

The 'minor confusion' around *Parquetina nigrescens* (Periplocaceae)

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A correction of the taxonomy of *Parquetina nigrescens* (Afz.) Bullock with its synonyms *Periploca nigrescens* Afz. and *Omphalogonus calophyllus* Baill. is presented. Our investigation reveals that *Periploca nigrescens* and *Omphalogonus calophyllus* are two distinct taxa, as their floral morphology differs conspicuously. The name, *Parquetina nigrescens*, is therefore an incorrect combination. A taxonomic revision of *Periploca nigrescens* and *Omphalogonus calophyllus* completes this account.

Keywords: *Omphalogonus*, *Parquetina*, Periplocaceae, *Periploca nigrescens*, taxonomy.

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Introduction

Afzelius established *Periploca nigrescens* in 1817. This name was universally accepted by various taxonomists, such as Schumann (1896), Hiern (1898), N.E. Brown (1902), De Wildeman (1906, 1911), Chevalier (1920), Hutchinson & Dalziel (1931) and Robyns (1947). Baillon erected *Parquetina gabonica* in 1889 and in 1902 N.E. Brown placed this name in synonymy with *Periploca nigrescens*. Baillon (1890) also coined *Omphalogonus calophyllus*, a name accepted by Schumann (1895), N.E. Brown (1902), Chevalier (1920) and Brenan (1949).

Bullock in 1961 combined *Periploca nigrescens*, *Parquetina gabonica* and *Omphalogonus calophyllus* as *Parquetina nigrescens* (Afz.) Bullock. It is unclear how Bullock could have come to this conclusion on evidence from the floral morphology of the two taxa. Our own investigation revealed major differences between the flowers of *Periploca nigrescens* and *Omphalogonus calophyllus*. *Periploca nigrescens* has the typical rotate *Periploca* flower with indistinct shallow corolla tube and exerted gynostegium. *Omphalogonus calophyllus*, in contrast, has flowers with a well-developed campanulate corolla tube, within which the gynostegium is enclosed.

Periploca nigrescens and *Omphalogonus calophyllus* belong to two distinct groups of taxa in the Periplocaceae. The first group's flowers are rotate, having shallow, saucer-shaped corolla tubes from which the gynostegia are exerted. The second group has flowers with distinct campanulate to tubular corolla tubes within which the gynostegia are enclosed. *Periploca nigrescens* accordingly belongs to the first group and *Omphalogonus calophyllus* to the second group.

Instead of clearing up a 'minor confusion' Bullock (1961) created a major confusion. An important factor that probably, at least partly, led to Bullock's confusion, is the conspicuously similar vegetative appearance of the two species and the fact that both species' twigs, leaves, peduncles and flowers are black when dry. Their leaves are so similar in shape, texture and appearance that it is difficult, sometimes impossible, to identify sterile material with total certainty to any one of the two species.

N.E. Brown (1902) was most definitely correct in his recognition of *Parquetina gabonica* as *Periploca nigrescens* and in his maintaining *Omphalogonus calophyllus* as a distinct taxon. Bullock's (1961) allegation that N.E. Brown (1902) was at fault is therefore unfounded. Bullock's 'evidence of sexual dimorphism' is possibly the result of confusion caused by the large conspicuous

anthers of *Periploca nigrescens* and the small, less-conspicuous anthers of *Omphalogonus calophyllus*.

Material and Methods

Herbarium specimens from the herbaria of BM, BR, COI, K, L, LISC, MO, P, PRE, SRGH and WAG were studied. External morphology was examined with an Olympus stereo-microscope. Pollen was collected from the above-mentioned specimens and acetolysed according to the method of Erdtman (1960), mounted in glycerine jelly and sealed with paraffin wax. Samples were examined with a Zeiss microscope (LM). Measurements of tetrad size were, whenever possible, based on a minimum of 15 tetrads per specimen. For the scanning electron microscope (SEM), pollen was acetolysed, air-dried on stubs, coated with gold and examined. A Jeol Winsam 6400 electron microscope was used.

Account

Pollen morphology

Omphalogonus calophyllus: Its pollen grains are united in tetrads with these grains arranged decussately and only a small proportion rhomboidally (Figure 1a & b). The decussate tetrads are (31.5–40.5) 35.9 × 34.7 (27.9–39.6) μm. Three to four pores occur per grain, the pore size being 0.7–2.2 μm. These pores are sometimes covered by a thin layer of exine material. The exine is smooth.

Periploca nigrescens: The pollen grains of this species are united in tetrads with these grains arranged rhomboidally or decussately (Figure 2a–d). Both types are common. The rhomboidal tetrads measure (59.4–93.6) 72.7 × 63 (49.5–85.5) μm. The decussate tetrad size amounts to (58.5–87.3) 67.7 × 62.8 (46.8–84.6) μm. Four to six pores occur per grain, the size of the pores being 2.2–5.1 μm. The pores are sometimes covered by a thin layer of exine material. The exine is smooth. The pollen of *Periploca nigrescens* is similar to that found in the other species of *Periploca*, although its grains are larger than in most of the species (Verhoeven & Venter 1994).

Omphalogonus calophyllus is easily distinguishable from *Periploca nigrescens* by the smaller size of its pollen grains and dominance of its decussate tetrads.

Key to *Omphalogonus calophyllus* and *Periploca nigrescens*

- 1a. Corolla lobes spreading, 6–7 mm long, inner surface conspicuously papillate and uniformly pink to deep violet. Gynostegium and corona lobes enclosed within the corolla tube.

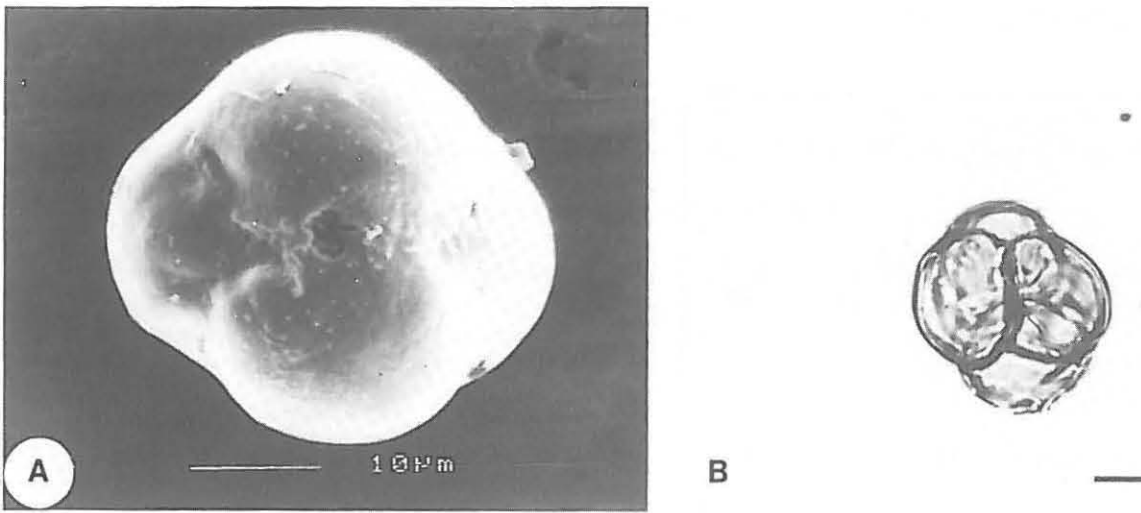


Figure 1 SEM (a) and LM (b) micrographs of a decussate tetrad of *Omphalogonus calophyllus* [Gillett 15213 (K)]. Scale bar: 10 µm.

Corona lobes channelled radiating processes of 2 mm long

..... *Omphalogonus calophyllus*

1b. Corolla lobes reflexed, 10–12 mm long, inner surface velvety and violet at base turning brown towards tip. Gynostegium and corona exerted from the corolla mouth. Corona lobes 5–7 mm long, linear to filiform and segmented towards their apices

..... *Periploca nigrescens*

Enumeration of the two species

Omphalogonus calophyllus Baill. in Bulletin Mensuel de la Société Linnéenne de Paris 2: 812 (1890), 300 (1891); K.Schum.: 221 (1895); N.E. Br.: 256 (1902); A.Chev.: 430 (1920); Brenan: 67 (1949). Type: Tanzania, Zanzibar, *Boivin 1008A* (P, holotype!).

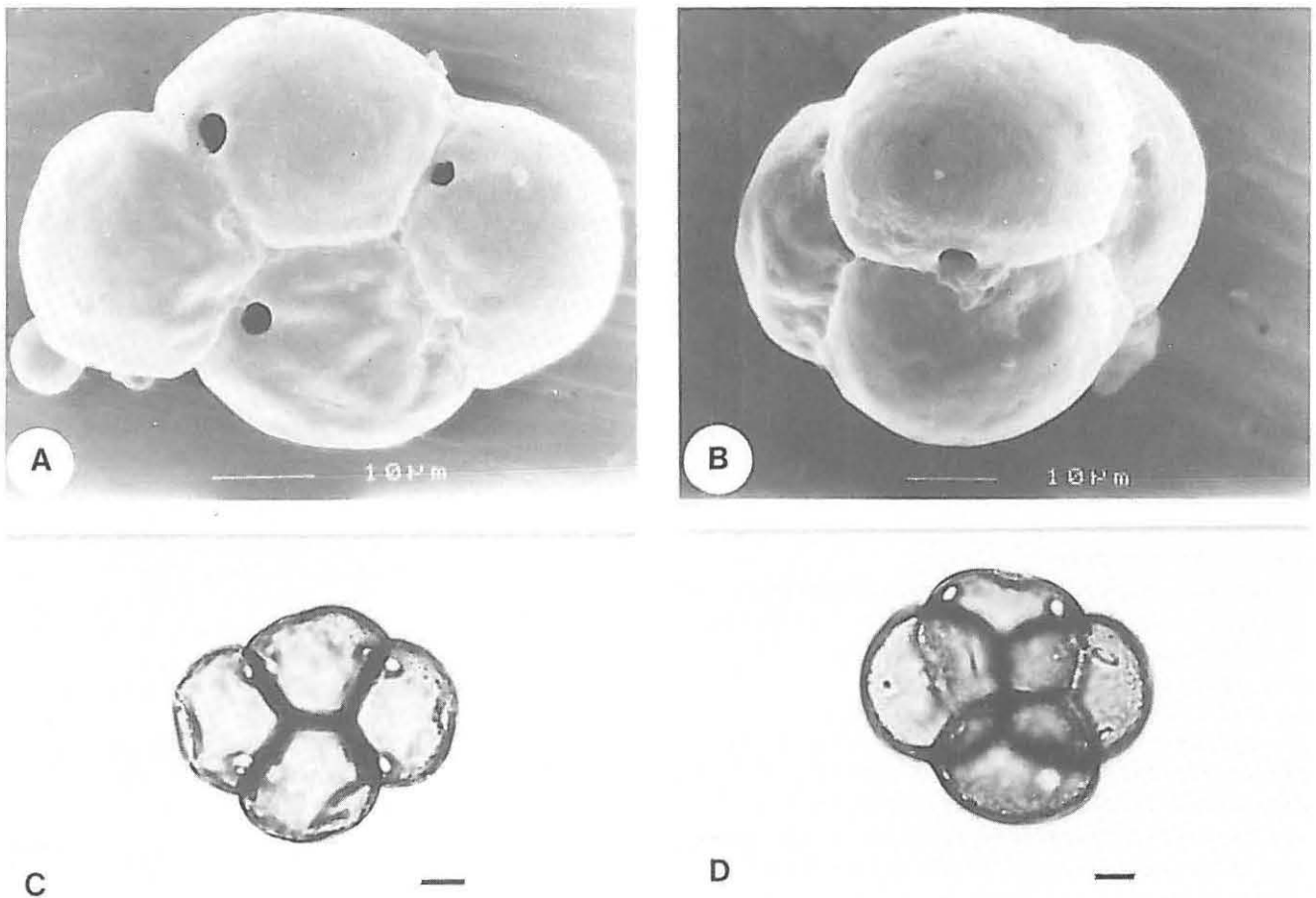


Figure 2 SEM (a & b) and LM (c & d) micrographs of tetrads of *Periploca nigrescens* [Bunting 31 (MO)]. a & c: Rhomboidal tetrads; b & d: decussate tetrads. Scale bar: 10 µm.

O. nigritanus N.E. Br.: 279 (1912); Hutch. & Dalz.: 53 (1931). Type: Southern Nigeria, *N.W. Thomas 1011* (K, holotype!).

Periploca calophylla (Baill.) Roberty: 1429 (1953).

Parquetina nigrescens (Afz.) Bullock: 205 (1961). *pro parte excl. typ.*

Liana: large and spreading with copious white latex. **Roots:** unknown. **Stems:** woody, twining, up to 20 × 0.1 m, bark glabrous, pale brown, verrucose and flaky. **Leaves:** opposite, simple, glabrous; petiole (15–)45–65 mm long; blade glossy to dull green above, very pale green below, 90–115(–135) × 55–85 (–105) mm, broadly ovate, base cordate, apex obtuse to rounded and cuspidate, margin entire, veins pale green above, dark green below, 7–14 secondary veins per side, thickly coriaceous. **Inflorescences:** axillary, cymose with monochasial branches, 10–30-flowered, glabrous, primary peduncles (10–)20–27 mm long, secondary 4–10(–20) mm long; bracts 2 × 1 mm, acicular. **Flowers:** bisexual, actinomorphic, pentamerous, pedicels 4–5 mm long; buds sub-globose with apex rounded. **Sepals:** sub-orbicular, 2 × 2 mm, glabrous, green, margin entire, with paired, suborbicular colleters at their inner bases. **Corolla:** outside glabrous; tube 5–5.5 mm long, campanulate with gynostegium enclosed, inside of mouth papillate; lobes broadly elliptic to broadly ovate, spreading, 6–7 × 6–7 mm, fleshy coriaceous, inside pink, maroon, dark red or violet to deep violet and papillate, apex rounded. **Corona:** lobes 5, antiseptalous, borne in lower half of corolla tube, 2 mm long, each lobe fused to the corolla tube's inner face for ca. 1.5 mm and radiating into tube's cavity, radiating processes channelled, upper part bisegmented, the outer segment subulate to rounded, the inner segment concavely hood-shaped, violet to maroon. **Interstaminal discs** antipetalous, sub-orbicular, closing around the style. **Stamens:** antiseptalous, arising directly below corona lobes, ca. 1 mm long, green; filaments free, terete, ca. 0.5 mm long, glabrous; anthers fused to stigmatic head, narrowly hastate-ovate, ca. 0.5 mm long, pubescent to rarely glabrous on back. **Ovaries:** 2, free, semi-inferior, sub-hemispherical, 1.8–2.0 mm long; style terete, ca. 0.75 mm long; stigmatic head pentangular, apex obtuse; pollen carriers spatulate, 1–1.1 mm long, receptacle broadly ovate, stipe terete, viscidium elliptic. **Follicles** paired, horizontal, very narrowly deltoid-ellipsoid to deltoid ovoid, 2-edged, apex obtuse-acute, 110–245 × 20–35 mm, glabrous. **Seed** narrowly elliptic to obliquely narrowly elliptic, dark brown, 6–8 × 2 mm, surface reticulate and warty; coma 30–40 mm long, dirty white. (Figure 3). Young stems, leaves, peduncles and flowers turn black when drying.

Brown (1902) erected *Omphalogonus nigritanus*. He separated this new species from *O. calophyllus* on the basis of its differently shaped corona. In *O. calophyllus*, the upper part of the corona lobes have subulate outer segments. By contrast, in *O. nigritanus*, the outer coronal segments are rounded. Bullock (1961) grouped the two species together and we agree. Our own investigation revealed a range of outer segment shapes, from erectly acicular, to horizontally acicular, to nipped, to rounded, to virtually absent. This variation in coronal shape in a single species is not an unfamiliar phenomenon in the family.

Omphalogonus calophyllus is a unique taxon. Apart from *Periploca nigrescens*, it is the only species in the Periplocaceae that turns black when drying. However, as previously stated, these two species are not related and the blackening characteristic must have been acquired separately. *O. calophyllus* is also unique in the occurrence of the peculiar papillae on the corolla.

The condition where the gynostegium and corona both arise deeply in the corolla tube of *Omphalogonus calophyllus* is encountered in two other genera only, *Cryptostegia* R. Br. from

Madagascar and *Mangenotia* Pichon from tropical Africa. Close affinities, however, do not seem possible. The floral structure of *Hemidesmus* R. Br. from India to some extent compares with that of *Omphalogonus calophyllus*, but in *Hemidesmus* the gynostegium and corona arise from the corolla mouth.

Vernacular names: Kenya: mkungachen, alota (Korok); Nigeria: mburiduri bire; Sudan: mataria or ngbandia.

Uses: The cortical fibres of *O. calophyllus* are flossy and very strong. Its roots are used as aphrodisiac in Tanzania.

Geographical distribution and ecology: *O. calophyllus* occurs in tropical Africa from Gambia, Guinea Bissau, Ghana, Ivory Coast and Nigeria in the west to Kenya and Tanzania in the east (Figure 4). This species was collected in wet forest (mist, riverine and marshy forests), and in coastal thicket of *Albizia petersiana*, *Grewia* sp. and *Croton megalocarpoides*. Its flowers are offensive smelling and are visited by flies.

Specimens examined

Benin: —10N02E: Oroja Quéré (–DD), *Poisson 8* (K), *Le Testu 123* (BM, BR, P).

Burkina: —11N04W: Dindéresso (–AB), *Lejoly 82/401* (BR).

Central African Republic: —05N20E: Bambar region (–DA), *Tisserant 2248* (P).

—06N21E: Waka, Ippy (–AC), *Le Testu 2248* (BM, BR).

Ghana: —05N00W: Nungua Agricultural Station (–CA), *Morton A4171* (K); Kwabenyan (–CA), *Deaw S291* (MO); Aburi (–CC), *Chevalier 13847* (P).

—06N00W: Kwahu Tafo (–DA), *Enti R815* (SRGH).

—06N01W: 1.6 km east of Kwahu Tafo (–DA), *Hossain & Agyakwak GC37721* (K).

Guinea: —08N09W: Macenta and Nzerekore (–CB), *Schnell 4560* (P).

Guinea Bissau: —11N15W: Cubisseco, Pobresa (–DC), *Santo 2379* (BR, K).

—12N16W: Cacheu (–AC), *Santo 1266* (K).

Ivory Coast: —05N04W: Lamto Reserve, Tiassale (–DD), *Gautier-Beguín 586* (MO).

—05N06W: 34 km from Sassandra near Kokolo-Pozo (–AA), *de Wilde 269* (BR, K, P).

—06N03W: Comoé River near Mbasso, 50 km NE of Adzopé (–AD), *de Wilde 532* (K).

—06N04W: Tiémélékro-Télébo (–DA), *Garnier PG/UB107* (K).

—07N05W: Boaké (–CA), *Maire 1945* (P); Boaké North, Gottozo el Diahbo (–CA), *Chevalier 22036* (P).

—07N06W: Besumi-Séguéla (–DC), *Andru 5175* (P).

—09N04W: 4 km west of Ouangofétini (–CA), *Geerling & Bokdam 488* (BR, WAG).

Kenya: —00S39E: Between Garissa and Buma on Tana River (–DD), *Bally 1995* (MO).

—01S40E: Baomo Lodge Road (–CC), *Medley 364* (K).

—02S37E: Makindu (–BD), *Powell 23* (K); Kibwezi (–BD), *Bally 7599* (K), *Verdcourt 3187* (K, PRE), *Scheffler 150* (BM, K), *Polhill & Paulo 463* (BR, K).

—02S40E: Tana River (–DA), *Brand s.n.* (K).

Mali: —11N05W: Klela (–BC), *Demange 3126* (P); Sikasso (–BC), *Disura 629* (P).

Nigeria: —06N03E: Lagos, Lokomedjii (–AD), *Chevalier 14073* (P).

—07N03E: Ibadan (–BD), *Keay & Latillo FHI37131* (BR, K, P); Ibadan District (–DD), *Wit 2249* (K); Owini Hill, NE of Oyo (–DD), *Gillett 15213* (K, SRGH).

—07N04E: Lagos, Ile Ife (–BC), *Miller 70* (K).

Southern Nigeria: Without locality, *Thomas, N.W. 1011* (K, type of *Omphalogonus nigritanus*).

Senegal: —12N16W: Bignona, Koubalan (–CD), *Berhaut 6779* (P); Fort Kalounayes (–CD), *Berhaut 7186* (P).

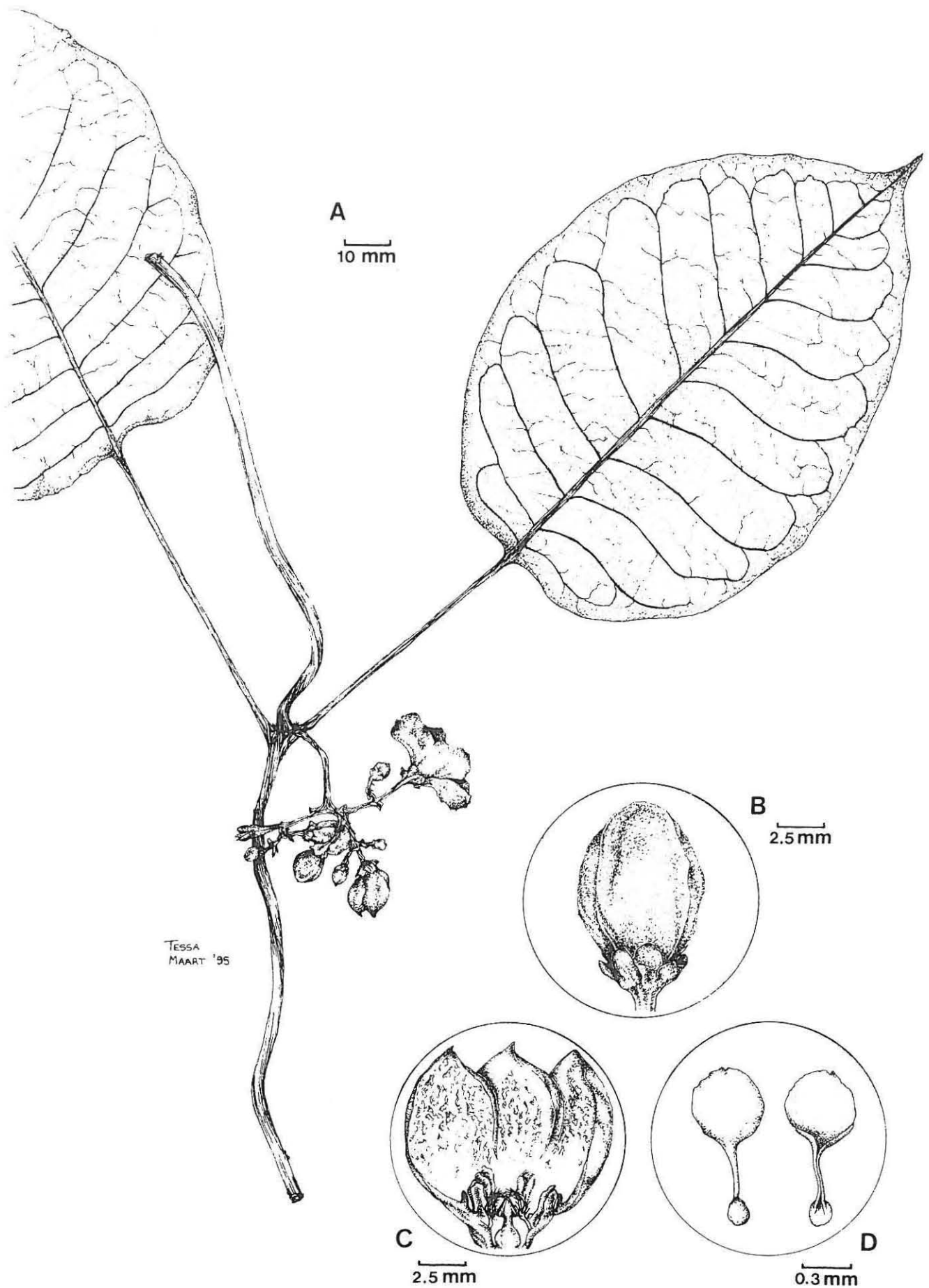


Figure 3 *Omphalogonus calophyllus*. A. Stem with leaves and flowers. B. Bud. C. Flower opened revealing the channelled corona lobes, the hairy stamens and the pistil. D. Pollen carriers. [A. Geerling & Bokdam 488 (MO), B–D. Enti R815 (SRGH)].

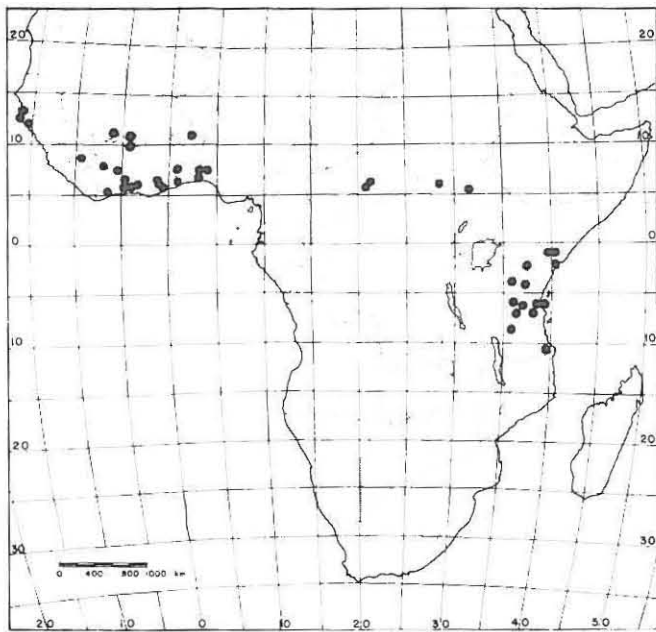


Figure 4 Known geographical distribution of *Omphalogonus calophyllus*.

- Sudan:** —05N31E: Lado, Yei River (–BA), *Sillitoe 452* (K, P).
 —06N28E: Yambio, Zande District (–AD), *Wyld 1* (BM).
Tanzania: —03S35E: Mbulu District, Lake Manyara National Park (–DB), *Greenway & Kanuri 12073* (K).
 —04S37E: Usambaras, Kisiwani (–BB), *Greenway 6699* (K, PRE).
 —04S38E: Lushoto District, Mombo (–CD), *Drummond & Hemsley 2992* (BR, K); Muheze District, Lutindi Forest Reserve (–DD), *Iversen, Persson & Pettersen 87418* (K).
 —05S35E: Pangani District, Bushiri Estate (–BD), *Faulkner 562* (BR, K).
 —05S38E: Korogwe (–AB), *Aichbold 989* (K); 11 km south of Pangani (–BD), *Harris & Harris 3443* (K).
 —06S37E: Morogoro District, Mavisini (–DC), *Wigg 975* (K).
 —06S39E: Zanzibar (–AA), *Boivin 1008a* (P, type of *Omphalogonus calophyllus*), *Vaughan 1086* (K), *Sacleux 838* (P); Zanzibar, Chukwani (–AA), *Faulkner 2705* (K), *2783* (K).
 —07S36E: Bridge west of Malolo (–BC), *Carter, Abdallah & Newton 2365* (K).
 —08S35E: Makuyuni District, Ubamba (–BC), *Koritschoner 902* (K).
 —10S39E: Lindi District, 32 km on Mnazimoja-Mtwara Road (–BB), *Bidgood, Abdallah & Vollesen 1762* (K).
Togo: —06N00E: Lome (–BC), *Warnecke 216* (BM, BR, K, L).
 —07N01E: 10 km west of Atakpamé on road to Ounabé (–CA); *Hiepkö & Schultze 223* (K, P); SW of Bodjendi Sada (–CB), *Pasch 8957* (K).

Periploca nigrescens Afzelius, *Stirpium Guinea*. 1: 2 (1817); K.Schum.: 232 (1896); Hiern: 681 (1898); N.E.Br.: 258 (1902); De Wild.: 83 (1906), 370 (1911); A. Chev.: 430 (1920); Hutch. & Dalz.: 52 (1931); Robyns: 85 (1947). Type: Locality unknown, *Anon s.n.* (BM, holotype!).

P. afzelii G. Don: 163 (1837). Type: Sierra Leone, collector unknown. (No type located). Synonymy according to the description of G. Don (1837).

P. preussii K.Schum.: 117 (1893), 216, fig. 64 (1895). Type: Camerouns: between Mokonye and Kumba Ninga, *Preuss 151*

(B†, holotype, no isotype located). Synonymy according to the description of Schumann (1893) and (1895).

Parquetina gabonica Baill.: 806 (1889), 294 (1891); K. Schum.: 218 (1895). Type: Gabon, locality unknown, *Duparquet 1864, no. 1* (P, holotype!).

Periploca gabonica (Baill.) A. Chev.: 251 (1951).

Parquetina nigrescens (Afz.) Bullock: 205 (1961).

Liana: with copious white latex in roots, stems and leaves. **Roots:** tuberous. **Stems:** woody, twining, 10 m or more long; bark on older stems rough, scaly, brown, on twigs green to purple. **Leaves:** opposite, simple, glabrous; petiole 20–50(–95) mm long, purplish; blade shiny, bright green above, pale green below, (75–)125–140(–160) × (30–)45–75(–110) mm, mostly elliptic, also broadly ovate to narrowly ovate, base cordate, apex rounded to obtuse and cuspidate, seldom acuminate, margin entire, veins pale green to purplish below, secondary veins 8–12 per side, papery to thickly coriaceous. **Inflorescences:** axillary, cymose with monochasial branches, 15–30-flowered, glabrous, pale green, primary peduncles 20–40 mm long, secondary 10 mm long; bracts 1–2 × 0.5–1 mm, acicular to narrowly ovate. **Flowers:** bisexual, actinomorphic, pentamerous, pedicels 2–5 mm long, buds ovoid with apex acute. **Sepals:** broadly ovate, 1.5–2 × 2 mm, glabrous, margin entire, with paired (triangular) or single (semi-orbicular) colleters at their inner bases. **Corolla:** rotate, pale green, creamy green or white outside, glabrous; tube 2–4 mm long, halfway reflexed, with gynostegium exerted; lobes elliptic to ovate, reflexed, 10–12 × 4–5 mm, fleshy coriaceous, outside creamy green, inside velvety and deep crimson, deep violet or black-violet at base turning brown to dark brown towards tip, apex rounded. **Corona:** lobes 5, antisepalous, borne from corolla mouth, 5–7 mm long, greenish-white, pale green or pale yellow, filiform to linear, 2–4 segmented above middle, rarely undivided, upper two segments tortuous. **Stamens:** antisepalous, arising directly below corona lobes, 5–6 mm long, green to brown with white hirsute hairs on filaments and backs of anthers; filaments free, terete, 1–1.5 mm long; anthers fused to stigmatic head, narrowly ovate, 3–4 mm long. **Ovaries:** 2, free, semi-inferior, sub-hemispherical, ca. 1.5 mm long; style terete, 1.5–2 mm long; stigmatic head pentangular with apex flattened, 3 mm long; pollen carriers spatulate, 2.5–3 mm long, receptacle broadly ovate, stipe terete and viscidium triangular. **Follicles:** paired, horizontal, linear-ovoid, 2-edged, apex acute to attenuate, 120–210 × 12–20 mm, glabrous. **Seed** elliptic, 3–3.5 × 1.5 mm, brown, testa warty; coma white, 24–25 mm long. (Figure 5).

Vernacular names: Cameroun: njambel, abaankol; Nigeria: oba mili; Sierra Leone: kpokoyangolei (Mendi), koke ndowe, dibewuri, fuiaboro; Zaire: bosambala (Turumbu), kamanja (Lega), loliki (Kundu), lubuma (Kiumbe), ndungu (Ngwaka).

Uses: *P. nigrescens* is used as antidote against worms. Its latex is used for skin troubles.

Distribution and ecology: This species is distributed from Sierra Leone and Guinea in the west, eastwards to the eastern border of Zaire (Figure 6). Although a large collection of herbarium specimens exist of *P. nigrescens*, little can be learnt about this species' ecology and habitat from the specimen labels. It has been collected in maritime thickets, on ant hills and in gallery forest, where the species may be common. When considering the distribution pattern of *P. nigrescens* through tropical Africa the deduction can be made that it is a member of tropical forest and savannah.

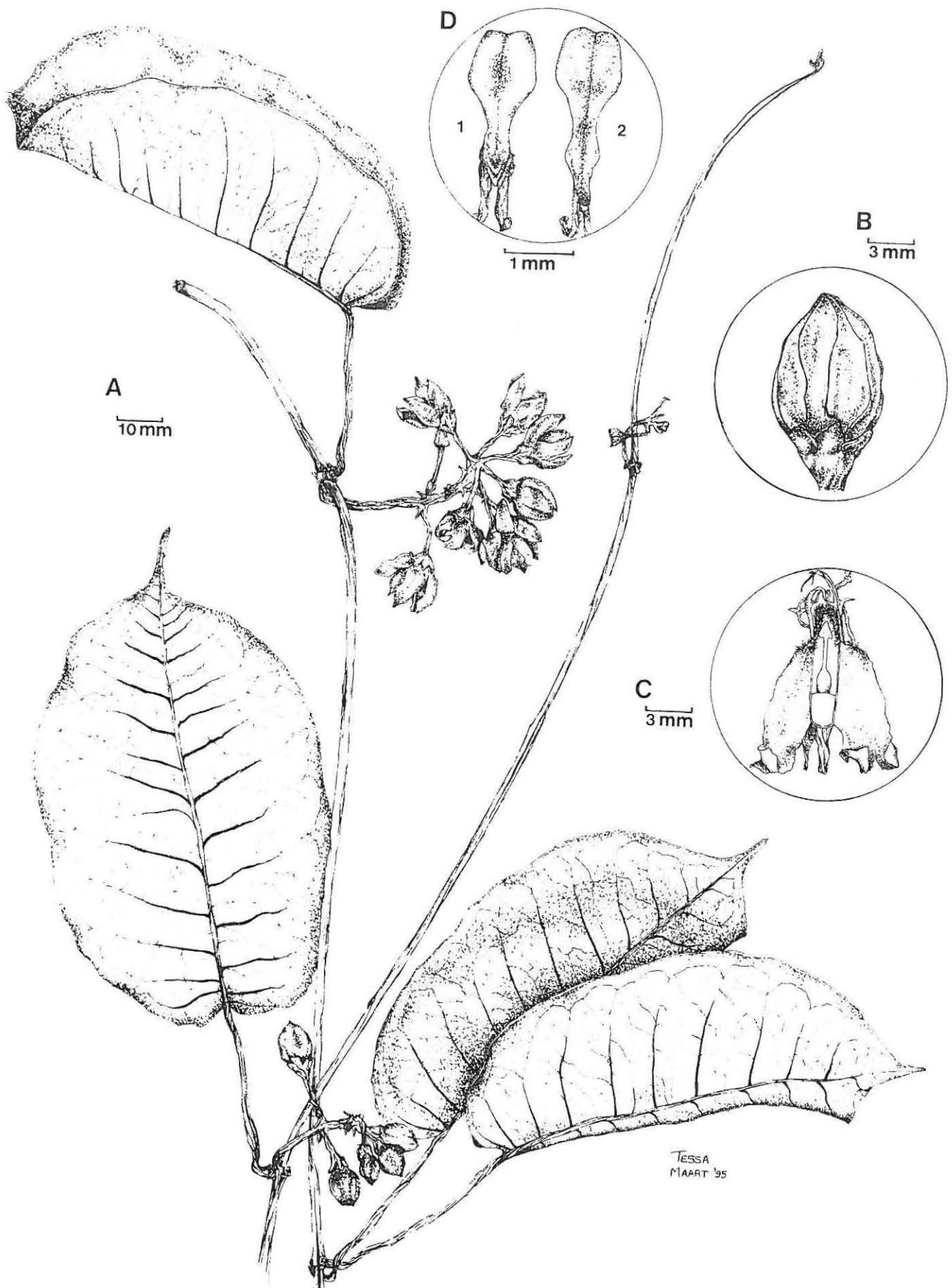


Figure 5 *Periploca nigrescens*. A. Stems with leaves and flowers. B. Bud. C. Flower opened revealing the reflexed corolla lobes, the segmented filiform corona lobes, the hairy stamens and the pistil. D. Pollen carriers. [A. Casier 478 (MO), B-D. Bos 2492 (WAG)].

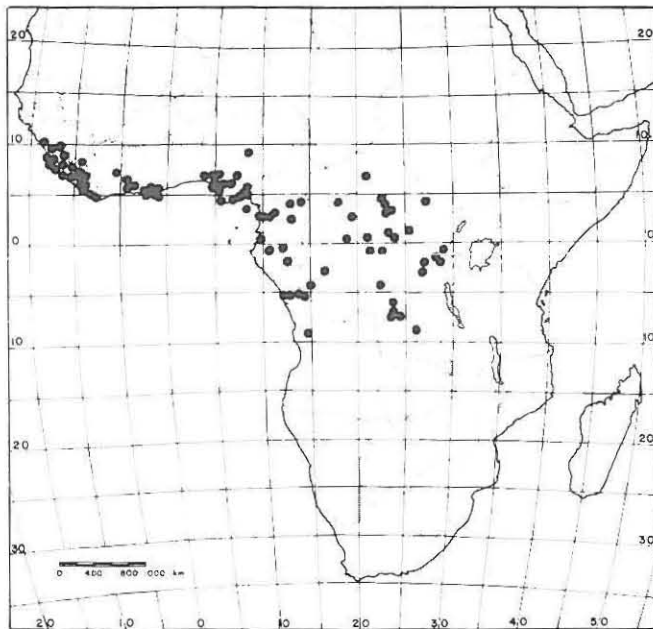


Figure 6 Known geographical distribution of *Periploca nigrescens*.

Specimens studied

Angola: —05S12E: Cabinda, Landana (–AA), *Gossweiler 8054* (BM, COI, K).
 —09S14E: Golungo Alto District, Mussenga (–BB), *Wehuitsch 4232* (BM, COI, K, MO), 4225 (BM); Cassualala–Dondo (–CB), *Teixeira 10559* (LISC)
Cameroun: —02N09E: 3 km south of Kribi (–DD), *Bos 5255* (WAG).
 —02N10E: 17.5 km from Kribi (–CC), *Bos 3447* (BR, MO, K, P, WAG).
 —02N13E: Between Adjap and Akonetye, south of Ebolowa (–CC), *Koufani 199* (P).
 —03N10E: Bipinde (–AA), *Gruker 337* (MO), *Zenker 35* (BM, MO).
 —03N11E: 30 km from Yaounde on Douala road (–CD), *Thomas, D. 6318* (BR).
 —04N08E: Near Bessingi (–DD), *Thomas, D. 6759* (MO).
 —04N13E: Ndjangane, 13 km south of Ebaka (–CD), *Leeuwenberg 7406* (BR, K, MO, WAG).
 —04N14E: Bertoua, 6 km on road to Batouri (–AD), *Breteler 1659* (BR, WAG).
Central African Republic: —04N18E: Bangui (–BC), *Chevalier 10929* (BR).
 —07N21E: Oubangui-Chari (–AA), *Le Testu 4375* (BM, BR).
Equatorial Guinea: —03N08E: Bioko, Malabo–Riaba (–DD), *Carvalho 2886* (BR, K).
Gabon: —00N09E: Como River, 120 km from Gabon (–BB), *Bates 465* (BM, K); Libreville–Kango (–BC), *Breteler & Lemmens 8387* (BR); Munda, Libange Farm (–DA), *Soyaux 406* (K).
 —00S12E: 33 km along road from Lastoursville to Moanda (–DD), *Breteler & de Wilde 765* (BR, WAG).
 —01S11E: Ngounie (–CB), *McPherson 13968* (BR, K).
 —02S13E: 60 km SSW of Moanda (–AA), *Breteler 6909* (BR, WAG).
 Locality unknown, *Duparquet 1864, no. 1* (P, type of *Parquetina gabonica*).
Ghana: —04N01W: Eijam, Ashanti (–DD), *Vigne 1123* (K).
 —04N02W: Axim (–CC), *Irvine 2364* (K, MO).
 —05N01W: Asuansi (–AC), *Irvine 1562* (K).

—05N02W: Ankobra Junction (–AC), *Irvine 1079* (K).
 —06N02W: 3 km east of Bibiani (–AD), *Adams 1951* (K).
Guinea: —07N09W: Nzérékoré District, Tonota (–AD), *Adam 3909* (MO).
 —08N09W: Massadou, 32 km south of Macenta (–AD), *Collenette 26* (K).
 —09N13W: Conakry (–DA), *d'Alletzette 4709* (L).
 —10N12W: Kindia (–BB), *Jacques-Felix 1803* (K).
Ivory Coast: —04N07W: Béréby (–CA), *Oldeman 627* (BR, K, WAG).
 —05N03W: 9 km from Yalassé Mé-Kodiousou road (–DD), *Leeuwenberg 61* (K).
 —05N04W: Andouin, 14 km west of Abidjan (–AC); Yapo Forest (–CC), *Bamps 186* (BR).
 —06N03W: Comoe River, near Mbaso (–AD), *J. De Wilde 532A* (BR); Mbaso, 50 km east of Adzopé (–BC), *Oldeman 205* (BR, K, MO, WAG).
 —06N04W: 1 km south of Tiémélékro (–DA), *Garnier PG/UB 143* (K).
 —07N05W: Bamoro Station (–CC), *Garnier PG/UB111* (K).
Liberia: —04N07W: Webo District, Nyaake (–DC), *Baldwin 6141* (K).
 —05N08W: Sinoe Basin (–BC), *Johnston s.n., anno 1904* (K).
 —06N08W: Tchien District, Zwedru (–AA), *Baldwin 7037* (K); Tapeta area, along road to Ganta (–BD), *Bos 2642* (BR, K, WAG).
 —06N09W: Salala District, Totota (–DD), *Baldwin 13220* (K, MO).
 —06N10W: Dukwia River (–BA), *Cooper 453* (BM, K); Mt Barclay (–BC), *Bunting 31* (BM, MO); Gola National Forest, near Yoma (–DD), *J. de Wilde & Voorhoeve 3838* (BR, K, WAG).
 —07N08W: Ganta (–BB), *Harley 195* (K); Nimba (–BC), *Adam 25512* (MO), 28489 (MO); District Yéképa, Granfield (–DA), *Adam 27533* (MO).
 —07N09W: Gbarnga (–AB), *Linder 529* (K), *Daniel 84* (BR, COI, K, MO), *Blickenstaff 41* (BM, BR, COI, K, MO); Zorzor (–CD), *Bos 2110* (BR, K, WAG).
 —07N10W: Loffa County, Gbarnga–Zorzor Road (–CC), *Bos 2492* (K, WAG).
Nigeria: —04N07E: New Calabar (–AC), *Holland 127* (K).
 —04N08E: Old Calabar (–CD), *Thomas, N.W. 43* (K).
 —05N05E: Ikumin near Ododegbo (–DB), *Holland 261* (K).
 —05N07E: Ezi (–DD), *Thomas, N.W. 2329* (K).
 —05N08E: Oban (–BC), *Talbot 2016* (BM, MO); Oban Forest Reserve near Orem Village (–DA), *Latilo & Oguntaya FHI70547* (K); Ntebachot, (–DB), *Onyechusim & Latilo FHI54079* (K).
 —06N04E: Omo Forest Reserve (–CD), *Lowe 4527* (K).
 —06N05E: Ulolu (–AB), *Thomas, N.W. 2292* (K); Agbadi near Sapoba (–BB), *Meikle 547* (K).
 —06N06E: Omicha Olona (–BC), *Thomas, N.W. 1835* (K).
 —06N07E: Obonno Eke Village, Isiuzo District (–CD), *Emwioqbon FHI63117* (K).
 —07N03E: Ibadan (–BA), *Newberry 49* (K).
 —07N04E: Shasha Forest Reserve, Ibeju Province (–BA), *Ross 77* (MO).
 —07N05E: Onogholo Forest Reserve, Central Ishan (–CD), *Eimunjazi & Oguntayo FHI72774* (K).
 —09N08E: Kontagora (–BA), *Dalziel 50* (K).
Sierra Leone: —07N11W: Njala (–BA), *Deighton 729* (K).
 —07N12W: York (–CB), *Deighton 5529* (K); Bagroo River (–DA), *Anon 845* (K).
 —08N11W: Ronietta (–BD), *Thomas 5282* (K).
 —08N12W: Kasewe (–AC), *Morton SL860* (K); Samu Country, Kakreni (–BB) *Scott Elliott 4206* (K); Yonibana (–CA), *Thomas 4750* (BR).

—08N13W: Wellington Air Field (–AC), *Morton & Gledhill SL1637* (K).
 —09N12W: Kurusu (–CD), *Scott Elliott 5631* (K); Kambia District, Yombro Sansunkolia Village (–DA), *Hepper 2649* (K).
 Uganda: Locality unknown, *Dummer 955* (BM, K).
 Zaire: —00N18E: Lolifo (–AB), *Louis 2102* (BR).
 —00N20E: Befale (–BD), *Evrard 4275* (BR, K).
 —00N24E: Isangi, Isle of Esali III (–CC), *Germain 8240* (BR); Yangambi (–CD), *Louis 2889* (BR); Lilanda (–CD), *Louis 10834* (BR, K); Yallutcha (–DA), *Bamps 724* (BR).
 —01N23E: Barumbu (–BA), *Bequaert 1004* (BR); Bomane (–BD), *Lebrun 1239* (MO).
 —01N25E: Kisangani (–CA), *Lejoly 1923* (BR).
 —03N19E: Boketa (–BB), *Evrard 111* (BR).
 —03N22E: Wapinda, River Ngbale (–DA), *Denys 1065* (BR).
 —03N23E: Lomani (–CD), *Louis 3675* (K).
 —04N22E: Monga (–BB), *Lebrun 2308* (BR).
 —04N27E: Gangala at Doruma (–DC), *Stam 96* (L).
 —00S21E: Bokondji (–CB), *de Wanckel 31* (BR).
 —00S22E: Yalikungu (–DD), *Evrard 5415* (BR).
 —00S29E: Albert National Park, Totolito (–AB), *de Witte 9719* (BR).
 —01S28E: Nyamakombola (–CA), *Terashima 148* (BR).
 —02S27E: Shabunda, loc. Kamisuku (–CB), *Leonard 6025* (BR).
 —02S28E: Kanguba (–BA), *Laurent anno 21/11/1903* (BR); Turolo, Bunyakiri, Terr. Kalehe (–BB), *Gutzwiller 2466* (BR).
 —03S16E: Kasai, Muetsi (–BB), *Casier 478* (BR).
 —04S15E: Kinshasa (–AD), *Dubois 1449* (BR), *Devred 2434* (BR, SRGH); Yanda (–CA), *Pauwels 6340* (BR).
 —04S23E: Lusambo (–CD), *Gillardin 499* (BR, K).
 —05S12E: Kimbenza (–BB), *Compere 1280* (BR).
 —05S13E: Kinganga (–BD), *Compere 680* (BR); Kiobo (–CA), *Donis 60* (BR); Luki (–CA), *Toussant 312* (BR, SRGH); Gimbi (–CB), *Toussant 577* (BR), *Laurent 51* (BR); Matadi (–DC), *Dacremont 158* (BR, MO).
 —05S14E: M'Vuazi, Village Bangu a Mbata (–BD), *Breyne 4754* (BR).
 —06S23E: Gandajika (–DD), *Liben 3571* (BR).
 —07S23E: Mwene-Ditu (–AB), *Liben 3923* (BR, MO).
 —07S24E: Futuyi et Tshimboko (–BA), *Risopoulos 949* (BR).
 —08S26E: National Park l'Upemba (–CB), *de Witte 4739* (WAG).
 Locality unknown, *Anon s.n.* (BM, type of *Periploca nigrescens*).

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