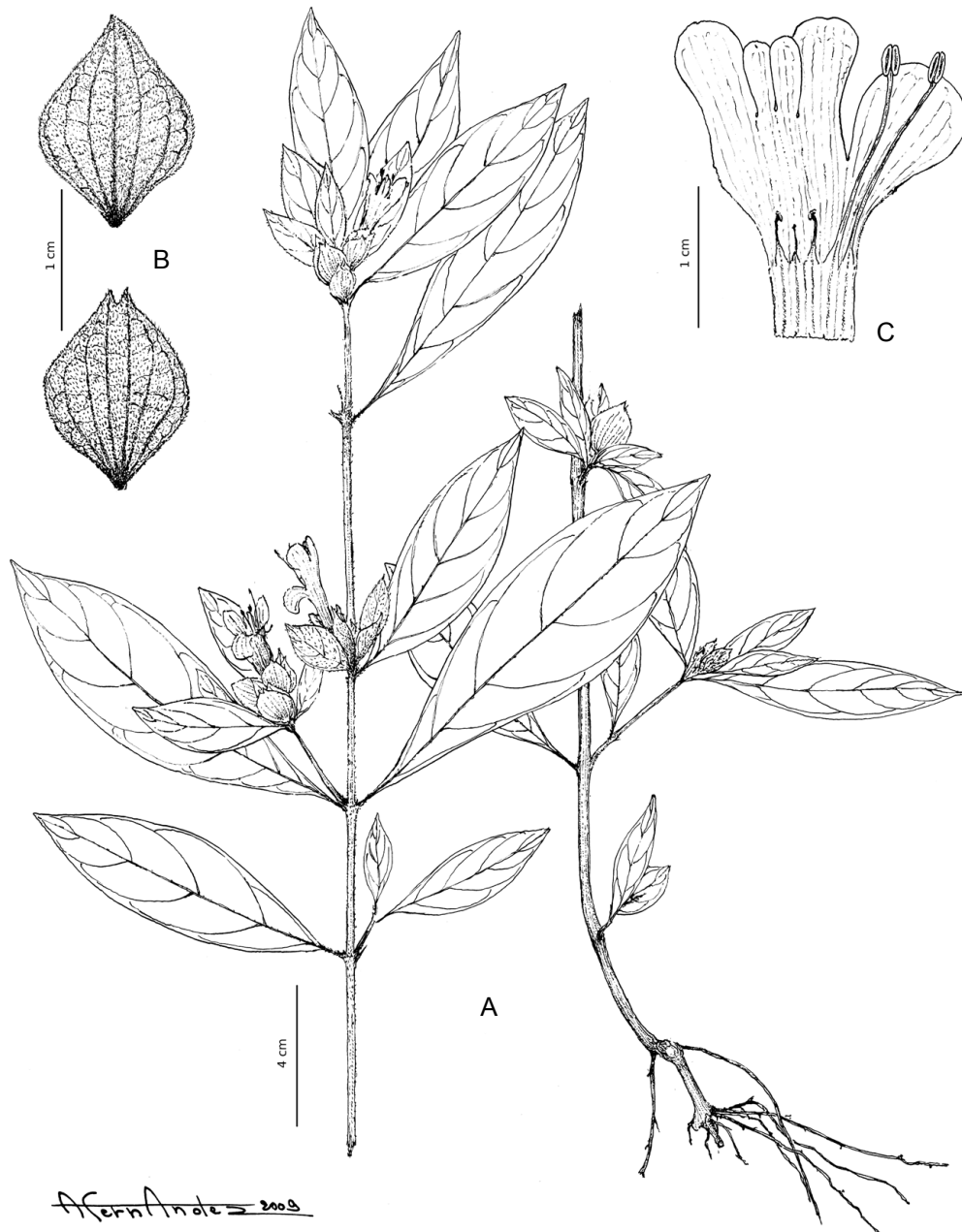


Figure 10 – *Barleria pauciflora*. A, habit; B, from above to beneath, posticus and anticus calyx lobes; C, opened corolla (A, de Witte 6915; B & C, de Witte 6480).

on short shoots; bracteoles linear, up to 1 cm long; calyx with posticous lobe suborbicular-subrhomboidal, entire, acute at the tip, 13–20 × 10–19 mm; anticous lobe similar, 12–18 × 8–17 mm, shortly bifid at the tip, both adpressed-pubescent mainly on the nerves outside, puberulent inside; lateral lobes narrowly lanceolate, 7–10 mm long; all lobes accrescent in fruit; corolla blue or blue-mauve, 2.7–3.2 cm long, with four lobes bending upwards and one lower lobe; tube 18 mm long, 7–10 mm wide at the throat; the two median upper lobes narrowly oblong, 7–10 × 3–5.5 mm; the two upper lateral obovate-oblong, 8–13 × 4–8 mm and the lower one similar but broader, 9–11 × 9–10 mm; fertile stamens 2, filament glabrous 15 mm long, anther 3 mm long, 2 staminodes with filament 2 mm long; style glabrous, 18 mm long, stigma capitate; filaments and style exerted out the mouth of corolla but shorter than the lobes. Capsule 12 × 4–5 mm, ellipsoid, blackish. Seeds two, brown. Figs 3C & 10.

Distribution – Species of the Zambezan centre of endemism. Endemic to Katanga. Fig. 11.

Other collections examined – D.R.Congo. District du Haut-Katanga: Rivière Kamandula, Jun. 1949, *de Witte* 6480, fl (BR, C); *ibid.*, Jun. 1949, *de Witte* 6915, fl (BR); rivière Panda, Apr. 1943, *Hoffmann* 490, fl (BRLU); rivière Mwera, Apr. 1980, *Malaisse* 10514, fl (BR, K, UPS); Sampwe, rivière Kaluke, Jul. 1939, *Quarré* 5805, fl (BR); *ibid.*, Jul. 1939, *Quarré* 5835, fl (BR); riv. Mwera,

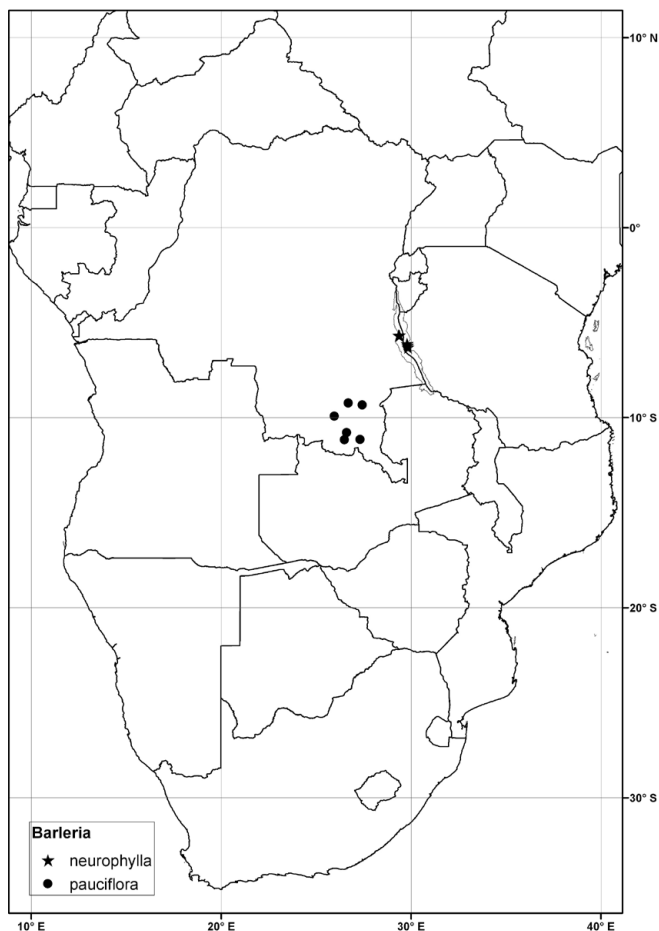


Figure 11 – Distribution map of *Barleria pauciflora* and *B. neurophylla*.

56 km NNW Lubumbashi, alt. 1200 m, May 1983, *Schajjes* 1922, fl (BR).

Habitat – Gallery forests, around 1200 m a.s.l.

6. A new species of sect. *Cavirostrata* – The following species has the typical capsule of sect. *Cavirostrata* – with a long narrow beak – and the “4 + 1 distant lobe” typical corolla of that section (Balkwill & Balkwill 1997). It looks like *B. grandis* but differs in its lanceolate cuspidate calyx lobes, its foliose terminal part of inflorescence and its much smaller corolla.

***Barleria cinerea* Champl. sp. nov.**

Barleriae grandis Nees proxima sed propter inflorescentias valde foliosas, calycis lobos lanceolatos cuspidatosque nec elliptico-oblongos et corollam duplo parviorem bene differt. –Type: D.R.Congo, District du Haut-Katanga, Kiubo, 1956, *Duvigneaud* 2754 (holo-: BRLU; iso-: BR).

Suffrutescent plant probably up to 1 m high. Stems glabrous. Lamina of the leaves ovate, glaucous, 5–12 × 2–5 cm, attenuate at the base, acute at the tip, glabrous when mature, grey tomentose when young; petiole up to 2.5 cm long. Inflorescence foliose; leaves of inflorescence much smaller than those of the stem; axis pubescent-tomentose; flowers solitary, axillary in the upper nodes, bracteoles linear, 15 × 2 mm; calyx lobes lanceolate, cuspidate, the posterior 18 × 4 mm, the anterior one similar but a little smaller and usually bifid at the tip, the lateral ones 10 × 1 mm; corolla slightly puberulent outside, probably pink or white, 4.2 cm long; tube cylindrical, 13 mm long, 12 mm wide at the throat; the two upper median lobes 18 × 7 mm, the two upper lateral 20 × 10 mm, the lower median one 20 × 12 mm; fertile stamens two, filament 24 mm long, anther 4 mm long, staminodes three, 2 mm long; style 32 mm long. Capsule pyriform, flattened, long-beaked, light brown, 14 mm long, two-seeded. Seeds cream, elliptic, 8 mm long, covered with curled tufted hairs.

Distribution – Species from the Zambezan centre of endemism, only known from the type. Fig. 4.

Habitat – Not given.

7. An overlooked species of sect. *Somalia* – The following species has hitherto been overlooked for the area of “Flore d’Afrique centrale”; it was described from D.R.Congo, Katanga, but has been only known from the holotype, kept in BM; there is no isotype in BR, nor any other specimen identified as *B. kaessneri* in K or BR. Several specimens of that species were although found in the unidentified material of Acanthaceae in both Herbaria.

B. kaessneri belongs to sect. *Somalia*, characterized i.a. by leaves of a distinct blue-green colour and beaked capsules. Close allies like *B. benguellensis* and *B. calophylla* are placed in that section by Balkwill & Balkwill (1997), which were unable to get sufficient material of *B. kaessneri* to place it satisfactorily in their classification (Balkwill & Balkwill 1997: 571).

***Barleria kaessneri* S.Moore (Moore 1909)** – Type: D.R.Congo, District du Haut-Katanga, Niembe river, 27 May

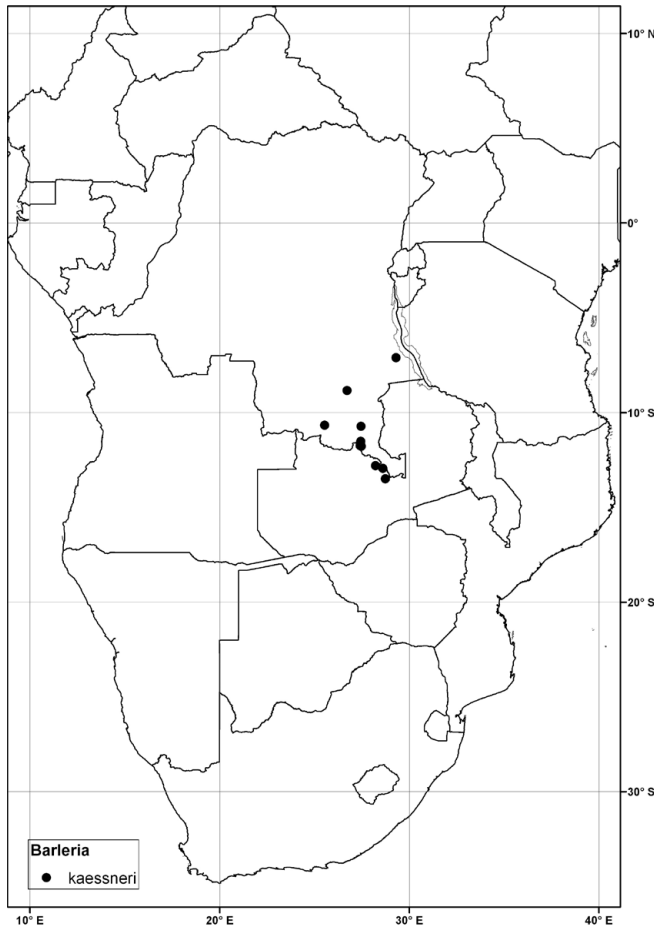


Figure 12 – Distribution map of *Barleria kaessneri*.

1908, *Kässner* 3010, fl (holo-: BM; mixed with a specimen belonging to the genus *Phaulopsis*).

Suffrutescent plant or subshrub 15–30 cm high from a woody rootstock; **stem** with short stiff antrorse hairs. **Lamina** of the leaves chartaceous or thick-fleshy, narrowly elliptic to oblanceolate, 5–10.5 × 1.4–3 cm, obtuse to rounded at the tip, cuneate to slightly attenuate at the base, glabrous or subglabrous, scabridulous above, with adpressed stiff hairs on the nerves to subglabrous, pellucid-punctate below, glaucous-green at least when dry; leaves subsessile or petiole up to 5 mm long. **Inflorescences** terminal, capitate or in short spikes up to 7 cm long; **bracts** orbicular, more rarely elliptic, similar to the largest calyx lobes of many *Barleria*, imbricate, obtuse to rounded or more rarely acute at the tip, puberulent and glandular outside and with sparse short stiff hairs and sometimes glandular inside, 12–23 × 10–18 mm, the smaller towards the apex of inflorescence, median nerve and lateral curved nerves well marked; **calyx** with posticous lobe elliptic, acute at the tip, 16–17 × 5–6.5 mm; anticous lobe narrowly elliptic, acute or shortly bifid at the tip, 17–18 × 5 mm; lateral lobes linear-elliptic 17 × 2 mm, all puberulent and glandular, light green; **corolla** violet, mauve, pale blue or white flushed with violet and with violet markings, 3.3 cm long, with very unequal lobes; tube 14 mm long, (4–)5–6 mm wide at the

throat, upper lobes narrow, elliptic-oblong or oblanceolate, 15 × 3.5 mm; median lower lobe widely elliptic, 17 × 10 mm; lateral lobes elliptic, 18 × 8 mm; **stamens** two, filament 19 mm long, anther 2.75 mm long; **style** 24 mm long, stigma cylindrical. **Capsule** pale cream to yellowish, pyriform, puberulent, 13 mm long, including a beak 6 mm long. **Seeds** two, with scale-like waved fascicules of light brown or cream hairs. Fig. 3D.

Distribution – Linking species of the Zambezian centre of endemism and the Guineo-Congolian/Zambeziian Regional Transition Zone. Fig. 12.

Other collections examined – **D.R.Congo. District du Bas-Katanga:** Lupiala, alt. 890 m, Jun. 1948, *de Witte* 4037, fl (BR, K). **District du Haut-Katanga:** Muniama, Apr. 1957, *Detilleux* 778, fl (BR); Moba–Kapona, Jul. 1957, *Devred* 3495, fr (BR); Katanga, s.l., s.d., *Duvigneaud* 3636, 3649 (BRLU); entre Ruwe et Wasela, alt. 1350 m, Apr. 1971, *Malaisse* 6918, fl (BR); rivière Luiswishi, près de Kumanwa, alt. 1150 m, May 1985, *Malaisse & Goetghebeur* 466, fl (BR); Kafubu, Apr. 1927, *Quarré* 283, fl (BR); rivière Kisanga, Katuba, Jun. 1935, *Quarré* 4533, fl (BR); piste Kolwezi–ancien bac de la Lualaba, à 11,875 km du début de piste, Apr. 1987, *Schajjes* 3464, fl (BR).

Zambia: Walamba distr., May 1954, *Fanshawe* 1255, fr (K, BR); Kitwe, Mar. 1955, *Fanshawe* 2223, fl (K); *ibid.*, May 1967, *Fanshawe* 10072, fl (K); *ibid.*, Jul. 1967, *Mutumushi* 1975, fr (K); *ibid.*, Apr. 1969, *Mutumushi* 3036, fl (K); Ndola, alt. 1220 m, May 1961, *Wilberforce* 113, fl (K).

Habitat – Miombos, e.a. with *Brachystegia bussei*, chipya woodlands, bushy savannas, on outcrops or sandy-gravelly soils, alt. 890–1350 m.

REFERENCES

- Balkwill M.-J., Balkwill K. (1997) Delimitation and infrageneric classification of *Barleria* (Acanthaceae). *Kew Bulletin* 52: 535–573. [available at <http://www.jstor.org/pss/4110286>]
- Brummitt R.K., Seyani J.H. (1978) Two new species of *Barleria* from tropical Africa. *Kew Bulletin* 32: 721–722. DOI: 10.2307/4109765
- Clarke C.B. (1900) Acanthaceae. *Flora of Tropical Africa* 5: 1–262.
- Darbyshire I. (2008) A reassessment of the status of *Barleria* sect. *Cavirostrata* (Acanthaceae) in tropical Africa, with a new species, *B. richardsiae*, described from the Tanzania-Zambia border region. *Kew bulletin* 63: 601–611. DOI: 10.1007/s12225-008-9081-3
- Moore S. (1909) *Alabastra Diversa* part XVIII. *Journal of Botany* 47: 295.
- Wild. H. (1965) The flora of the Great Dyke of Southern Rhodesia with special reference to the serpentine soils. *Kirkia* 5: 49–86.

Manuscript received 26 Mar. 2010; accepted in revised version 13 Dec. 2010.

Communicating Editor: Elmar Robbrecht.