

PART XXX

A taxonomic revision of the
genus *Orthopichonia*

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Summary

The present publication is a monographic revision of the genus *Orthopichonia*, based on the examination of herbarium material and spirit collections.

The genus is exclusively African and counts six species. It belongs to the Landolphiinae to which a key will be published later.

History of the genus

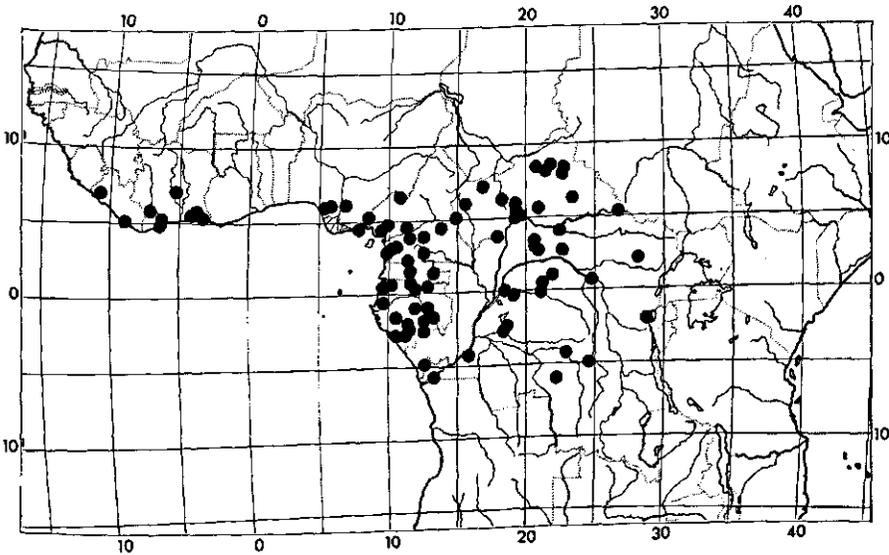
The genus was first considered as sect. *Orthandra*, a section of *Clitandra* by Pichon (1948) who raised it later to the rank of genus, without realising that the name *Orthandra* was already used by Burret (1940) for a Tiliaceae genus. Pichon's error was corrected by Huber (1962) who rebaptised it *Orthopichonia*.

Genus diagnosis

Orthopichonia H. Huber in Kew Bull. 15: 437 (1962); Compère in Bull. Jard. Bot. Brux. 32: 206 (1962); H. Huber in Fl. W. Trop. Afr. 2(2): 57 (1963).

Map 1A

Basionym: *Clitandra* sect. *Orthandra* Pichon, Mém. Mus. Nat. Hist. Nat. 24: 148 (1948).



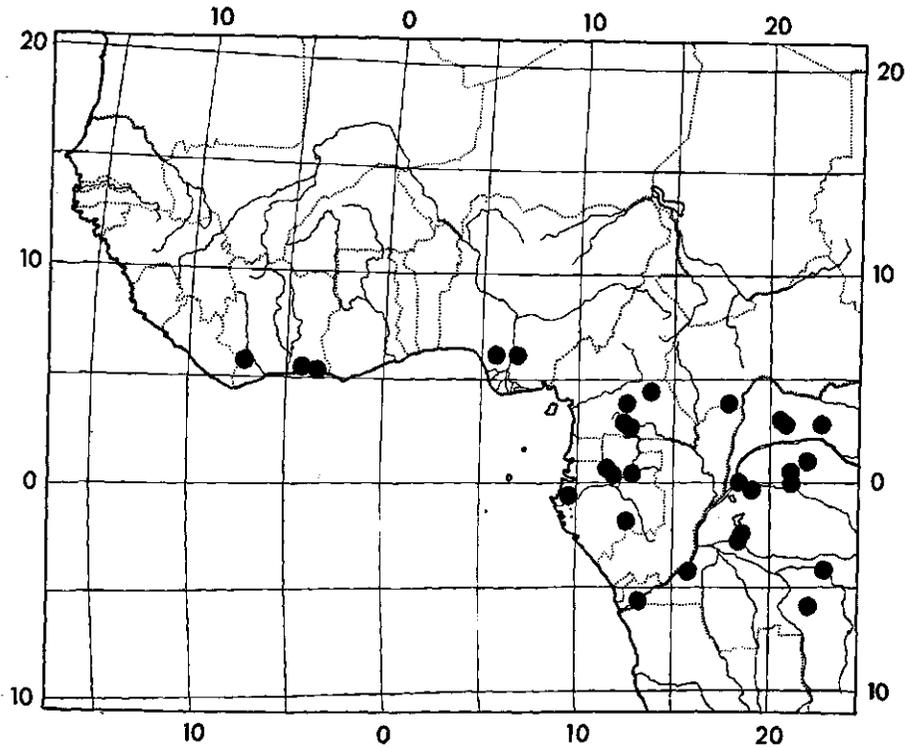
MAP 1A. Distribution of the genus *Orthopichonia*.

Type species: *Clitandra cirrhosa* Radlk. (= *O. cirrhosa* (Radlk.) H. Huber).
 Homotypic synonym: *Orthandra* Pichon, Mém. I.F.A.N. 35: 211 (1953), non
 Burret (1940).

Lianas with copious white latex in all parts. Branchlets terete, often sulcate and angular when dried. *Leaves* opposite, petiolate; blade elliptic or oblong, sometimes obovate or ovate, cuneate at the base or decurrent into the petiole; short- or long-acuminate. *Inflorescences* usually axillary, sometimes terminal and then more or less tendril-like. Bracts persistent with colleters on each side near the base. *Flowers* actinomorphic, fragrant. *Calyx* pale green, entire, imbricate in bud, erect, persistent, without colleters; lobes subequal. *Corolla* mostly white; tube bottle-shaped, thin, not twisted, with indumentum interrupted behind the stamens; lobes in bud overlapping to the left, entire. *Stamens* included; anthers narrowly triangular, oblong, ovate or elliptic, acuminate or acute, sometimes apiculate at the sterile apex, rarely without sterile apex, cordate at the base, glabrous on both sides, introrse; connective widened at the back especially towards the base. *Pistil*: ovary hemi-inferior to superior, ovoid to obovoid, composed of two carpels, syncarpous, unilocular to imperfectly 2-celled; disk absent; style glabrous, cylindrical (not thickened at the apex); style and stigma persistent when the corolla is shed. Placentas two, parietal. *Fruit* of two completely united carpels, often subtended by the persistent calyx. *Seeds* often light to dark brown when dried, irregularly ellipsoid to bean-shaped, smooth; embryo 1 × (1-2) mm; cotyledons large, flat, ovate to elliptic, up to 18 mm long, cordate to slightly cuneate at the base, obtuse at the apex, with hard copious endosperm.

Key to the species

1. Corolla lobes in mature bud with an oblong and rounded head 2
 Corolla lobes in mature bud with an attenuate and obtuse head 3
2. Mature bud 7.5-13 mm; tube inside with a pilose belt, not interrupted above the stamens, throat pilose, 4.5-6.8 mm long 1. **O. barteri**
 Mature bud 13.7-19 mm; tube inside with a pilose belt, glabrous above, throat glabrous or pilose, 9-15 mm long 2. **O. cirrhosa**
3. Ovary densely pubescent, hairs curved; tube 4.7-6 mm long; at least young branches densely pubescent; petiole 11-22 mm long 5. **O. seretii**
 Ovary more or less hirto-pubescent or glabrous; tube 6.5-14.4 mm long . . . 4
4. Ovary densely hirto-pubescent; tube 12.5-14.4 mm long; corolla lobes 0.4-0.7 × as long as the tube; tube widest at 2.8-3.7 mm above the base; tube often pilose outside 3. **O. indeniensis**
 Ovary glabrous or more or less hirto-pubescent; tube 6.5-12.4 mm long; corolla lobes 0.9-2.8 × as long as the tube 5
5. Ovary glabrous; tube 6.5-9 mm long; corolla lobes 1.3-2.8 × as long as the tube; stamens 3.1-5.2 mm included; tube 3.5-7.2 × as long as the sepals 4. **O. schweinfurthii**



MAP 2A. *Orthopichonia barteri*.

Ovary glabrous or, often partly, hirtopubescent; tube 7.7-12.4 mm long; corolla lobes 0.9-1.3 × as long as the tube; stamens 5.3-9.5 mm included; tube 8.5-13.3 × as long as the sepals; tube widest at 2-2.8 mm above the base; branches more or less pubescent only at the nodes; petiole 5-12 mm long 6. *O. visciflora*

1. *Orthopichonia barteri* (Stapf) H. Huber in Kew Bull. 15: 437 (1962); in Fl. W. Trop. Afr. 2(2): 58 (1963). Fig. 1A; Fig. 2A; Map 2A

Basionym: *Clitandra barteri* Stapf, Kew Bull. 1894: 20 (1894); in Fl. Trop. Afr. 4(1): 66 (1902); Hutchinson & Dalziel, Fl. W. Trop. Afr. 1(2): 34 (1931).

Type: Niger, Barter 3310 (K holo-, P iso-). Homotypic synonym: *Orthandra barteri* (Stapf) Pichon, Mém. I.F.A.N. 35: 223 (1953).

Heterotypic synonyms: *Clitandra lacourtiana* De Wild., De Wild. et Gentil, Lianes Caoutch. Et. Ind. Congo: 110 (1904); Stapf in Fl. Trop. Afr. 4(1): 596 (1902), **syn. nov.** Type: Zaïre, Gentil 64 (BR holo-). Homotypic synonyms: *Orthandra lacourtiana* (De Wild.) Pichon, op. cit. 220; *Orthopichonia lacourtiana* (De Wild.) Compère in Bull. Jard. Bot. Brux. 32: 206 (1962).

Clitandra kabulu De Wild., Not. Pl. Ut. Int. Congo II: 219 (1908), **syn. nov.** Type: Zaïre, Tshimbabange, A. Sapin s.n. (BR holo-).

Liana, up to at least 12 m long. Trunk up to 15 cm in diameter. *Branches* pale brown to dark brown with small lenticels, smooth; branchlets often densely pubescent at the nodes. *Leaves*: petiole 7-14 mm long, glabrous or only at the base sparsely pubescent; blade papery or subcoriaceous when dried, glossy, elliptic or oblong, rarely ovate, 1.7-3 × as long as wide, 4-15.1 × 1.7-7.2 cm, acumen 5-15 mm long, with a rounded or truncate, sometimes obtuse point at the apex, cuneate at the base, glabrous on both sides, with 30-50 pairs of conspicuous secondary veins alternated by less conspicuous ones; tertiary venation inconspicuous above, reticulate beneath. *Inflorescences* axillary, often seemingly terminal, 1-4 together, sometimes rather lax, more often densely congested into a cluster of about 10-80 flowers, 12-35 × 12-35 mm. Peduncle 0.5-3 mm long; peduncle and main axis pubescent or sometimes glabrous. Pedicels 0.5-3 mm long, pubescent or glabrous. Bracts triangular, 0.7-1 × 0.7-1.3 mm, pubescent or glabrous on both sides, ciliate; colleters 1-2, 0.1-0.2 mm long. *Sepals* up to 0.3 mm connate at the base, triangular or ovate, sometimes suborbicular or elliptic, 0.8-1.6 × as long as wide, 0.7-1.3 × 0.6-1.2 mm, obtuse, acute or truncate, sometimes rounded at the apex, outside glabrous or sometimes minutely pubescent, more or less ciliate, inside glabrous. *Corolla* often with a green tube (sometimes tinged with pink), at lobes white, in the mature bud 7.5-13 mm long, forming an oblong head 0.35-0.51 of the bud-length, glabrous outside; tube 4.8-8 × as long as the sepals, 1-3.1 × as long as the lobes, 4.5-6.8 mm long, contracted at the base and there 0.5-0.8 mm, widened above and widest 1.9-2.9 mm above the base (0.32-0.56 of the tube) and there 0.7-1.4 mm, again contracted just above the anthers and there 0.3-0.7 mm wide, fairly abruptly widened at the throat, inside with a pilose belt from 0.8-1.7 mm above the base to the base of the lobes; lobes oblong or narrowly so, 0.3-1 × as long as the tube, 1.6-3.6 × as long as wide, 1.7-5.5 × 0.8-2.5 mm, rounded at the apex, often slightly involute at the left side, outside glabrous, more or less ciliate, inside sometimes sparsely pilose at the base. *Stamens* 2-4 mm included (0.44-0.57 of the tube-length), inserted 1.2-2.3 mm from the base of the tube (the base of the anthers being 1.8-2.8 mm above the base of the tube); filaments glabrous on both sides, 0.3-0.7 mm long; anthers 1-2.7 × as long as the filaments, narrowly triangular, narrowly ovate or narrowly elliptic, 2.5-4.5 × as long as wide, 0.5-0.9 × 0.2 mm, acuminate or acute, sometimes apiculate with an up to 0.15 mm long sterile apex. *Pistil* 1.4-2.3 mm long; ovary superior to inferior for one quarter, sub-globose, sometimes obovoid, 0.5-0.9 × 0.5-0.8 × 0.5-0.8 mm, glabrous, unilocular, abruptly narrowed into the style; style 0.5-1 × 0.1-0.2 mm; pistil head ovoid, sometimes cylindrical, 0.3-0.8 × 0.2-0.3 mm, split at the apex for 0.2 mm; apex of pistil 0.6-1.8 mm below apices of anthers. Placentas often much protruding, each with 10-40 ovules. *Fruits* with mango odour, yellow or orange, pear-shaped, sometimes globose, sometimes truncate at the apex, often bumpy, the surface minutely shallowly grooved, glabrous, with many lenticels, often subtended by the persistent calyx, 18-87 × 20-60 mm; pulp edible, acid. *Seeds* light to dark brown when dried, irregularly ellipsoid to bean-shaped, 10-16 × 8-13 × 6-10 mm; embryo 1 × 1 mm; cotyledons ovate to elliptic, up to 14 mm long, cordate to slightly cuneate at the base.

Geographical distribution: Tropical Africa from Ivory Coast to Zaïre.

Ecology: Tropical rain forests. Alt. 220-650 m. Flowering and fruiting throughout the year, flowering especially in the months June – February.

Geographical selection of the about 250 specimens examined:

IVORY COAST: Tai forest, de Namur 1427 (WAG); National Park Banco Forest, de Koning 4558 (WAG); Abidjan – Aboisso, 43 km after Comoe Bridge, Breteler 5909 (WAG).

NIGERIA: BENDEL: Bénin, Chevalier 15133 (P); Sapoba, Kennedy 2322 (K, P); Asaba, Unwin 15 (K).

CAMEROUN: Bertoua, Breteler 2225 (BR, K, LISC, M, P, WAG); Ayos, de Wit 8126/104 (K, P, WAG); Bitey, Bates 1935 (BM, BR, MO, NY); Djoum, Letouzey 8358 (BR, K, P, WAG).

CENTRAL AFRICAN REPUBLIC: Boukoko, Tisserant 284 (BM, P, WAG).

GABON: Oveng, Louis et al. 523/83 (WAG); near Koumameyong, Reitsma et al. 3455/87 (WAG); near Makokou, Gentry 33311 (MO); 100 km S of Libreville, de Wilde et al. 858/83 (WAG); Minguembé, le Testu 8055 (BM, BR, LISC, P, WAG).

ZAÏRE: EQUATEUR: Likimi, de Giorgi 1505 (BR); Dundusana, Mortehean 487 (BR); Bodala, Coulon 5 (BR); Eala, Staner 1437 (BR, C, K, MO, P, US); Befale, Dubois 773 (BR); Ingende, Evrard 6117 (BR); Bongoy (= Bongoie), Evrard 3192 (BR). HAUT-ZAÏRE: Yangambi, Louis 12678 (BR, C, E, L, M, MO, NY, P, WAG); Itia, Jespersen 67 (BR). BAS-ZAÏRE: Luki, Toussaint 309 (BR, K, P); Gimbi, Toussaint 498 (BR). KINSHASA: Menkao, Breyne 2974 (BR). BANDUNDU: Ganda, Body s.n. (BR); Bankaie, Gilbert 14115 (BR); Bikoro (= Bokoro), Anonym. s.n. (BR). KASAI-OCCIDENTAL: Tchimbumbang (= Tshimbambange), Sapin s.n. (BR). KASAI-ORIENTAL: Bena-Dibele, Flamigni 5 (BR); Lubefu, Anonym. s.n. (BR).

2. *Orthopichonia cirrhosa* (Radlk.) H. Huber in Kew Bull. 15: 437 (1962).

Fig. 1A; Map 3A

Basionym: *Clitandra cirrhosa* Radlk. in Abh. Nat. Ver. Bremen 8: 400 (1883); Stapf in Fl. Trop. Afr. 4(1): 67 (1902); Hutchinson & Dalziel, Fl. W. Trop. Afr. 1(2): 34 (1931).

Type: Gabon, H. Soyaux 183 (M lecto-, designated here, BP, C, K, W isolecto-). Homotypic synonym: *Orthandra cirrhosa* (Radlk.) Pichon, Mém. I.F.A.N. 35: 227 (1953).

Heterotypic synonyms: *Clitandra batesii* Wernh. in Journ. of Bot. 54: 227 (1916), **syn. nov.** Type: Cameroun, Bitey, G.L. Bates 701 (BM holo-, MO, Z iso-). Homotypic synonyms: *Orthandra batesii* (Wernh.) Pichon, op. cit. 224; *Orthopichonia batesii* (Wernh.) H. Huber, l.c.

Orthandra nigeriana Pichon, op. cit. 226, **syn. nov.** Type: Nigeria, Oban, P.A. Talbot 1351 (K holo-, BM, BR, K, P, Z iso-). Homotypic synonym: *Orthopichonia nigeriana* (Pichon) H. Huber, l.c.; in Fl. W. Trop. Afr. 2(2): 58 (1963).

Liana up to 35 m high climbing in trees. *Branches* grey-brown to purple, with small lenticels, smooth, minutely pubescent at the nodes; branchlets smooth. *Leaves*: petiole 4-14 mm long, glabrous, rarely pubescent above, glabrous or pubescent beneath; blade coriaceous when dried, smooth, elliptic or oblong, sometimes ovate or obovate, 1.6-3 × as long as wide, 5.4-18.2 × 2.4-8.9 cm, acumen 6-17 mm long, with a rounded or truncate point at the apex, cuneate at the base, glabrous on both sides, with midrib pale yellowish above, pale yel-

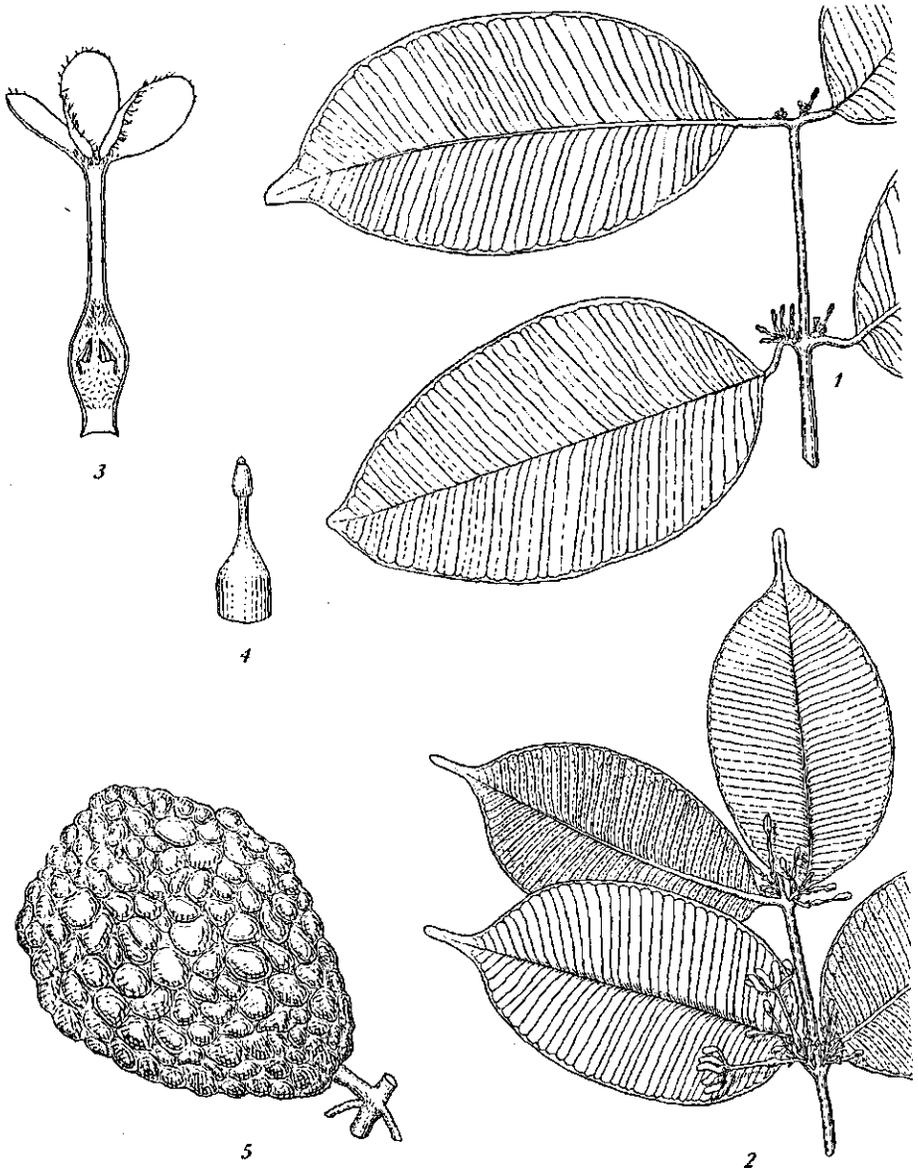
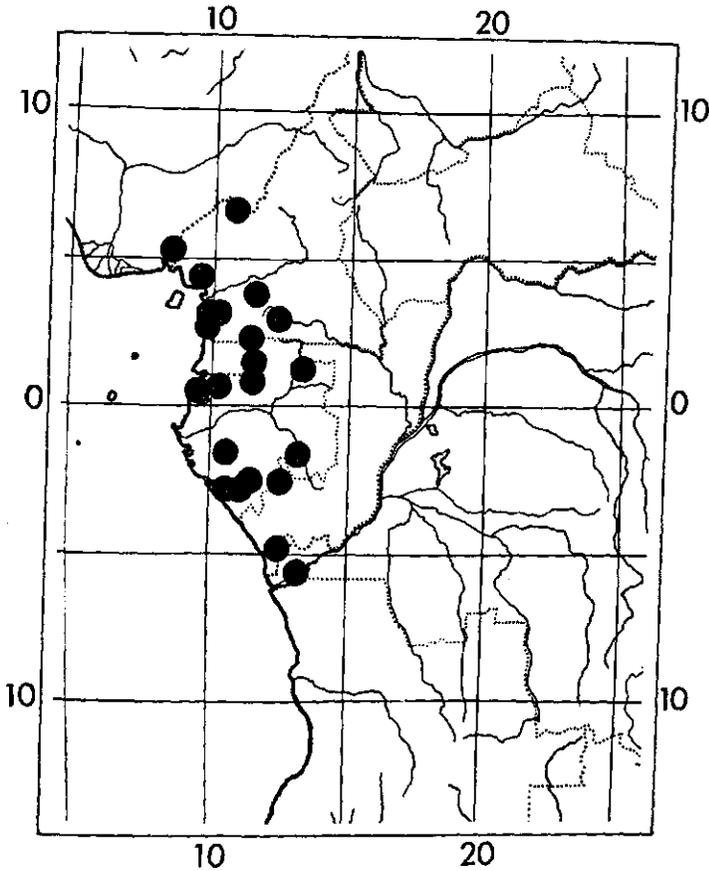


Figure 1A. (after Pichon) *Orthopichonia barteri* 1, flowering branch ($\times 2/3$); *O. cirrhosa* 2, flowering branch ($\times 2/3$); 3, part of corolla inside ($\times 4$); 4, pistil ($\times 10$); 5, fruit ($\times 2/3$). 1 from Chevalier 15133; 2-4 from Zenker 1628; 5 from Klaine 373 bis.



MAP 3A. *Orthopichonia cirrhosa*.

lowish-green or white below, with 21-44 pairs of conspicuous secondary veins alternated by less conspicuous ones (of the latter sometimes 2 between two conspicuous veins); tertiary venation reticulate. *Inflorescences* axillary, often seemingly terminal, 1 or 2 together, rather lax to rather congested, 5-14-flowered, up to 34 mm long, sometimes terminal and then more or less tendril-like, rather lax, 4-8-flowered, up to 29 mm long. Peduncle when inflorescences axillary up to 5 mm long, when terminal up to 14 mm long; peduncle and main axis glabrous or pubescent. Pedicels 1-5 mm long, glabrous or minutely pubescent. Bracts triangular, $0.5-1.1 \times 0.6-1$ mm, outside glabrous or minutely pubescent, at least near the base, ciliate, inside pubescent, rarely glabrous, colleters 1-2, 0.1-0.2 mm long. *Sepals* pale green to dark purple and then with white to green margins, up to 0.3 mm connate at the base, triangular to obovate, $0.8-1.7 \times$ as long as wide, $0.9-1.7 \times 0.6-1.3$ mm, acute to truncate or sometimes slightly apiculate at the apex, glabrous on both sides, more or less ciliate. *Corolla* at lobes white, sometimes pink, and at tube reddish or yellowish-green with a pale green base;

in the mature bud 13.7-19 mm long forming an oblong head 0.26-0.37 of the bud-length, outside glabrous or sometimes minutely pubescent at wide part of tube; tube 8.5-15 × as long as the sepals, 1.7-3.3 × as long as the lobes, 9-15 mm long, contracted at the base and there 0.5-0.8 mm, widened above and widest 2.5-3.8 mm above the base (0.21-0.33 of the tube) and there 1.2-1.8 mm, again contracted just above the anthers and there 0.4-1 mm wide, fairly abruptly widened at the throat, inside with a pilose belt from 1.2-2 mm to 4.3-6.4 mm above the base of the tube, throat glabrous or almost glabrous; lobes oblong or elliptic, 0.3-0.6 × as long as the tube, 1.4-4.5 × as long as wide, 3.2-7.4 × 1.5-3 mm, rounded at the apex, sometimes slightly auriculate at the left side of the base, often slightly involute at the left side, entire or sometimes slightly undulate, outside glabrous, more or less ciliate, more so at the base, inside glabrous or minutely pilose at the base. *Stamens* 6-10.3 mm included (0.62-0.74 of the tube-length), inserted 2-3.2 mm from the base of the tube (the base of the anthers being 2.7-4 mm above the base of the tube); filaments glabrous on both sides, 0.5-1 mm long; anthers 0.7-1.8 × as long as the filaments, narrowly triangular or oblong, sometimes ovate or elliptic, 2.3-4 × as long as wide, 0.7-0.9 × 0.2-0.3 mm, acuminate, sometimes acute, with an up to 0.05 mm sterile apex. *Pistil* 1.8-2.9 mm long; ovary superior to hemi-inferior, obovoid, 0.4-1.1 × 0.5-0.9 × 0.5-0.9 mm, glabrous, sometimes unilocular, more often imperfectly 2-celled, abruptly narrowed into the style; style 0.7-1.4 × 0.1-0.2 mm; pistil head ovoid, 0.5-0.8 × 0.2-0.4 mm, split at the apex for 0.2 mm; apex of pistil 1-2.4 mm below apices of anthers. Placentas often protruding, sometimes only slightly so, each with 15-23 ovules. *Fruits* whitish-green or dull dark green, pear-shaped to subglobose, attenuate at the base, truncate at the apex, verrucose, glabrous, with lenticels, subtended by the persistent calyx, 24-46 × 23-36 mm. *Seeds* light brown when dried, irregularly ellipsoid to bean-shaped, 11-16 × 8-15 × 6-10 mm; embryo 1 × 1 mm; cotyledons ovate, 11 mm long, slightly cuneate at the base.

Geographical distribution: Nigeria, Cameroun, Gabon, Congo, Zaïre.

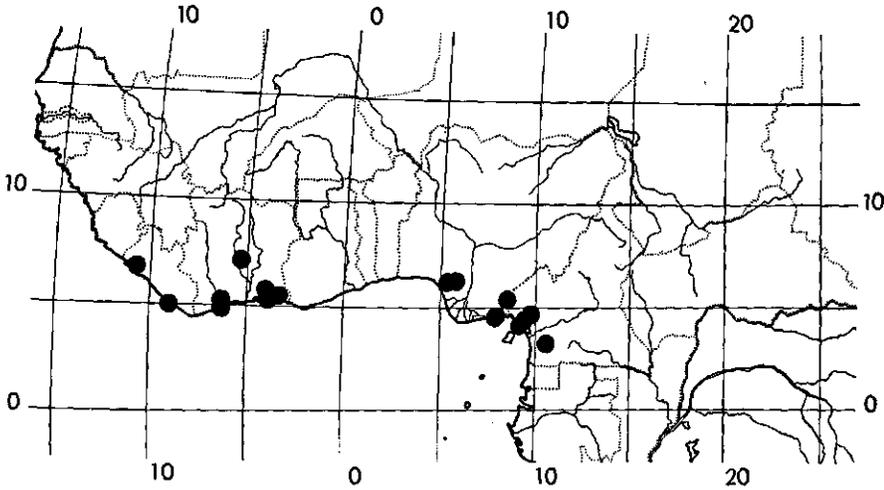
Ecology: Tropical rain forests. Alt. 0-700 m. Flowering throughout the year, especially in the months September – March. Fruits can be found all year round.

Geographical selection of the about 230 specimens examined:

NIGERIA: CROSS RIVER: Oban, Talbot 1351 (BM, BR, K, P, Z, type of *Orthandra nigeriana*).

CAMEROUN: Balangi (= Mbalange), Binuyo & Daramola FHI 35089 (B, K, P); 25 km S of Yaoundé, Breteler et al. 2467 (BR, K, LISC, M, P, WAG); Bipindi, Zenker 1628 (B, BM, BP, BR, COI, E, G, HBG, K, L, M, P, S, W, WAG, WU, Z); between Longii and Songkwari, Bos 6088 (WAG); 8 km N of Kribi, Bos 4762 (BR, M, P, WAG); near Grand Bataंगा, Bos 3752 (P, WAG); Bitey, Bates 977 (BM, BR, MO, Z); near Ambam, Letouzey 10025 (BR, K, P, WAG).

GABON: Oyem, le Testu 9290 (B, BM, BR, LISC, P, WAG); Bélinga, Caballé 152 (WAG); Libreville, Klaine 3079 (K, P); Mont Mvélakéné, Hallé & Villiers 5138 (P); Oveng, Louis et al. 381/83 (WAG); Agouma, le Testu 5822 (BM, BR, LISC, P, WAG); between Pagma and Moutéti, le Testu 5110 (BM, BR, LISC, P, WAG); Guidouma, le Testu 5068 (B, BM, BR, LISC, MO, P, WAG);



MAP 4A. *Orthopichonia indeniensis*.

km 11 Moanda-Mbinda, Breteler 6483 (WAG); Mayumba, le Testu 1408 (BM, BR, LISC, P); Tchibanga, le Testu 2137 (BM, BR, K, LISC, P); 53 km SW of Doussala, de Wilde et al. 8963 (WAG).

CONGO: near Kouyi, Sita 3965 (WAG).

ZAÏRE: BAS-ZAÏRE: Luki, Donis 2141 (BR, MO).

ANGOLA: Buco Zau, Gossweiler s.n. (LISJC).

3. *Orthopichonia indeniensis* (A. Chev.) H. Huber in Kew Bull. 15: 437 (1962); in Fl. W. Trop. Afr. 2(2): 58 (1963). **Fig. 2A; Map 4A**

Basionym: *Clitandra indeniensis* A. Chev., Mém. Soc. Bot. Fr. 8: 43 (1908).

Type: Ivory Coast, Aboisso, Chevalier 17751 (P lecto-, designated here, B, K, P, WAG isolecto-). Homotypic synonym: *Orthandra indeniensis* (A. Chev.) Pichon, Mém. I.F.A.N. 35: 218 (1953).

Heterotypic synonyms: *Clitandra longituba* Wernham, Cat. Pl. Talb. Oban Distr. S. Nig.: 60 (1913); Hutchinson & Dalziel, Fl. W. Trop. Afr. 1(2): 34 (1931), **syn. nov.** Type: S. Nigeria, Oban, P.A. Talbot 1577 (BM holo-, BM, K, Z iso-). Homotypic synonyms: *Orthandra longituba* (Wernh.) Pichon, op. cit. 216; *Orthopichonia longituba* (Wernh.) H. Huber in Kew Bull. 15: 437 (1962); in Fl. W. Trop. Afr. 2(2): 58 (1963).

Clitandra ivorensis A. Chev. ex Hutch. et Dalz., Fl. W. Trop. Afr. 1(2): 34 (1931); in Kew Bull. 1937: 336 (1937). Type: Ivory Coast, Abidjan, Chevalier 15183 (P lecto-, designated here, B, BR, G, K, L, WAG isolecto-).

Large liana at least 20 m high climbing in trees. Branches rough, dark red to dark brown, sometimes pale grey, with few lenticels, glabrous; branchlets glabrous. Leaves: petiole 6-10 mm long, glabrous; blade coriaceous, sometimes papery or leathery when dried, elliptic or oblong, 1.9-2.9 × as long as wide, 8-13.2 × 3-5.3 cm, acumen 4-14 mm long, with a rounded, sometimes slightly obtuse, point at the apex, cuneate at the base, glabrous on both sides, with 17-52 pairs of conspicuous secondary veins alternated by less conspicuous ones (of

the latter sometimes 2 between two conspicuous veins); tertiary venation more or less reticulate. *Inflorescences* axillary, 1-2 together, rather congested, 5-15-flowered, up to 35 mm long, sometimes terminal and then more or less tendril-like, lax, up to 10-flowered, up to 150 mm long. Peduncle when inflorescences axillary up to 2.5 mm long, when terminal 75 mm long; peduncle and main axis glabrous or minutely pubescent. Bracts triangular, 0.7-1 × 0.6-1 mm, glabrous or pubescent on both sides, ciliate, colleters 1-2, 0.1 mm long. *Sepals* 0.2-0.4 mm connate at the base, triangular, 0.8-1.7 × as long as wide, 1-1.7 × 0.7-1.3 mm, acute to truncate at the apex, almost glabrous outside, ciliate, glabrous inside. *Corolla* often with an at least at base pale green tube, at the lobes white, in the mature bud 12.9-22.8 mm long forming an attenuate head 0.33-0.6 of the bud-length, outside glabrous or with a pilose belt from 2-3 mm above the base of the tube to the base of the lobes (indumentum somewhat less dense at narrow part of tube); tube 7.6-12 × as long as the sepals, 1.5-2.7 × as long as the lobes, 12.5-14.4 mm long, contracted at the base and there 0.6-0.8 mm, widened above and widest 2.8-3.7 mm above the base (0.2-0.28 of the tube) and there 1.1-1.5 mm, again contracted just above the anthers and there 0.7-1 mm wide, fairly abruptly widened at the throat, inside with a pilose belt from 1.2-1.7 mm to 5.8-7.5 mm above the base of the tube or to the base of the lobes (indumentum less dense or absent in narrow part of tube above anthers), in the throat somewhat less dense; lobes narrowly triangular, 0.4-0.7 × as long as the tube, 2.8-5.8 × as long as wide, 5.1-10 × 1.3-2 mm, obtuse at the apex, sometimes slightly auriculate at the left side of the base, more or less involute at the left side, outside glabrous or pilose, only so at the base, more or less ciliate, more at the base, inside sometimes glabrous, more often pilose at the base. *Stamens* 9-12 mm included (0.68-0.86 of the tube-length), inserted 2.3-2.8 mm from the base of the tube (the base of the anthers being 2.7-3.3 mm above the base of the tube); filaments inside glabrous or pilose, only so at the base, outside glabrous, 0.5-0.9 mm long; anthers 1.1-2.2 × as long as the filaments, oblong or narrowly elliptic, 3.3-5 × as long as wide, 0.8-1.1 × 0.2-0.3 mm, acute or acuminate with an up to 0.1 mm sterile apex, sometimes obtuse and then without sterile apex. *Pistil* 1.9-2.3 mm long; ovary inferior for one third, cylindrical or obovoid 0.4-0.7 × 0.6-0.8 × 0.6-0.8 mm, densely hirt-pubescent from 0.2-0.4 mm above the base, up to the apex of the ovary, unilocular or imperfectly 2-celled, abruptly narrowed into the style; style 0.6-0.8 × 0.2 mm; pistil head ovoid, 0.7-1 × 0.3 mm, split at the apex for 0.2 mm; apex of pistil 1.6-2.2 mm below apices of anthers. Placentas more or less protruding, each with 10-17 ovules. *Fruits* orange, sometimes dark green, with white longitudinally arranged spots, at least near apex, ellipsoid, sometimes subglobose or pear-shaped, cuneate, sometimes rounded at the base, obtuse or acuminate with an obtuse point at the apex, smooth (sometimes slightly rough when young), lenticellate, minutely hirt-pubescent at the apex when young, subtended by the persistent calyx, 24-76 × 18-60 mm. *Seeds* beige-ochre with a lighter coloured stripe where the two parts of endosperm are connate, irregularly shaped (to the space available), 13-22 × 18-19 × 13-14 mm; embryo 1 × 2 mm; cotyledons ovate, 18 mm long, cordate at the base.

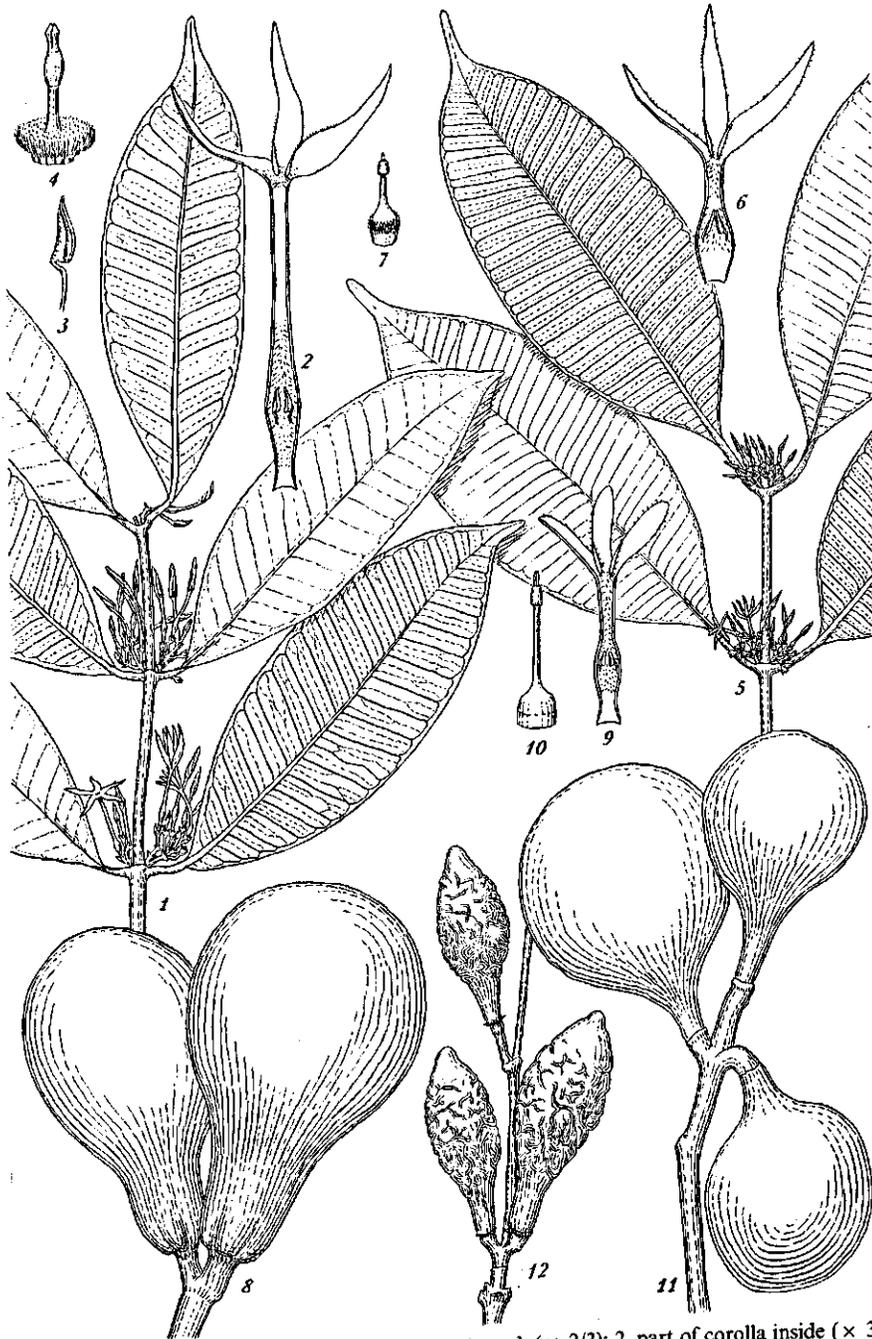


Figure 2A. *Orthopichonia indeniensis* 1, flowering branch ($\times 2/3$); 2, part of corolla inside ($\times 3$); 3, stamen ($\times 10$); 4, pistil ($\times 10$). *O. seretii* 5, flowering branch ($\times 2/3$); 6, part of corolla inside ($\times 4$); 7 (emend.), pistil ($\times 10$); 8, fruits ($\times 2/3$). *O. barteri* 9, part of corolla inside ($\times 4$); 10, pistil ($\times 10$); 11, 12, fruits ($\times 2/3$). 1-4 from Talbot 1577; 5-7 from Zenker 550; 8 from Jespersen s.n.; 9-10 from Rosselet 5; 11 from Sapin s.n.; 12 from Unwin 15.

Geographical distribution: West tropical Africa from Liberia to Cameroun.
Ecology: Tropical rain forests. Alt. 0-1500 m. Flowering especially in the months February – May. Fruits can be found throughout the year. Rare.

Geographical selection of the about 100 specimens examined:

LIBERIA: Bomi Hills, Jansen 1476 (WAG); Sinoe R., Whyte 4 (BM, K).

IVORY COAST: 3 km N of Abé, de Koning 40 (WAG); km 34 Sassandra-San Pedro, Leeuwenberg 12104 (WAG); km 27 Monogaga-Sassandra, Leeuwenberg 12148 (WAG); km 54 Sassandra-Gagnoa, Breteler 6011 (WAG); Yapo forest, Leeuwenberg 12276 (WAG); Abidjan, Chevalier 15183 (B, BR, G, K, L, P, WAG, lectotype of *Clitandra ivorensis*, para-); km 12 Yakassé Mé-Kodiousou, Leeuwenberg 8018 (WAG); Aboisso, Chevalier 17751 (B, K, P, WAG, lectotype).

NIGERIA: BENDEL: Okomu, Onochie 38311 (K, WAG); Nikrowa, Ross 118 (BM); Benin, Unwin 51 (K); Sapoba, Emwiogbon 45339 (K). CROSS RIVER: Oban, Talbot 1577 (BM, K, Z, type of *Clitandra longituba*); Eket, Talbot s.n. (BM, K, P).

CAMEROUN: km 4 Eboné-Ekomtolo, Leeuwenberg 8175 (WAG); near Banga, Brenan 9498 (BM, BR, CGE, COI, K, P); Mafanja (=Mapanja), Maitland s.n. (B, K); near Buea, Maitland 405 (B, K); 65 km SSW of Eséka, de Wilde & de Wilde-Duyfjes 2734 (P, WAG).

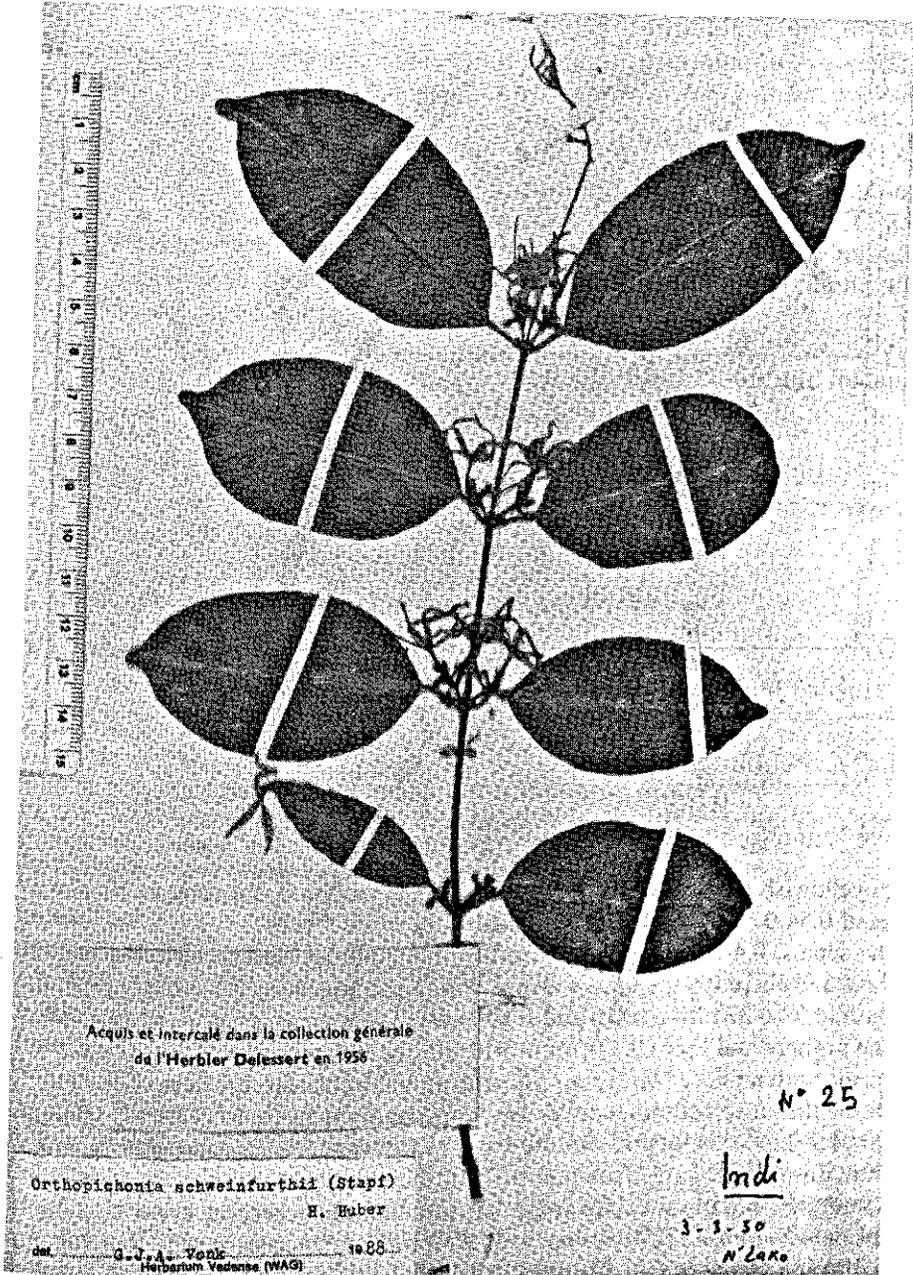
4. *Orthopichonia schweinfurthii* (Stapf) H. Huber in Kew Bull. 15: 437 (1962); in Fl. W. Trop. Afr. 2(2): 58 (1963). **Phot. 1A; Map 5A**

Basionym: *Clitandra schweinfurthii* Stapf, Kew Bull. 1894: 20 (1894); in Fl. Trop. Afr. 4(1): 68 (1902).

Type: Central African Republic, G. Schweinfurth III-68 (K holo-, P iso-). Homotypic synonym: *Orthandra schweinfurthii* (Stapf) Pichon, Mém. I.F.A.N. 35: 213 (1953).

Heterotypic synonym: *Clitandra mildbraedii* Mgf. in Notiztbl. Bot. Gart. Mus. Berlin 9: 55 (1924). Type: Cameroun, Mildbraed 9454 (K lecto-, designated here, BM, K, WAG isolecto-).

Liana. Branches dark brown or light yellowish brown to grey-brown, smooth, with lenticels; branchlets smooth, glabrous. *Leaves*: petiole 6-15 mm long, glabrous; blade leathery when dried, shiny above, oblong or elliptic, sometimes ovate, 1.7-2.8 × as long as wide, 5.5-12.6 × 2.5-5.7 cm, short-acuminate with an obtuse or rounded point at the apex (the acumen being up to 6 mm long), cuneate at the base, glabrous on both sides with 25-53 pairs of conspicuous secondary veins alternated by less conspicuous ones; tertiary venation more or less inconspicuous or reticulate. *Inflorescences* axillary, 1-2 together, rather congested, 5-8-flowered, up to 30 mm long, often also terminal and then more or less tendril-like, lax, 4-6-flowered, up to 75 mm long. Peduncle when inflorescences axillary 0.8-5 mm long, when terminal 9-44 mm long; peduncle and main axis glabrous or pubescent. Pedicels 1-2.3 mm long, glabrous or pubescent. Bracts narrowly triangular, 1.3-2 × 0.7-1 mm, glabrous or pubescent outside, ciliate, pubescent inside, at least near apex; colleter 1, 0.2 mm long. *Sepals* up to 0.2 mm connate at the base, narrowly triangular or ovate, 1.1-2.4 × as long as wide, 1-2.1 × 0.7-1.4 mm, obtuse or acute, sometimes truncate at the apex, glabrous on both sides, ciliate. *Corolla* with a pale yellow tube, at lobes white



Acquis et intercalé dans la collection générale
 de l'Herbier Delessert en 1956

Orthopichonia schweinfurthii (Stapf)
 H. Baber

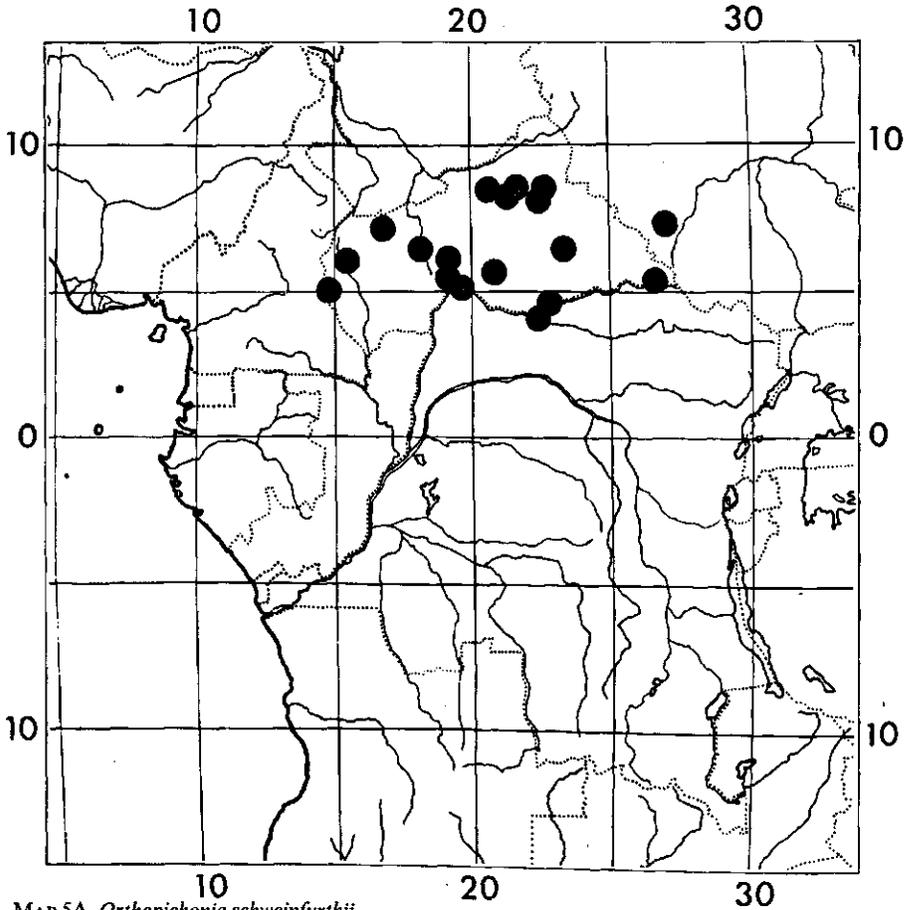
det. G. J. A. Vonk 10.88.
 Herbarium Vredense (WAG)

N° 25

Indi

3-3-50
 N° 260

Phot. 1. *Orthopichonia schweinfurthii* (Pittard 25, phot. van der Maesen).



MAP 5A. *Orthopichonia schweinfurthii*.

to yellowish white, in the mature bud 12-18.3 mm long, forming an attenuate head 0.54-0.63 of the bud-length, glabrous outside; tube 3.5-7.2 × as long as the sepals, 0.4-0.8 × as long as the lobes, 6.5-9 mm long, contracted at the base and there 0.6-0.9 mm, widened above and widest at 2.3-3 mm above the base (0.33-0.37 of the tube) and there 0.8-1.5 mm, again contracted just above the anthers and there 0.3-0.7 mm wide, fairly abruptly widened at the throat, inside with a pilose belt from 1.3-2 mm above the base to the base of the lobes, in the throat sometimes more dense; lobes narrowly ovate to narrowly triangular, 1.3-2.8 × as long as the tube, 4.8-11.8 × as long as wide, 8.5-20 × 1-2 mm, obtuse at the apex, sometimes slightly auriculate at the left side of the base, sometimes slightly involute at the left side, outside glabrous, minutely ciliate, inside sometimes slightly pilose at the left side of the base, more often entirely glabrous. *Stamens* 3.1-5.2 mm included (0.47-0.68 of the tube-length), inserted 1.8-2.2 mm from the base of the tube (the base of the anthers being 2.2-2.7 mm above the base of the tube); filaments pilose inside or almost glabrous, glabrous

outside, 0.4-0.5 mm long; anthers 2.2-3 × as long as the filaments, narrowly triangular, 3.7-6 × as long as wide, 0.9-1.2 × 0.2-0.3 mm, acute or acuminate at the for 0.05-0.1 mm sterile apex or sometimes obtuse and then without sterile apex. Pistil 1.7-2.2 mm long; ovary inferior for one quarter, subglobose, 0.5-0.9 × 0.4-0.8 × 0.4-0.8 mm, glabrous, unilocular, sometimes imperfectly 2-celled, more or less gradually narrowed into the style; style 0.6-0.8 × 0.2 mm; pistil head ovoid, ellipsoid or cylindrical, 0.5-0.6 × 0.3 mm, 0.1 mm split at the apex; apex of pistil 1.1-1.7 mm below apices of anthers. Placentas more or less protruding, each with 12-18 ovules. Fruits yellow, edible, with pulp very acid, globose, smooth, with few lenticels, glabrous, subtended by the persistent calyx, 19-35 mm in diameter; wall 1 mm thick. Seeds brown when dried, irregularly ellipsoid, 11-12 × 8-10 × 6-7 mm; embryo 1 × 1 mm; cotyledons ovate to elliptic, 10 mm long, slightly cuneate to cordate at the base.

Geographical distribution: Central African Republic, Northern Zaïre, Sudan, Eastern Cameroun.

Ecology: Tropical rain forests or rather humid savanas. Alt. 500-1000 m. Flowering especially in the months December – May. Fruits can be found throughout the year. Common.

Geographical selection of the about 75 specimens examined:

CAMEROUN: Buar, Mildbraed 9487 (K, paratype of *Clitandra mildbraedii*).

CENTRAL AFRICAN REPUBLIC: Ndélé, Chevalier 7902 (BR, K, P); 68 km E of Ndélé, Guignonis 3367 (BR); 4 km W of Pende, Fay 4313 (K); Sakala R., Fay 4298 (K); between Ouadda and Ouanda-Djalé, le Testu 3781 (BM, P); Boguila Region, Fay et al. 5137 (K); 100 km SW of Bouar, Haxaire 1422 (WAG); near Bouar, Descoings 10208 (P); Lado R., Cartwright 13 (K); between Nana and Fort Sibut, Chevalier 10738 (P); between Fort de Possel and Fort Sibut, Chevalier 5384 (P); Mission de la Sainte Famille, Chevalier 5317 (P); near Bambari, Tisserant 1748? (BR, P); N'Zako, Pittard 25 (G); Yalinga, le Testu 2492 (B, BM, LISC, P, WAG); near Obo, Descoings 11978 (P).

SUDAN: between R. Pongo and R. Getti, Schweinfurth III-68 (K, holotype, P, iso-).

ZAÏRE: EQUATEUR: Bas-Uele, Dewulf 632 (BR).

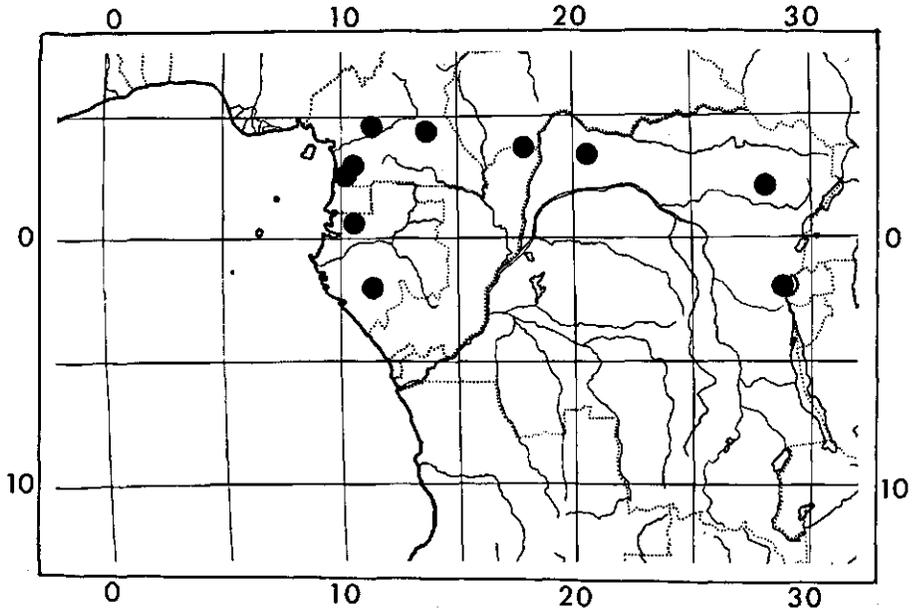
5. *Orthopichonia seretii* (De Wild.) Vonk comb. nov.

Fig. 2A; Map 6A

Basionym: *Clitandra seretii* De Wild., Not. Pl. Ut. Int. Congo, 2: 226 (1908). (as *sereti*).

Type: Zaïre, F. Seret 731 (BR holo-).

Liana, up to at least 50 m long. Branches greyish-brown with few lenticels; branchlets greyish-brown, pubescent, hairs curved. Leaves: petiole 11-22 mm long, glabrous or pubescent above, less hairy beneath, hairs curved; blade papery when dried, oblong or elliptic, 2-3.2 × as long as wide, 6.1-12.1 × 2.8-4.9 cm, acumen 4-14 mm long, with a rounded, sometimes slightly obtuse point at the apex, cuneate at the base, glabrous on both sides or on midrib slightly pubescent at the base, with 28-53 pairs of conspicuous secondary veins alternated by less



MAP 6A. *Orthopichonia seretii*.

conspicuous ones; tertiary venation inconspicuous to slightly reticulate. *Inflorescences* axillary, 1-3 together, congested, (5-)7-9-flowered, 15-20 mm long, with peduncle up to 2 mm long, rarely terminal, and then somewhat tendril-like, rather congested, 2-4-flowered, up to 20 mm long, with peduncle 3.2-6 mm long; peduncle and main axis densely pubescent, hairs curved. Pedicels 1-3 mm long, densely pubescent, hairs curved. Bracts triangular, 1.3-1.8 × 1-1.1 mm, pubescent on both sides, hairs curved, ciliate; colleters 0.2 mm long. *Sepals* 0.2-0.4 mm connate at the base, triangular or ovate, 0.9-1.3 × as long as wide, 0.9-1.4 × 0.9-1.3 mm, retuse to acute, sometimes apiculate at the apex, densely pubescent outside, at least near midrib and at base, hairs curved, ciliate, usually pubescent inside, hairs curved. *Corolla* often with a pale green tube and white lobes, in the mature bud 7.5-13 mm long forming an attenuate head (the lobes 0.47-0.54 of the bud-length), outside glabrous or sometimes with a pubescent belt from about half of the tube upwards to the base of the lobes; tube 4.2-5.5 × as long as the sepals, 0.7-1.2 × as long as the lobes, 4.7-6 mm long, contracted at the base and there 0.6-1 mm, widened above and widest at or just below the middle and there 1.2-1.4 mm, again contracted just above the anthers and there 0.5-0.7 mm wide, fairly abruptly widened at the throat, inside with a pilose belt from 1.4-2 mm to the apex of the anthers or the base of the lobes (indumentum less dense or absent in narrow part of the tube above anthers), in the throat somewhat more dense; lobes narrowly triangular, 0.8-1.4 × as long as the tube, 2.9-5 × as long as wide, 3.8-8.2 × 1.2-1.9 mm, obtuse at the apex, slightly auriculate at the left side of the base, more or less involute at the left side, outside glabrous

sometimes pubescent at the base, hairs curved, more or less ciliate, inside pilose, only so at the auricle or sometimes entirely glabrous. *Stamens* 1.8-3 mm included (being 0.38-0.5 of the tube-length), inserted 1.8-2.4 mm from the base of the tube (the base of the anthers being 2-3.1 mm above the base of the tube); filaments 0.3-0.7 mm long, pilose inside, glabrous outside; anthers 1.4-2.7 × as long as the filaments, narrowly triangular or oblong, 3-6 × as long as wide, 0.8-1.2 × 0.2-0.4 mm, acuminate at the for 0.05-0.1 mm sterile apex or sometimes obtuse and then without sterile apex. *Pistil* 1.4-2 mm long; ovary inferior for one quarter to hemi-inferior, subglobose to obovoid, 0.5-0.9 × 0.7-1 × 0.7-1 mm, widest above the middle, almost entirely or at least apically densely pubescent (hairs short and curved, sometimes the hairs on the lower half of the ovary not curved), unilocular, abruptly narrowed into the style; style 0.6-1 × 0.2 mm; pistil head ovoid, ellipsoid or cylindrical, 0.3-0.6 × 0.2-0.3 mm, up to 0.2 mm split at the apex; apex of pistil 1.2-2 mm below apices of anthers. Placentas much protruding, each with 15-40 ovules. *Fruits* globose or obovoid, up to 7 cm in diameter, slightly bumpy, more or less lenticellate, glabrous, subtended by the persistent calyx, 2-celled; wall up to 2 cm thick. *Seeds* light green or brown when dried, bean-shaped to ellipsoid, 12-18 × 10-12 × 6-9 mm, covered by a greyish slimy layer when fresh; embryo 1 × 2 mm; cotyledons elliptic, 11 mm long, cordate at the base.

Geographical distribution: Cameroun, Central African Republic, Gabon, Zaïre.

Ecology: Tropical rain forests. Alt. up to 900 m. Flowering throughout the year, especially in the months June – November.

Geographical selection of the about 70 specimens examined:

CAMEROUN: near Bafia, Benoît 376 (P); Bertoua, Breteler 1671 (BR, K, LISC, M, P, WAG); Nye'ete, de Kruif 1060 (WAG); Bipindi, Zenker 550 (B, BR, C, G, GH, LD, MO, NY, P, UC, WAG).

CENTRAL AFRICAN REPUBLIC: Boukoko, Tisserant 428 (B, BM, LISC, P, WAG).

GABON: between Assok and Tchimbélé, de Wilde et al. 137/83 (WAG); Bilengué, le Testu 5487 (BM, LISC, P, WAG).

ZAÏRE: EQUATEUR: Boyasegeze, Evrard 1508 (BR). HAUT-ZAÏRE: between Wamba and Gombari, Lebrun 3310 (A, BR, UC). KIVU: near Irangi, Troupin 3416 (BR, K).

Note: When Schumann described *Clitandra visciflua* (1900), he based it on four syntypes. Out of these four, Staudt 860 was used by Stapf to create *C. staudtii* (1902). The name was maintained in the revision of *Orthandra* by Pichon (1953).

The present author, however, does not consider Staudt 860 as distinct, and names this specimen *O. visciflua*. Therefore the other specimens identified by Stapf, several followers and Pichon as *C. staudtii* or *O. staudtii* needed an other name: *O. seretii*.

6. *Orthopichonia visciflua* (K. Schum. ex Hall.) Vonk comb. nov.

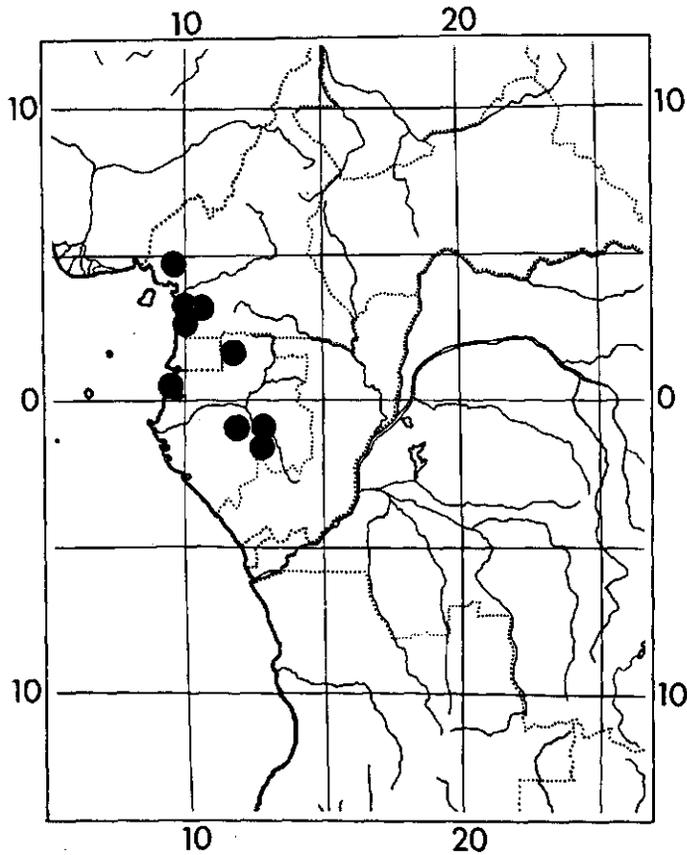
Phot. 2A; Map 7A

Basionym: *Clitandra visciflua* K. Sch. ex Hall. in Jahrb. Hamb. Wiss. Anst. 17(3): 127 (1900); Stapf in Fl. Trop. Afr. 4(1): 66 (1902); Hutchinson & Dalziel, Fl. W. Trop. Afr. 1(2): 34 (1931).

Type: Cameroun, Bipindi, G. Zenker 1606 (HBG lecto-, designated here, B, BM, BP, BR, COI, E, G, K, L, M, MO, NY, P, S, W, WAG, Z isolecto-).

Heterotypic synonym: *Clitandra staudtii* Stapf in op. cit. 67; Hutchinson & Dalziel, l.c., syn. nov.. Type: Cameroun, Kumba, Staudt 860 (K holo-, BM, GH iso-). Homotypic synonyms: *Orthandra staudtii* (Stapf) Pichon, Mém. I.F.A.N. 35: 219 (1953); *Orthopichonia staudtii* (Stapf) H. Huber in Kew Bull. 15: 437 (1962); in Fl. W. Trop. Afr. 2(2): 58 (1963).

Liana, slender. Branches grey-brown to dark brown, smooth, with lenticels; branchlets glabrous. *Leaves*: petiole 5-12 mm long, glabrous; blade thinly leathery when dried, elliptic or obovate, sometimes oblong, 1.7-3.6 × as long as wide, 7.3-15.8 × 3.3-6.8 cm, acumens 6-14 mm long, with a rounded point at the apex, cuneate at the base, glabrous on both sides, with 18-30 pairs of conspicuous secondary veins alternated by less conspicuous ones (of the latter sometimes 2 between two conspicuous veins); tertiary venation more or less reticulate, sometimes inconspicuous. *Inflorescences* axillary, often seemingly terminal, 1-3 together, rather congested, 5-9-flowered, 13-33 mm long, peduncle up to 4 mm long; peduncle and main axis glabrous, sometimes sparsely pubescent. Pedicels pale green, 1-4 mm long, glabrous. Bracts triangular, obtuse, sometimes truncate at the apex, 0.7-1.2 × 0.6-1 mm, glabrous on both sides, sometimes minutely pubescent on both sides, then at least near apex, ciliate, colleters one, sometimes two, 0.1-0.2 mm long. *Sepals* up to 0.4 mm connate at the base, triangular or ovate, 0.7-1.6 × as long as wide, 0.7-1.3 × 0.7-1.5 mm, obtuse or acute, sometimes truncate or apiculate at the apex, glabrous or almost glabrous on both sides, ciliate. *Corolla* at tube pale green or yellowish-green, sometimes with a cream top, at lobes white, in the mature bud 12.7-22 mm long, forming an attenuate head 0.48-0.53 of the bud-length, glabrous outside; tube 8.5-13.3 × as long as the sepals, 0.8-1.2 × as long as the lobes, 7.7-12.4 mm long, contracted at the base and there 0.6-1.1 mm, widened above and widest at 2-2.8 mm above the base (0.17-0.26 of the tube) and there 1-1.5 mm, again contracted just above the anthers and there 0.5-0.8 mm wide, fairly abruptly widened at the throat, inside with a pilose belt from 1-2 mm above the base to about 3 mm above the apices of the anthers or the base of the lobes (indumentum less dense or absent in narrow part of the tube above the anthers and most densely just above the anthers), in the throat somewhat more dense; lobes narrowly ovate to narrowly triangular, 0.9-1.3 × as long as the tube, 4.7-8.5 × as long as wide, 7-16.2 × 1.3-2.7 mm, obtuse at the apex, often slightly involute, outside glabrous, more or less ciliate, inside sometimes slightly pilose at the left side of the base, more often entirely glabrous. *Stamens* 5.3-9.5 mm included (0.68-0.79 of the tube-length), inserted 1.6-2.4 mm from the base of the tube (the base



MAP 7A. *Orthopichonia visciflua*.

of the anthers being 2.3-3.1 mm above the base of the tube); filaments pilose inside, glabrous outside, 0.5-1 mm long; anthers 0.8-1.4 × as long as the filaments, narrowly triangular or oblong, 3.5-4.5 × as long as wide, 0.7-0.9 × 0.2 mm, acute or acuminate with an up to 0.1 mm long sterile apex. *Pistil* 1.5-2.4 mm long; ovary inferior for one quarter to one third, subglobose to obovoid, 0.5-0.9 × 0.6-0.7 × 0.6-0.7 mm, glabrous or with a hirtopubescent belt from about 0.2 mm above the base to the apex of the ovary, unilocular, sometimes imperfectly 2-celled, abruptly narrowed into the style; style 0.3-0.9 × 0.1-0.2 mm; pistil head ovoid, ellipsoid or cylindrical, 0.6-1 × 0.2-0.3 mm, up to 0.3 mm split at the apex; apex of pistil 1.4-1.8 mm below apices of anthers. Placentas more or less protruding, each with 8-15 ovules. *Fruits* unknown.

Geographical distribution: Cameroun, Gabon.

Ecology: Tropical rain forests. Flowering especially in the months February – May and September – December.

Geographical selection of the about 200 specimens examined:

CAMEROUN: Johann-Albrechtshöhe (= Kumba), Staudt 860 (BM, GH, K, type of *Clitandra staudtii*, para-); near Kribi, Bos 4166 (BR, L, LD, M, P, WAG); Bipindi, Zenker 1606 (B, BM, BP, BR, COI, E, G, HBG, K, L, M, MO, NY, P, S, W, WAG, Z lectotype); Grand Batanga, Dinklage 840 (HBG paratype); *ibid.*, M. Dinklage 1161 (HBG, K, WAG paratype).

GABON: Oyem, le Testu 9513 (BM, P); near Libreville, Klaine 2849 (BR, P, UC); Iméno Poubi, le Testu 8600 (BM, P, WAG); Liyanga, le Testu 7707 (BM, P, WAG); Liyembo, le Testu 8784 (B, BM, LISC, P, WAG).

Note: see note under *O. seretii*.

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