BLUMEA 21 (1973) 327—356

REVISION OF BASANANTHE, FORMERLY TRYPHOSTEMMA (PASSIFLORACEAE)

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SUMMARY

The older generic name *Basananthe* is accepted over *Tryphostemma*. In this Central-, East- and South African genus 25 species are recognized. Subdivision into sections is abandoned. Key to the species, descriptions, illustration of leaves, citation of examined specimens, distribution maps, index accounting for all names pertaining to the genus. The monotypic genus *Carania* is sunk into *Basananthe*. Many reductions, new combinations, 6 new species.

INTRODUCTION

In *Basananthe* 25 species are accepted, the same number as in the revision of *Tryphostemma* by Hutchinson and Pearce (1921). However, only 15 of the species accepted by Hutchinson and Pearce are represented in the present account; the remaining 10 species are newly described by later authors or in the present paper by myself.

Acknowledgement. I wish to thank the curators of the various herbaria cited, especially those of BR, BM, EA, HBG, K, LISC and PRE, for enabling me to study the material.

BASANANTHE

Basananthe Peyr., Bot. Zeitg. 17 (1859) 101; (in Wawra & Peyritsch, Sertum Benguelense in) Sitzungsber. Acad. Wien 38 (1860) 569; Hook. *f.* in Benth. & Hook. *f.*, Gen. Pl. 1 (1867) 812; Welwitsch, Trans. Linn. Soc. Lond. 27 (1871) 27; Mast. in Oliv., Fl. Tr. Afr. 2 (1871) 508; Trans. Linn. Soc. Lond. 27 (1871) 639; Hiern, Cat. Afr. Pl. Welw. 1, 2 (1898) 382 (*Basananthe*, a name older than *Tryphostemma*). — T y p e: *B. littoralis* Peyr.

Tryphostemma Harvey, Thes. Cap. 1 (1859) 32, t. 51; Fl. Cap. 2 (1862) 499; Hook. *f.* in Benth. & Hook. *f.*, Gen. Pl. 1 (1867) 811; Mast. in Oliv., Fl. Tr. Afr. 2 (1871) 507; Engl., Bot. Jahrb. 14 (1891) 387—388 (incl. sect. *Eutryphostemma*, sect. *Neotryphostemma*, and sect. *Basananthe*); Pflanzenw. Afr. 3, 2 (1921) 598—600; Harms in E.-P., Nat. Pfl. Fam. 3, 6a (1895) 80; in Engl., Pflanzenw. O. Afr., C (1895) 280—281; Notizbl. Berl.-Dahl. 8 (1923) 291—293 (incl. Engler's 'Reihen' *Appendiculatae* and *Exappendiculatae*); in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 487—488; Hutch. & Pearce, Kew Bull. (1921) 257—266 (incl. series *Lobatifoliae* and *Integrifoliae*); Hutch., Gen. Fl. Pl. 2 (1967) 371; A. & R. Fernandes, Garcia de Orta 6 (1958) 250—253, 662—665. — T y p e: *T. sandersonii* Harvey.

Carania Chiov., Fl. Somala (1929) 175; Hutch., Gen. Fl. Pl. 2 (1967) 372; De Wilde, Blumea 19, 1 (1971) 103. — T y p e: *C. berberoides* Chiov.

Annual or perennial herbs or small climbers, rarely shrubs, glabrous or hairy, with or without tendrils. *Leaves* alternate, simple (not lobed) or lobed, sessile or petiolate; margin entire or mostly dentate with small glandular teeth; top mostly mucronate. Stipules small, linear. False stipules in some species, developed from the supra-axillary bud. Tendrils axillary, replacing central flower of cyme, or absent. Inflorescences axillary, cymose, 1—3-flowered, sessile or peduncled. Bracts and bracteoles small, linear, often forming an involucre. *Flowers* bisexual (sometimes functionally unisexual), campanulate, greenish. Stipe indistinctly articulate at base to the short pedicel. Hypanthium rather narrow,

flattish, rarely shallowly cup-shaped. Sepals 5 (or 6), oblong to lanceolate, imbricate, free. Petals absent, 1—2, or (4 or) 5 (or 6), oblong to lanceolate, (sub)obtuse, free, usually smaller than the sepals. Outer corona consisting of a ± barrel-shaped tube bearing a ring of filiform processes (threads), bluish, and mostly with a ring of small inward curved teeth. Disk low, annular, rarely absent. Inner corona membranous, cup-shaped, margin entire or lobulate, in *B. berberoides* forming 5 small cups around the bases of the filaments. Stamens 5 (or 6, —9); filaments inserted in the upper half inside the inner corona, free; anthers basifixed, ellipsoid to lanceolate, (sub)sagittate, 2-locular, opening introrsely to latrorsely with longitudinal slits. Ovary ellipsoid, superior, mostly sessile, 1-celled, with 3 (or 4) parietal placentas; styles 3 (or 4), free or partially united; stigmas globose, small. *Fruit* a sessile or shortly stiped 3 (or 4)-valved capsule, ellipsoid; valves coriaceous. Seeds 1 or a few, arillate, ellipsoid to reniform, ± compressed; testa coriaceous, mostly rugose, blackish. Albumen horny; embryo large, straight; cotyledons foliaceous.

1. Distribution and ecology. About 25 species in Central-, East-, and South Africa (not in Madagascar), in a variety of habitats, ranging from dry scrub and savanna, to forest edges and montane forest, up to 2500 m. Very often recorded from sandy soils. It is not unlikely that the occurrence of certain apparently rare and local species, for instance *Basananthe kottoensis*, *B. hispidula*, *B. papillosa*, and others, is related with the properties of the underlying metalliferous rock or soil type.

2. Characters. Features of major importance for the subdivision and specific distinction in *Basananthe* are the presence or absence of what is named here 'false' stipules, and the presence or absence of petals; whether the leaves are simple or lobed has proved to be of less taxonomic significance, at least so for a subdivision of the genus.

As already alluded to by Harms (1895, p. 70) and especially discussed by him in a later paper (1923, p. 292—293), there is an essential difference between true stipules and false stipules. True stipules are small, linear, and present in all *Basananthes*. False stipules are higher inserted stipule-like appendages, much larger than the true stipules, and are apparently the first transversally placed leaves of the supra-axillary serial bud or (short) shoot. They are present, in addition to the true stipules, in 5 species: *Basananthe pedata*, *B. triloba*, *B. pseudostipulata*, *B. polygaloides*, and *B. apetala*. In the remaining 20 species false stipules are absent.

Apart from specific differences in size of the whole flower or parts of it, the flowers are in general rather uniform and give little hold for a splitting of the genus. Only in *B. berberoides*, originally described in a separate genus *Carania*, the inner corona has a deviating morphology (see under that species).

3. Subdivision. Regarding the subdivision of the genus Engler (1891) distinguished 3 sections: sect. *1. Eutryphostemma* (petals absent), sect. *2. Neotryphostemma* (petals present, corona with one row of threads), and sect. *3. Basananthe* (petals present, corona with a row of threads and a row of inflexed teeth*). This subdivision was followed by Harms (1895, p. 81; 1895, p. 280—281).

Both Hutchinson & Pearce (1921) and Engler (1921) gave a survey of the genus *Tryphostemma* mainly based on vegetative characters.

Engler distinguished here 2 'Reihen', one of species with, the other of species without false stipules. In this same treatment, however, he still accepts two of the existing sections,

* Besides the long threads a ring of small inflexed processes is present in almost all species; I have not found them e.g. in the small-flowered *B. phaulantha*.

on the basis of the absence or presence of petals: sect. *Eutryphostemma* and sect. *Neotryphostemma* (incl. sect. *Basananthe*).

Without explicitely rejecting Engler's subdivision in sections, Hutchinson & Pearce propose a new system, recognizing series *1. Lobatifoliae* (leaves lobed) and series *2. Integrifoliae* (leaves not lobed). Within both series the main character used in the key to the species is the shape and size of the stipules, whether small and filiform or large and foliaceous, not discriminating true and false stipules.

Later on, Harms (1923, 1925) accepts the two sections of Engler as being the most natural, but meanwhile naming Engler's 'Reihen' as *1. Appendiculatae* and *2. Exappendiculatae*, which then both appear under the two accepted sections.

Recent investigations have convinced me that the presence or absence of the petals is in certain species too variable to serve for sectional distinction, as may be illustrated by *B. sandersonii* which is usually apetalous but where 1 or 2 petals may be found, whereas the here newly described *B. pseudostipulata* is based on specimens with and without petals. Moreover, a species like the apetalous *B. zanzibarica* seems much related to *B. hanningtoniana*, a species provided with petals.

On the other hand, the splitting of the genus on the presence or the absence of false stipules has practical advantages, but may not be very natural; for instance, species like *Basananthe apetala*, *B. polygaloides*, and *B. triloba* (all three with false stipules) and *B. sandersonii* (without false stipules) are apparently closely related.

As all proposed criteria appear not sufficiently valid, I have refrained from accepting any subdivision.

4. Habit. There is a great diversity in habit: annual herbs with slender roots, perennial often pyrophytic forms with thick woody rootstocks, small lianas, and (in *B. spinosa*, *B. berberoides*) thorny shrubs. Certain forms of *B. sandersonii*, and e.g. *B. baumii* and *B. kottoensis* are low perennial plants with the leaves more or less appressed to the soil. These plants quite resemble in habit certain species in *Adenia*, e.g. *A. ovata*, a local endemic from northern Zambia.

In most cases it is clear whether a specimen is annual or perennial, but it is sometimes difficult to discern the growth form which may be modified by varying local conditions. Apparently in some species (e.g. in the *B. hanningtoniana*- and *B. lanceolata*-complexes) plants start fully fertile with an annual habit, but develop gradually into perennials. Some species seem obligately annual (e.g. *B. phaulantha*, and several others).

In annual forms enlarged, green, petioled cotyledons are frequently found.

5. Presentation. In the descriptions of the species the tendrils are measured including the peduncle. The given lengths of the filaments pertain to the free part, above the insertion in the inner corona.

Of each species one or some characteristic leaves are illustrated. Specimens are cited; their localities are also given as dots on distribution maps.

6. Nomenclature. In 1891 Engler reduced the genus *Basananthe* to *Tryphostemma*, effecting three new combinations for species formerly accomodated in *Basananthe*: *Tryphostemma nummularium* (Welw.) Engl., *T. littorale* (Peyr.) Engl., and *T. heterophyllum* (Schinz) Engl. A few years later, Hiern, Cat. Afr. Pl. Welw. 1 (1898) 382, however, still accepted *Basananthe* over *Tryphostemma*, arguing that *Basananthe* Peyr. dates from 18 March 1859, and *Tryphostemma* Harv. from the latter part of the same year; hence, Engler did not use the oldest name in combining the two genera.

A note on the same matter was made by Baker *f.* in J. Bot. (1899) 438, though he accepted *Tryphostemma*.

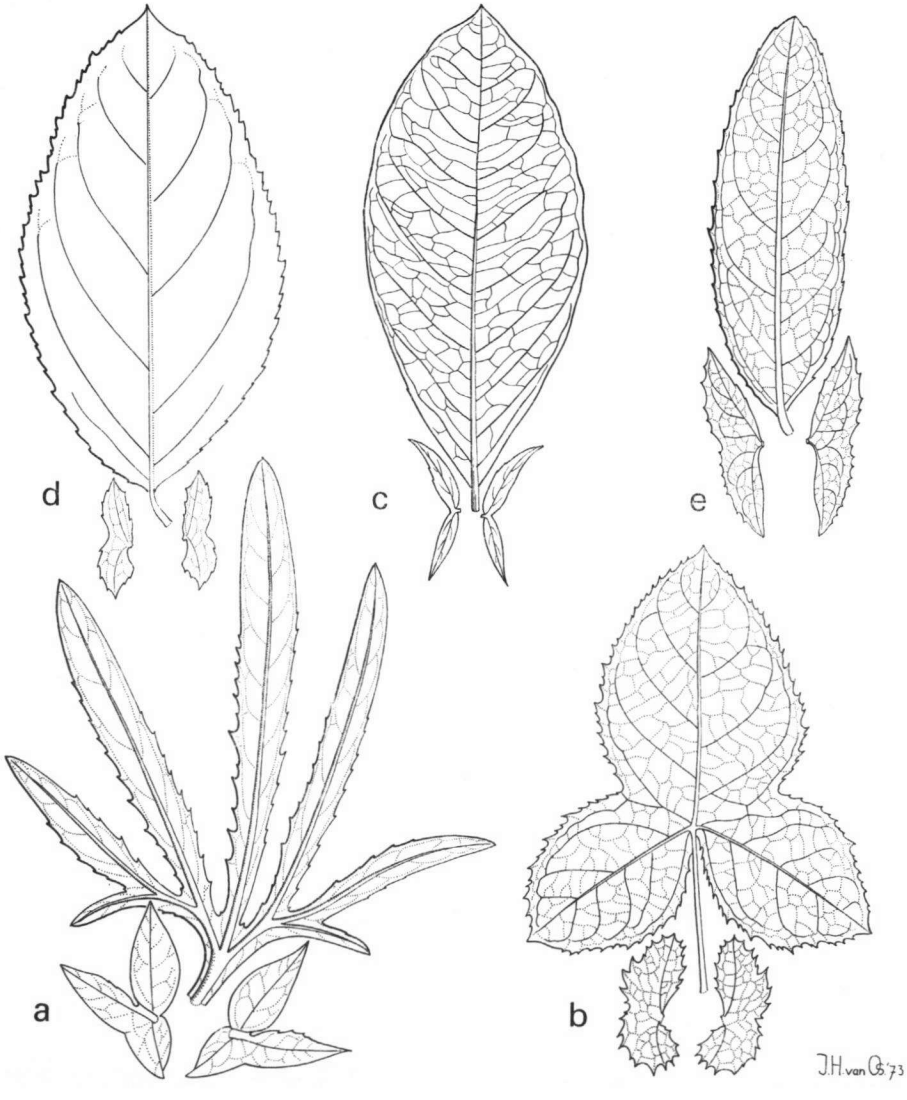


Fig. 1. Leaves of species 1—5, provided with false stipules; all natural size. — a: *B. pedata* (*Wild & Drummond 7001*); b: *B. triloba* (*Compton 31222*); c: *B. pseudostipulata* (*de Witte 3893*, type); d: *B. polygaloides* (*Harrison 296*); e: *B. apetala* (*Jackson 2271*).

KEY TO THE SPECIES

1. False stipules large, foliaceous.
2. Leaves 3—9-lobed.
3. Sepals 3—4½ mm, with keeled nerves. Leaves 3—7(—9)-lobed . . . **1. B. pedata**
3. Sepals 5—7½ mm, not keeled. Leaves 3-lobed . . . . . **2. B. triloba**
2. Leaves simple, rarely partly faintly lobed.
4. Leaf margin subentire, only a few minute teeth towards the base **3. B. pseudostipulata**
4. Leaf margin serrate-dentate.
5. Petals present . . . . . **4. B. polygaloides**
5. Petals absent . . . . . **5. B. apetala**
1. False stipules absent, or the first leaves (cataphylls) of supra-axillary shoot not distinctly appearing as false stipules.
6. Petals absent, or 1 or 2.
7. Petiole 0—¼ cm. Leaves simple. Very rarely tendrils.
8. Leaves more than 2 cm long. Sepals 5—8½ mm. No long-creeping shoots **6. B. sandersonii**
8. Leaves 1—2 cm long, on creeping shoots suborbicular, on erect shoots elliptic, acute. Sepals 3—5 mm . . . . . **7. B. parvifolia**
7. Petiole (½—)1 cm or longer. Leaves simple or lobed. Tendrils present.
9. Sepals *c.* 1½ mm . . . . . **8. B. phaulantha**
9. Sepals 5 mm or longer . . . . . **9. B. zanzibarica**
6. Petals present, 4 or 5.
10. Plant unarmed.
11. Leaves glabrous or hairy, sessile or not, simple or lobed; rarely scabrous when lobed and long-petiolate.
12. Styles less than half-way connate, or free. Sepals 3—11 mm, obtuse to acute. Bracteoles 2—4(—5) mm.
13. Plant provided with tendrils, annual or perennial, of various habit, (10—)20 cm to *c.* 3 m tall. Leaves simple or deeply lobed.
14. Leaves 3—5-lobed, rarely simple. Petiole distinct, non-alate, without glands or with but a few filiform glands at top . . . . . **10. B. hanningtoniana**
14. Leaves simple or 3-lobed, (sub)-sessile or petiolate. Petiole alate with gland-teeth . . . . . **11. B. lanceolata**
13. Plant without tendrils, perennial with woody rootstock, shoots up to 40 cm. Leaves simple or shallowly lobed.
15. Plant entirely glabrous.
16. Leaves oblong to lanceolate. *Kenya, Tanzania* . . . . . **11. B. lanceolata**
16. Leaves elliptic or suborbicular. *Angola.*
17. Leaves suborbicular, petiolate; margin coarsely serrate-dentate. Sepals 5—7 mm . . . . . **12. B. nummularia**
17. Leaves elliptic, acute, sessile; margin with minute cartilaginous teeth. Sepals 2½—4 mm . . . . . **13. B. gossweileri**
15. Plant partly or entirely hairy: leaves pubescent on one or on both surfaces; or papillate only on the lower surface, at least on the areoles or veins.
18. Shoots either prostrate or strictly erect. Upper surface of leaves pubescent. Disk well developed.
19. Shoots erect. Leaves elliptic to oblong, or lanceolate.

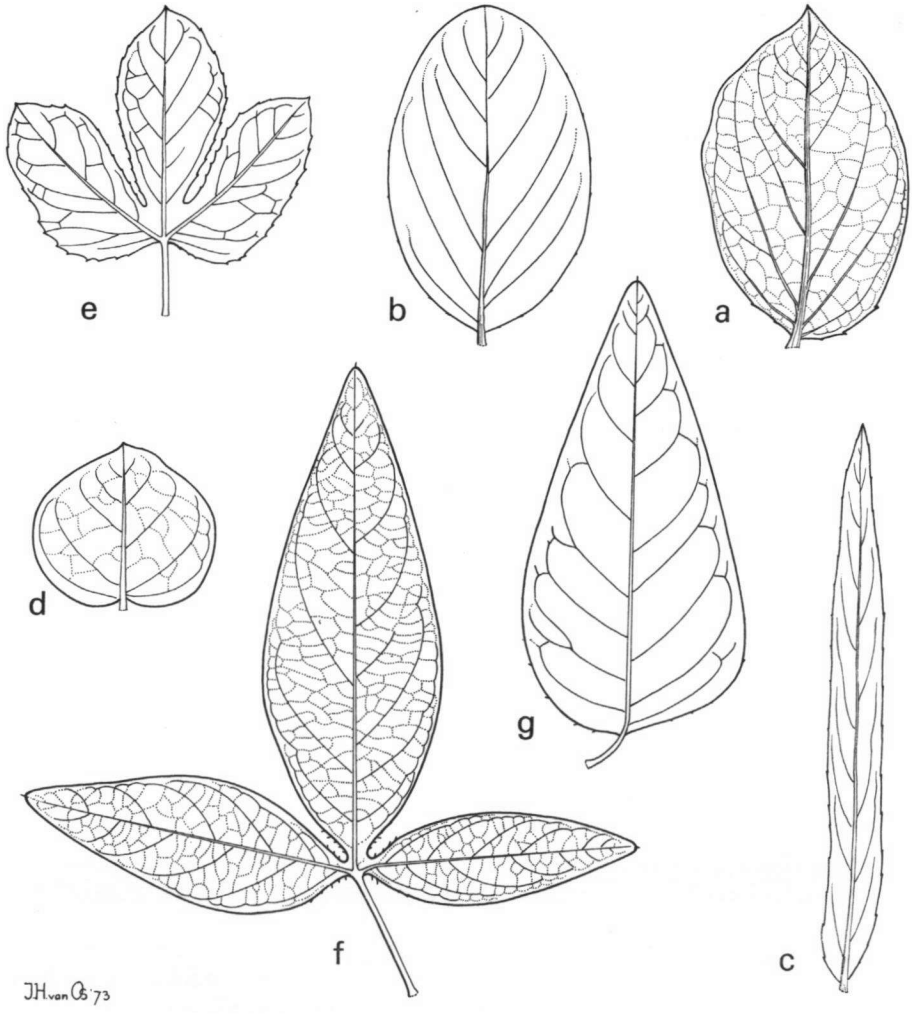


Fig. 2. Leaves of species 6—9; all natural size. — a—c: *B. sandersonii* (a. *Acocks 11795*; b. *Fries, Norlindh & Weimarck 3112*, type *T. friesii*; c. *Busse 763*, type *T. longifolium*); d: *B. parvifolia* (*Chase 7127*); e: *B. phaulantha* (*Robson 1570*); f—g: *B. zanzibarica* (f. *Verdcourd 3924*; g. *Vaughan 2724*).

20. Leaves elliptic to elliptic-oblong, pubescent on both surfaces. Sepals (6—)8—11 mm . . . . . **14. B. pubiflora**
20. Leaves lanceolate, hispid-pubescent above and on the midrib beneath. Sepals 5—7 mm . . . . . **15. B. hispidula**
19. Shoots prostrate. Leaves suborbicular, shallowly lobed in the upper half **16. B. hederae**
18. Shoots mostly short, ± decumbent. Upper surface of leaves glabrous. Disk absent or rather inconspicuous.
21. Lower surface of leaves, petiole, stem, and flowers pubescent.
22. Leaves 6—16 by 5—13 cm. Flower stipe 15—20 mm. *Central African Rep.*. . . . . **17. B. kottoensis**
22. Leaves 3—7 by 1½—4 cm. Flower stipe 5—10(—14) mm. *Zambia, Angola* **18. B. reticulata**
21. Lower surface of leaves papillate; petiole, stem, and flowers glabrous or the latter inconspicuously papillate.
23. Hypanthium narrow, cup-shaped (i.e. the outer corona inserted well above the insertion of the ovary). Leaves oblong to (ob)ovate or suborbicular; petiole ¼—1 cm . . . . . **19. B. baumii**
23. Hypanthium wider, ± flat, the outer corona inserted at about the same level as the ovary. Leaves oblong-oblanceolate, sessile . **20. B. papillosa**
12. Styles largely (over half-way) connate. Sepals 8—15 mm, very acute. Bracteoles 3—8 mm.
24. Leaves simple, petiole up to 1(—1½) cm . . . . . **21. B. littoralis**
24. Leaves lobed, petiole 1—5 cm . . . . . **22. B. heterophyllum**
11. Leaves scabrous, subsessile, simple . . . . . **23. B. scabrifolia**
10. Plant thorny.
25. Thorns 2—5 cm. Flowers borne on the thorns. . . . . **24. B. spinosa**
25. Thorns up to 2 cm. Flowers borne on the supra-axillary short shoots, not on thorns **25. B. berberoides**

1. Basananthe pedata (Baker *f.*) de Wilde, *comb. nov.* — **Fig. 1a; 5.**

Tryphostemma pedatum Baker *f.*, J. Bot. 37 (1899) 436; Hutch. & Pearce, Kew Bull. (1921) 263.
T. schlechteri Schinz, Vierteljahrsschr. Nat. Ges. Zürich 55 (1911) 243; Hutch. & Pearce, Kew Bull. (1921) 260; Schreiber in Merxmüller, Prod. Fl SW. Afrika, Fam. 89 (1968) 2.
T. arenophilum Pott, Ann. Transv. Mus. 5 (1915) 234.
T. harmsianum Dinter, Feddes Rep. 24 (1928) 304.

Erect annual or biennial herb up to 50 cm, glabrous or slightly scabrous, often with some spreading-erect branches from the base. Tendrils absent. *Leaves* deeply pedately 3—7(—9)-lobed, the lobes elliptic to linear, (½—)1—8 cm, obtuse to acute-acuminate, margin remote- to densely dentate-mucronate (serrate) up to 1½ mm; leaf base subcordate to long cuneate, decurrent in the alate petiole ¼—1½ cm. Stipules 2—6 mm. False stipules foliaceous, asymmetrical, ½—2 cm, acute-acuminate, mucronate. Inflorescences 1- or 2-flowered; peduncle up to 2 cm, bracts 2—4 mm. *Flowers* glabrous; stipe 1½—3½ mm. Hypanthium 1—2 mm wide. Sepals 2½—4½ mm, with (2—)3 keeled or winged green nerves. Petals 2—4½ mm. Outer corona tube (½—)¾—1¼ mm, threads (½—)¾—1 mm. Disk $\frac{1}{10}$—½ mm. Inner corona cup-shaped, ⅓—¾ mm. Stamens 5; filaments 1—1½ mm, anthers ½—1 mm. Ovary ½—1½ mm; styles free, ⅜—2¼ mm. *Fruit* subsessile, (¾—)1 cm, containing 1 seed *c.* 7 mm.

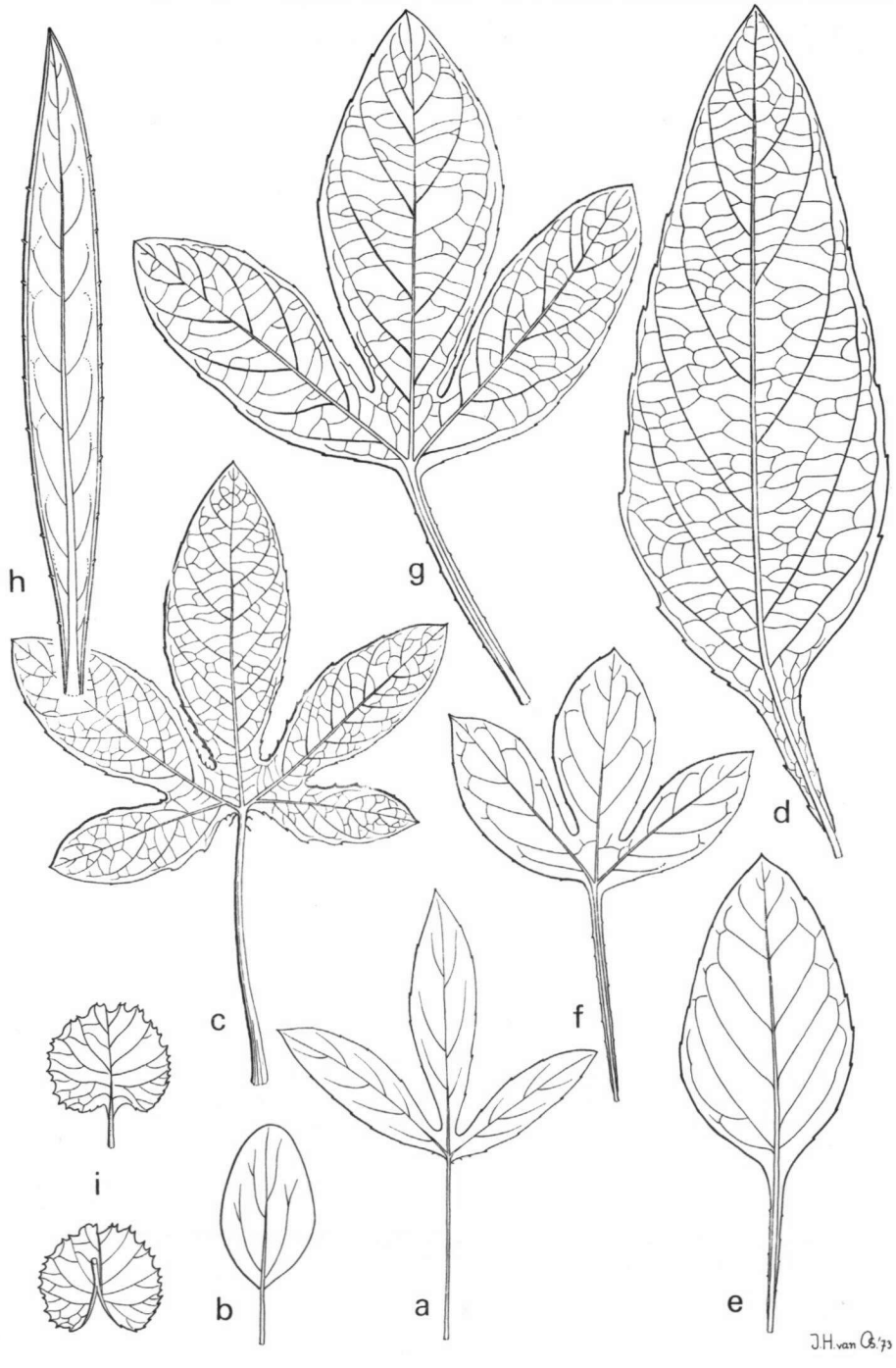


Fig. 3. Leaves of species 10—12, all natural size. — a—c: *B. hanningtoniana* (a. *Drummond 5394*; b. *ditto*, cotyledonous leaf; c. *de Wilde 8888*); d—h: *B. lanceolata* (d. *Drummond & Hemsley 2991*; e—f. *Greenway & Kanuri 12810*; g. *Schlieben 5996*, type *T. alatopetiolatum*; h. *Verdcourt 3749*); i: *B. nummularia* (*Welwitsch 871*, type).

ZAMBIA. Sesheke Dist., *Angus 1078* (K), *Gairdner 205* (K).

S. RHODESIA. Shashi River, *Rand 67* (BM, type *T. pedatum*); Beitbridge, *Drummond 6012* (K, PRE, SRGH), *Hornby 2968* (K, SRGH); Ndanga Dist., *Goodier 826* (K); Umtali Dist., *Chase 4770* (BM, K, PRE, SRGH), *5358* (BM, BR, SRGH), *8503* (K, PRE, SRGH, WAG), *Phipps 714* (BR, K, PRE, SRGH), *Wild 4657* (BR, K, PRE); Melsetter Dist., Birchenough Bridge, *Obermeyer 2387* (BM, PRE); Chipinga Dist., *Phipps 127* (K, PRE, SRGH), *Pole Evans 4779* (K, PRE).

SW. AFRICA. Otjituo, *Dinter s.n.* (HBG), *872* (B†, type *T. harmsianum*; M, *n.v.*); Ovamboland (Amboland), *de Winter & Giess 7027* (K, PRE); Okavango Native Terr., *de Winter 3902* (PRE), *de Winter & Marais 4600* (K, PRE), *4727* (PRE); Karakuwisa, *Dinter 7269* (BM, HBG, K, PRE).

BOTSWANA. Northern Div., *Wild & Drummond 6893* (K), *7001* (K, PRE); Mahalapye, *Van Rensburg B 4071* (PRE).

REP. OF SOUTH AFRICA. Transvaal: Sandrivier, *Schlechter 4596* (B, type *T. schlechteri*; HBG); Warmbaths, *Bremekamp & Schweikerdt 1* (PRE), *Leendertz 2062* (K; PRE, type *T. arenophilum*); Pretoria Dist., *Meeuse 9573* (K, PRE); Pietersburg Dist., *Acocks 8848* (K, PRE), *Bremekamp & Schweikerdt 151* (PRE).

Ecology. Flowers and fruit (Oct.—)Jan.—March(—June). Mostly sandy soils (riverbeds, dunes), rocky soil, once on granite; 400—1200 m.

Notes. 1. All the specimens cited from the Umtali-, Melsetter- and Chipinga Districts, S. Rhodesia, represent some distinct form, distinguished by a number of characters, i.e. mostly a smaller size (up to 25 cm), smaller 3—5(—7)-lobed leaves, with generally broader and more rounded lobes and more finely serrate margin, and with the leaf-base less distinctly long-cuneate. The flowers are smaller (sepals 2½—3½ mm) and usually reach beyond the leaves.

2. The long-persistent cotyledons measure 1½—2½ by ¾—1½ cm, and are 3—6 mm stiped.

3. Dry specimens are mostly grey-glaucous or yellowish-green.

2. **Basananthe triloba** (Bolus) de Wilde, *comb. nov.* — **Fig. 1b; 5.**

Tryphostemma trilobum Bolus, Hook. Ic. Pl. 19 (1889) t. 1838 (*'triloba'*, *'triflora'* in Ind. Kew.); Schinz, Bot. Jahrb. 15, Beibl. 33 (1892) 3; Hutch. & Pearce, Kew Bull. (1921) 261; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 488; A. & R. Fernandes, Garcia de Orta 6 (1958) 252.

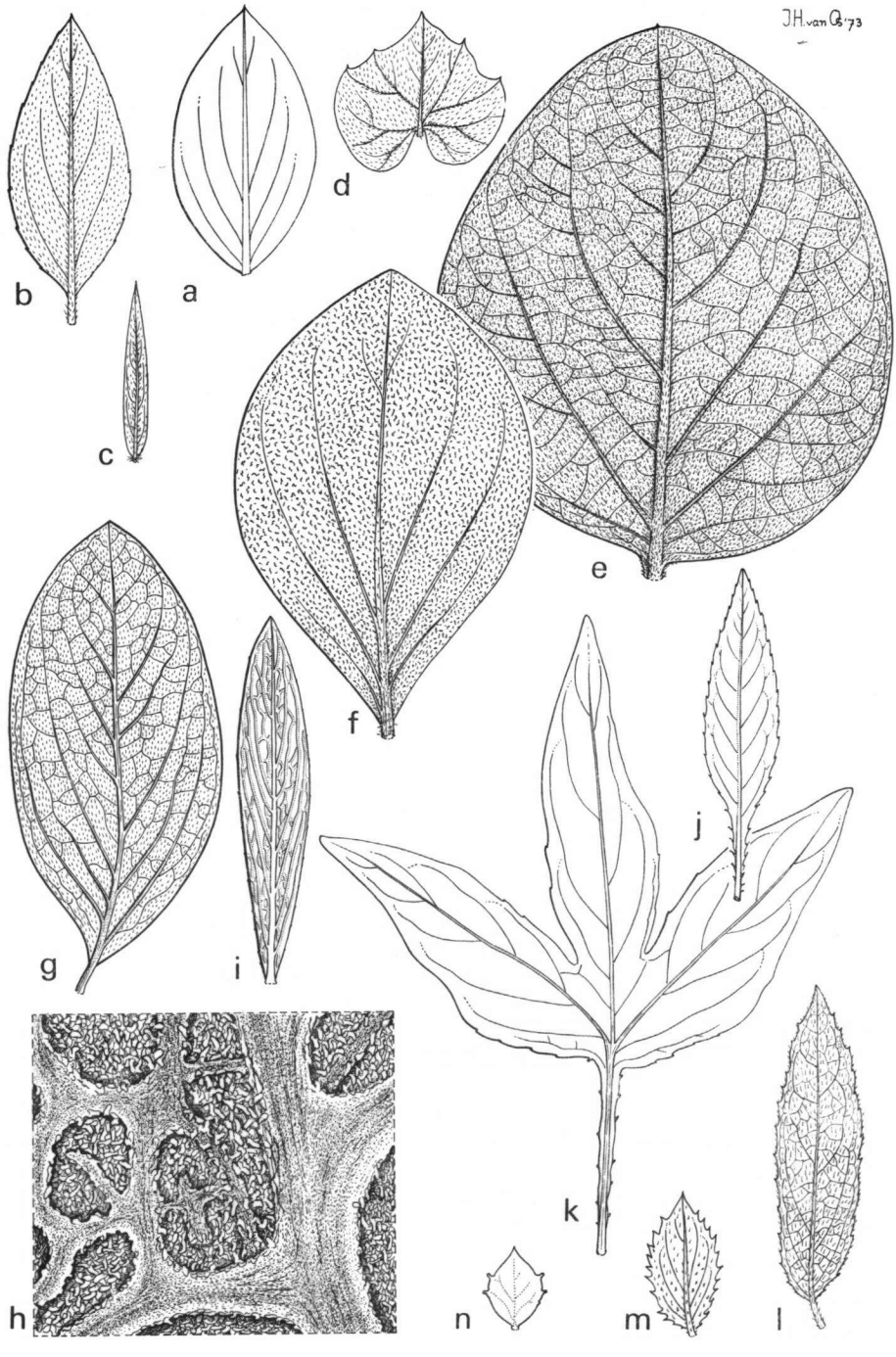
T. schinzianum Harms, in E.-P., Nat. Pfl. Fam. 3, 6a (1893) 72, 75, fig. 25a, 26c; ed. 2, 21 (1925) 488, fig. 217c; in Engl., Pflanzenw. O. Afr., C (1895) 281; Baker, J. Linn. Soc. Bot. 40 (1911) 73; Hutch. & Pearce, Kew Bull. (1921) 263; A. & R. Fernandes, Garcia de Orta 6 (1958) 253.

T. sagittatum Hutch. & Pearce, Kew Bull. (1921) 262; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 488.

Perennial herb, several shoots creeping or climbing to 70(—250) cm, branched or not from a woody rootstock, glabrous. Tendrils up to 10 cm. *Leaves* ± sagittate, 3-lobed, 1½—8 by 1—7½ cm, the lobes suborbicular to oblong, up to 5½ by 3 cm, top obtuse to acute, the middle lobe sometimes largest; margin simply or double (densely) serrate-dentate 1—2 mm; petiole $\frac{1}{10}$— 4cm. Stipules 3—8 mm. False stipules ± asymmetrical, 2-lobed, serrate-mucronate, ½—3½ by ½—1 cm. Inflorescences (1 - or) 2-flowered; peduncle 1—6 cm, bracts 2—3 mm. *Flowers* glabrous; stipe 4—7 mm. Hypanthium 2½—3 mm wide. Sepals 5—7½ mm. Petals 4—6½ mm. Outer corona tube 1¾—2½ mm, threads ½—1¼ mm. Disk *c.* ½ mm. Inner corona cup-shaped, 1¼—2 mm. Stamens 5; filaments 2—2½ mm (sometimes alternating with small tooth-like appendages(; anthers 1¼—1¾ mm. Ovary up to 1 mm stiped, 1—1½ mm; styles (1—)2½—4 mm, free or up to 1 mm connate. *Fruit* (excl. the 2—4 mm long gynophore) *c.* 1¼—1½ cm, containing 2 or 3 seeds *c.* 7 mm.

S. RHODESIA. Melsetter, *Drummond 5018* (K), *Ngoni 16* (K, SRGH), *Wild 6605* (K, SRGH).

MOZAMBIQUE. Mafusi, *Johnson 145* (K); Chimaniani Mt., *Muller 1255* (K, SRGH); Prov. Moçambique, Nampula, *Torre 1371* (COI, *n.v.*; LISC); Prov. Zambézia, Quelimane, *Faulkner 308* (BR, COI, EA, K, PRE), *Stuhlmann 835* (B†, type *T. schinzianum*; BM, drawing; HBG); Mocuba, *Torre 3459* (BR); Prov. Manica e Sofala, Beira (Dondo), *Cedro 381* (PRE), *Cecil 250* (K); *Gomes Pedro 4225* (K, PRE), *Peter 31128, 31151, 54634* (B); Prov. Sul do Save, *Balsinhas 1384* (PRE), *Cedro 337* (PRE), *Barbosa 469* (EA, COI, PRE),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Pedro & Pedrogar 1883 (PRE), *Schlechter 12052* (BM, BR, HBG, K, L); Prov. Gaza, Swynnerton 2089 (BM, BR, K); Prov. Lourenço Marques, *Mendonça 2999* (BR, LISC), *Le Testu 892* (BM); Delagoa, Puzin's Kraal, *Bolus 7606* (n. *1157* in *Herb. norm. austr. Afr.*) (BM; K, type *T. trilobum*).

REP. OF SOUTH AFRICA. Transvaal: Lydenburg Dist., *Gillett 1044* (K, PRE), *Killick & Strey 2515* (BM, PRE); Nelspruit Dist., *Acocks 788* (PRE), *Breyer 17957* (PRE), *Buitendag 214* (PRE), *Codd 5668* (K, PRE), *Dahlstrand 2124* (PRE), *Liebenberg 2568* (PRE), *Rogers 18404* (K, PRE), *Smith 3537* (PRE); Barberton Dist., *Van Elden 17* (PRE), *Galpin 505* (PRE, syntype *T. sagittatum*), *Holt 18* (PRE), *284* (PRE), *Pott (5454) 16753* (PRE), *Rogers 20956* (BM, K), *23294* (K), *Thorncroft 47* (K, photograph), *Williams 5958* (PRE); Waterval Boven, *Rogers 14876* (PRE); Kruger Nat. Park, *Kirk 74* (K, syntype *T. sagittatum*), *v. d. Schijff 1378, 2394* (PRE). — Natal: (Zululand): *Gerstner 5022, 5243* (PRE), *Strey 2732AA* (PRE).

SWAZILAND. *Compton 28394* (K, PRE), *31222* (PRE).

Ecology. Flowers and fruit mainly Sept.—Febr.; grassland, scrub, open forest. Sandy and stony soil, black soil; 0—1200 m.

Notes. 1. Specimens belonging with the name *T. sagittatum* Hutchinson and Pearce, 1921 (with petioles of *c.* ½ cm long) perfectly connect the specimens with subsessile leaves (as the type of *T. trilobum*) and long-petioled specimens (and with rather larger middle-lobe of the blade) like the type of *T. schinzianum*.

2. On field labels plant often mentioned as glaucous.

3. Basananthe pseudostipulata de Wilde, *spec. nov.* — Fig. 1c; 5.

Herba perennis glabra, caulibus usque ad 70 cm longis. Cirrhi nulli vel 1—3 cm longi. *Folia* elliptica usque lanceolata, 1.5—6.5 cm longa, 0.2—3 cm lata, subintegra; petiolus 1—2 mm longus. Pseudostipulae asymmetricae, oblongae usque lanceolatae, 0.3—2 cm longae. Inflorescentiae 1-vel 2-florae; pedunculus 0.4—2 cm longus. *Florum* stipes 3—6 mm longus. Hypanthium 1.5—2 mm latum. Sepala 4—6 mm longa. Petala nulla vel 3—4.5 mm longa. Coronae exterioris tubus 1—1.5 mm longus; fila 1—1.3 mm longa. Discus c. 0.2 mm altus. Corona interior cupulata vel infundibuliformis, 0.7—1 mm longa. Stamina 5; filamenta 2—3 mm longa; antherae 0.5—0.8 mm longae. Ovarium 0.6—0.8 mm longum; styli liberi 2.5—3.5 mm longi. *Fructus* ignotus.

Perennial with woody rootstock, glabrous, shoots erect or decumbent, to 70 cm. Tendrils 0 or 1—3 cm. *Leaves* simple, elliptic to lanceolate, 1½—6½ by ½—3 cm, base subacute, top acute, mucronate; margin subentire with a few minute teeth in the lower half; petiole 1—2 mm. Stipules 1½—2 mm. False stipules oblong to lanceolate, acute, strongly asymmetrical, $\frac{3}{10}$—2 cm. Inflorescences 1-or 2-flowered; peduncle ⅖—2 cm, bracts 1—1½ mm. *Flowers* glabrous; stipe 3—6 mm. Hypanthium 1½—2 mm wide. Sepals 4—6 mm, (sub)obtuse. Petals absent, or 3—4½ mm. Outer corona tube 1—1½ mm, threads 1—1¼ mm. Disk $\frac{1}{10}$—⅕ mm. Inner corona cup- to funnel shaped, ¾—1 mm. Stamens 5; filaments 2—2½(—3) mm; anthers ½—¾ mm. Ovary ⅜—¾ mm; styles free, 2½—3½ mm. *Fruit* (submature) excl. the 4—5 mm long gynophore 1¼(—1½) cm; seeds not known.

ZAÏRE. Katanga, XI. Terr. Mitwaba, Munoi, *de Witte 3893* (BR, type) *4039* (BR).

S. RHODESIA. Melsetter, Chimanimani Mts., *Mavi 650A* (K, SRGH).

Ecology. Savanna and forest, 800—1000 m. Flowers and fruits in June (Katanga) and Nov. (Rhodesia).

Fig. 4. Leaves of species 13—25; all natural size. — a: *B. gossweileri* (*Gossweiler 4068*, type); b. *B. pubiflora* (*Richards 11646*, type); c: *B. hispidula* (*Schmitz 7863*, type); d: *B. hederae* (*Richards 11613*, type); e: *B. kottoensis* (*Le Testu 2889*, type); f: *B. reticulata* (*Bullock 1037*); g—h: *B. baumii* var. *baumii* (*g. Lawton* 1464; h. *ditto*, detail of lower leaf surface, ×12½); i: *B. papillosa* (*Gossweiler 4206*); j: *B. littoralis* (*Welwitsch 872*); k: *B. heterophylla* (*Schoenfelder 419*); l: *B. scabrifolia* (*Polhill & Paulo 2368*); m: *B. spinosa* (*Bally & Smith 14723*); n: *B. berberoides* (*Glover & Gilliland 119*).

N o t e. This species is remarkable by the fact that it does not fit in the originally intended main division of *Basananthe*, in petalous and non-petalous species. The specimens from Katanga are rather broad-leaved without tendrils, the flowers provided with petals. The specimen from Melsetter, Rhodesia, is more narrow-leaved, with short tendrils, and has the flowers without petals. See also the discussion on the presence or absence of petals in the introduction of this account.

4. Basananthe polygaloides (Hutch. & Pearce) de Wilde, *comb. nov.* — **Fig. 1d; 5.**

Tryphostemma polygaloides Hutch. & Pearce, Kew Bull. (1921) 263; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 488.

Perennial herb, up to 100 cm, with woody rootstock, glabrous. Tendrils 2—8(—10) cm, or none. *Leaves* simple (rarely faintly 3-lobed), ovate to elliptic, 2—7½ by 1—5 cm, base subcordate to acute, top subacute to acute-acuminate, margin single- or double serrate-dentate 1—3 mm deep; petiole $\frac{1}{10}$—½ cm. Stipules 2½—8 mm. False stipules asymmetrical, sharply dentate, 0.4—1½ cm. Inflorescences (1- or) 2-flowered; peduncle 1—5½ cm, bracts 2—6 mm. *Flowers* glabrous; stipe 5—15 mm. Hypanthium 3—4½ mm wide. Sepals 7—10 mm. Petals 6½—9 mm. Outer corona tube 2—2½ mm, with a plicate, inward-folded edge; threads 1—2 mm. Disk *c.* ¼ mm. Inner corona cup- or funnel-shaped, 1½—2 mm. Stamens 5; filaments 2½—4½ mm (sometimes alternating with small tooth-like appendages); anthers *c.* 2 mm. Ovary 1½—2 mm; styles 3½—4½ mm, connate for ½—2½ mm. *Fruit* (excl. the 2—4 mm long gynophore) 1½—2¼ cm, containing 2—4 seeds 8—9 mm.

Rep. of South Africa. N a t a l: Zululand, *Acocks 13082* (PRE), *Codd 2013* (PRE), *10166* (K, PRE), *Harrison 296* (K, PRE), *Medley Wood 10339* (K, type), *Strey 5055* (PRE), *Van der Sijde 16* (L), *Vahrmeyer 1083* (PRE), *Venter 4867* (PRE), *Ward 1491* (K).

E c o l o g y. Flowers and fruits Jan.—March and Sept.—Nov.; grassland, bushes, coastal jungle; always reported from sandy soil; 0—200 m.

N o t e. Sometimes plant reported as glaucous.

5. Basananthe apetala (Baker *f.*) de Wilde, *comb. nov.* — **Fig. 1e; 5.**

Tryphostemma apetalum Baker *f.*, Trans. Linn. Soc. Lond. ser. 2, 4 (1894) 14; Hutch. & Pearce, Kew Bull. (1921) 263; Norlindh, Bot. Not (1934) 107; A. & R. Fernandes, Garcia de Orta 6 (1958) 251.

T. apetalum var. *serratum* Baker *f.*, J. Bot. 37 (1899) 437; Engl., Pflanzenw. Afr. 3, 2 (1921) 599, fig. 265; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 487, fig. 222; A. & R. Fernandes, Garcia de Orta 6 (1958) 251.

Erect perennial herb up to 70 cm, growing from a woody rootstock, glabrous. Tendrils up to 6 cm, sometimes absent. *Leaves* simple, elliptic to lanceolate, 1½—8 by ½—2(—4½) cm, base acute, apex obtuse to acute, margin serrate, the teeth to 1 mm sharp-mucronate; petiole $\frac{1}{10}$—$\frac{2}{5}$(—$\frac{3}{5}$) cm. Stipules 2—3 mm. False stipules asymmetrical (½—)1—4) cm, acute to both sides, margin serrate. Inflorescences 1- or 2-flowered; peduncle 1—5 cm, bracts 1½—3 mm. *Flowers* glabrous; stipe 2—5 mm. Hypanthium *c.* 2½ mm wide. Sepals 5, the inner ± petaloid, 4—5½ mm, obtuse. Petals 0. Outer corona tube c. 2 mm; threads 1—1¾ mm. Disk ⅕—½ mm. Inner corona cup-shaped, ¾—1 mm. Stamens 5; filaments 1½—2½ mm; anthers ¾—1 mm. Ovary ¾—1¼ mm; styles 3 (or 4), ¾—1¼ mm, free. *Fruit* (excl. the 3—6 mm long gynophore) 1½—2 cm, containing 1—3 seeds *c.* 7 mm.

TANZANIA. T8, Songea Dist., W. of Songea, *Milne-Redhead & Taylor 8759* (K).

MALAWI. Central, Dedza, *Jackson 2271* (K, PRE, SRGH), *Salubeni 838* (K); Southern, *Buchanan 1063* (K, syntype), *Scott-Elliot 8661* (K, syntype), *Whyte s.n.* (specimens from Zomba and Shire Highlands; BM; K, syntypes).

S. RHODESIA. *Hislop 152* (K); Honde Valley, *Gilliland 1123* (BM, K); Nyamquarara Valley, *Gilliland 1312, 1386* (BM, K); Mashumlas, *Myres 149* (K); Manzoe Dist., *Eyles 412, 461* (BM; syntypes); Salisbury Dist., *Biegel 2522, 2646* (K), *Brain 6087* (K, PRE), *Drummond 4882* (BR, K, PRE, SRGH), *Gilliland 51, 660* (BM), *Grosse 31, 31a* (HBG), *Hanagan 3150* (PRE), *Marshall s.n.* (BM, type var. *serratum*), *Miller 5638* (BR, SRGH), *Peter 54631, 54632* (B), *Rand 334* (BM), *1347* (BM, syntype), *Rogers 4022* (BM, K; syntype), *Rutherford-Smith 30* (K), *Walters 2441* (K); Makoni Dist. (Rusape), *Chase 8400* (K, SRGH), *Fries, Norlindh & Weimarck 2303* (BM, BR, PRE), *Hopkins s.n.* (*Gvt. Hb. B 702*) (K, SRGH); Inyanga Dist., *Fries, Norlindh & Weimarck 2380* (BM, BR); Umtali Div., *Biegel 1698* (K, SRGH), *Chase 821, 5509* (BM), *22115* (K), *Robinson 1839* (K, SRGH), *Teague 477* (K, syntype); Victoria Dist., *Munro 1548* (BM, syntype).

MOZAMBIQUE. Manica e Sofala, *Barbosa 768, 1343, 1523* (LISC, *n.v.*), *Gomes Pedro 4956* (LMJ, *n.v.*), *Mendonça 2571* (BR, LISC), *Torre 3741* (LISC, *n.v.*).

Ecology. Open forest, savanna, and scrub; grassy, often recently burnt places. Sand or sand-loam soil, red loam; 1000—1700 m. Flowers and fruits mostly Sept.—Jan.

Notes. 1. Leaves in the herbarium rather chartaceous, of a grey-glaucous colour.

2. *Milne-Redhead & Taylor 8759* is a somewhat deviating specimen by its decumbent habit, rather broad leaves, and small but distinct 'false' stipules. It shows some resemblance in habit with the form of *B. sandersonii* found in the same area, as well as with certain forms of the petalous species *B. polygaloides* from Natal.

6. Basananthe sandersonii (Harvey) de Wilde, *comb. nov.* — Fig. 2a—c; 5.

Tryphostemma sandersonii Harvey, Thes. Cap. 1 (1859) 33, t. 51; Harv. & Sond., Fl. Cap. 2 (1861) 499; Hutch. & Pearce, Kew Bull. (1921) 265. — *T. natalense* Mast., Trans. Linn. Soc. Lond. 27 (1871) 639, *nom. illeg.* (a new name for *T. sandersonii*).

T. longifolium Harms, Bot. Jahrb. 33 (1902) 149; Hutch. & Pearce, Kew Bull. (1921) 264; A. & R. Fernandes, Garcia de Orta 6, 2 (1958) 252.

T. viride Hutch. & Pearce, Kew Bull. (1921) 265.

T. friesii Norlindh, Bot. Not. (1934) 107, fig. 9, 10; A. & R. Fernandes, Garcia de Orta 6, 2 (1958) 251 252.

Perennial herb 2—60 cm, glabrous, 1—several shoots erect or ± prostrate at base from a rootstock. Tendrils sometimes present, ½—2(—5) cm. *Leaves* simple, 2—16 by ¾—4 (—5½) cm, suborbicular, or broadly ovate (or obovate) or elliptic, to lanceolate; base subcordate or rounded to acute (-attenuate), top broadly obtuse(-retuse) to (mostly) acute, margin remote serrate-dentate ½—1 mm, especially towards base; petiole 0—¼(—½) cm. Stipules 1½—5 mm. False stipules absent. Inflorescences 1—3-flowered; peduncle up to 4½ cm, bracts 1—4 mm. *Flowers* glabrous; stipe 3—17 mm. Hypanthium 2—4 mm wide. Sepals 5—7 (the inner ones petaloid) obtuse, 4½—8½ mm. Petals 0(—2). Outer corona tube 1—2(—3) mm, threads ¾—1½(—2) mm, sometimes ± branched. Disk $\frac{1}{10}$—½ mm. Inner corona cup-shaped 1—1½ (—2½) mm. Stamens 5; filaments 1½—3½ mm, anthers ¾—1¼ mm. Ovary up to *c.* 1 mm stiped, 1—1½ mm; styles 3 or 4, free, 3—4 mm. *Fruit* (excl. the 1—3 mm long gynophore) 1¼—2 cm, containing 1—4 seeds 6—8 mm.

TANZANIA. T6/8, Mbarangandu R., *Busse 673* (B†, type *T. longifolium*; EA); T8, Songea Dist., Songea, *Milne-Redhead & Taylor 8249, 8265* (K).

MOZAMBIQUE. Niassa Prov., Marrupa, *Pedro & Pedrogão 4299* (EA, COI); Manica e Sofala, Vila Gouveia, *Mendonça 305* (LISC, *n.v.*), *Torre 5876* (LISC, *n.v.*).

S. RHODESIA. Inyanga, *Davies 2141* (K, SRGH), *Fries, Norlindh & Weimarck 3112* (BM, BR, PRE; type *T. friesii*), *Rattray 918* (PRE, SRGH), *Wild 1571* (K, SRGH), *5515* (K, PRE, SRGH); Umtali Dist.,

Stapleford For. Res., *Chase 4660* (BM, PRE, SRGH), *7172* (BM, K), *Pardy s.n.* (*SRGH 8948*) (PRE, SRGH); Nusa Mt., *Gilliland 860* (MB, K).

SWAZILAND. *Compton 28059* (PRE), *Miller 3073* (PRE).

REP. OF SOUTH AFRICA. Transvaal: Krantzkloof, *Kuntze 94* (K), *Schlechter 1274* (PRE), *3193* (BM, HBG, K, PRE); N. Transvaal, *Moss & Rogers 292* (K), *Pole Evans 4002* (PRE), *Pott 13349* (PRE), *Scheepers 760* (K, PRE), *1650* (PRE), *Schweickerdt 1665* (*8860*) (PRE); E. Transvaal (Barberton Dist., etc.), *Acocks 16614* (PRE), *Bolus 7602* (K, syntype *T. viride*), *Codd 6428* (PRE), *Galpin 931* (K, PRE; syntype *T. viride*), *Liebenberg 2670* (PRE), *Morris 45, 49* (K); *Rogers 23063* (PRE), *Thode A1602* (PRE), *Thorncroft 1033* (*Tvl. Mus. 19256*) (PRE), 4366 (K, syntype *T. viride*), *Wager Tvl. Mus. 15559* (PRE), *Young 93* (PRE). — Natal: Caversham, *Mogg 2450* (PRE); Inanda, *Comm. Medley Wood 180* (HBG), *269* (BM, K); N. Natal (& Zululand), *Acocks 11759, 11795* (PRE), *Codd 1805* (PRE), *Gerstner 4532, 5095* (PRE), *Thode A378* (PRE); S. Natal, *Dyer 4134* (PRE), *Gerrard 180* (K), *Huntley 277* (K, PRE), *Medley Wood 12389* (*Tvl. Mus. 16502*) (PRE), *Moll 2201* (PRE), *2521* (K, PRE), *Sanderson 1864* (K, 3 sheets; Dublin Herb.T. C., type *T. sandersonii*). — Cape Prov.: NE., *Acocks 13380* (PRE), *Codd 9727* (PRE), *Siue* (?) *2503* (*in Hb. Galpin*) (PRE), *Tyson 2106* (PRE).

Ecology. Grassland (often burnt), open scrub, forest edges; sandy and rocky soil. In Rhodesia: 1500—2000 m, flowers and fruit mainly Sept.—Nov.; in S. Africa: 100—1700 m, flowers and fruit throughout the year but mostly in Sept.—Oct.

Notes. 1. *T. friesii* represents merely a condensed form, with broad and rounded leaves. It has an area of its own in S. Rhodesia, but more elongate (erect) forms from the same area, formerly also referred to as *T. friesii*, link up with specimens from the main area of the species in S. Africa. Its synonymy with *T. sandersonii* was already supposed by A. & R. Fernandes in a note (*o.c.* p. 252).

T. longifolium (from S. Tanzania, and a similar specimen from Mozambique) link up with narrow-leaved forms described as *T. viride* from S. Africa. In the flowers of *T. longifolium* the outer corona tube and the cup-shaped inner corona are relatively long, *c.* 3 and 1½—2½ mm respectively. In these rather tall, narrow-leaved forms tendrils are sometimes present.

2. A very variable species, in habit and leaf-shape as well as in flower size.

3. Dry specimens are often grey-glaucous.

7. **Basananthe parvifolia** (Baker *f.*) de Wilde, *comb. nov.* — **Fig. 2d; 5.**

Tryphostemma parvifolium Baker *f.*, J. Linn. Soc. Bot. 40 (1911) 73; Hutch. & Pearce, Kew Bull. (1921) 265. *T. humile* Dandy, Kew Bull. (1927) 251.

Perennial herb, prostrate shoots to 50 cm, erect shoots to *c.* 15 cm, from woody rootstock, glabrous. Tendrils absent. *Leaves* simple, in prostrate shoots (sub)orbicular, 1—2½ cm ∅, in erect shoots ovate to oblong-lanceolate, ¾—2 cm long, top acute; margin entire or with a few minute teeth at base; petiole ½—2 mm. Stipules 1—2 mm. False stipules absent. Inflorescences 1- or 2-flowered; peduncle up to 1 cm, bracts *c.* 1½ mm. *Flowers* glabrous; stipe 6—10 mm. Hypanthium *c.* 1½ mm wide. Sepals 5 (or 6), (sub)obtuse, (3—)4—5 mm. Petals 0. Outer corona tube 1—1½ mm, threads 1(—1½) mm. Disk *c.* $\frac{1}{10}$ mm. Inner corona cup-shaped *c.* 1 mm. Stamens 5; filaments 2—2½ mm, anthers ½—¾ mm. Ovary *c.* 1 mm; styles 3 or 4, free, 1½—2½ mm. *Fruit* sessile, *c.* 1 cm; seeds not seen.

S. RHODESIA. Chipinga Dist., *Crook 31782* (*M. 237*) (K, SRGH), *Chase 7127* (BM, K, PRE); Melsetter Dist., *Chase 6248* (K), *Goldsmith 30/69* (K, PRE, SRGH), *Swynnerton 1415* (BM, type *T. parvifolium*), *Walters* (*Comm. Mundy*) *2727* (K, type *T. humile*).

Ecology. Open forest and grassland, 700—1900 m. Flowers and fruit throughout the year.

N o t e s. 1. The type of *T. humile* is an erect form with ovate-oblong leaves; *Crook 31782* has orbicular leaves on prostrate shoots together with oblong leaves on erect shoots. Prostrate forms have orbicular leaves.

2. The filaments are inserted on, or close to the rim of the inner corona, not distinctly inside at about half-way.

3. The leaves are often ± grey-glaucous beneath.

8. **Basananthe phaulantha** (Dandy) de Wilde, *comb. nov.* — **Fig. 2e; 5.**

Tryphostemma phaulanthum Dandy, Kew Bull. (1927) 251.

Erect annual herb up to 60 cm, sometimes short-branched at base, glabrous. Tendrils 1—3 cm. *Leaves* deeply 3-lobed, up to 6 by 5 cm; the lobes elliptic to oblong, 1—5 by ¾—2 cm, top obtuse to acute, margin 1—2 mm deep serrate-mucronate, more densely and deepest towards the base; leaf base (sub)cordate. Petiole (½—)1—4½ cm. Stipules *c.* 2 mm. False stipules absent. Inflorescences (1-or)2-flowered; peduncle up to ¾ cm, bracts *c.* 1 mm. *Flowers* glabrous; stipe 1—2½ mm. Hypanthium *c.* ¾ mm wide. Sepals 1½—2 mm, subacute to obtuse. Petals 0. Outer corona tube *c.* 1 mm; threads *c.* ¾ mm. Disk *c.* $\frac{1}{20}$ mm. Inner corona cup-shaped ¼—⅓ mm. Stamens 5; filaments ½—⅔ mm; anthers *c.* ½ mm. Ovary *c.* ¾ mm; styles *c.* ¼ mm, free. *Fruit* (excl. the *c.* 2 mm long gynophore) 6—7 mm, containing 1 seed 4—5 mm.

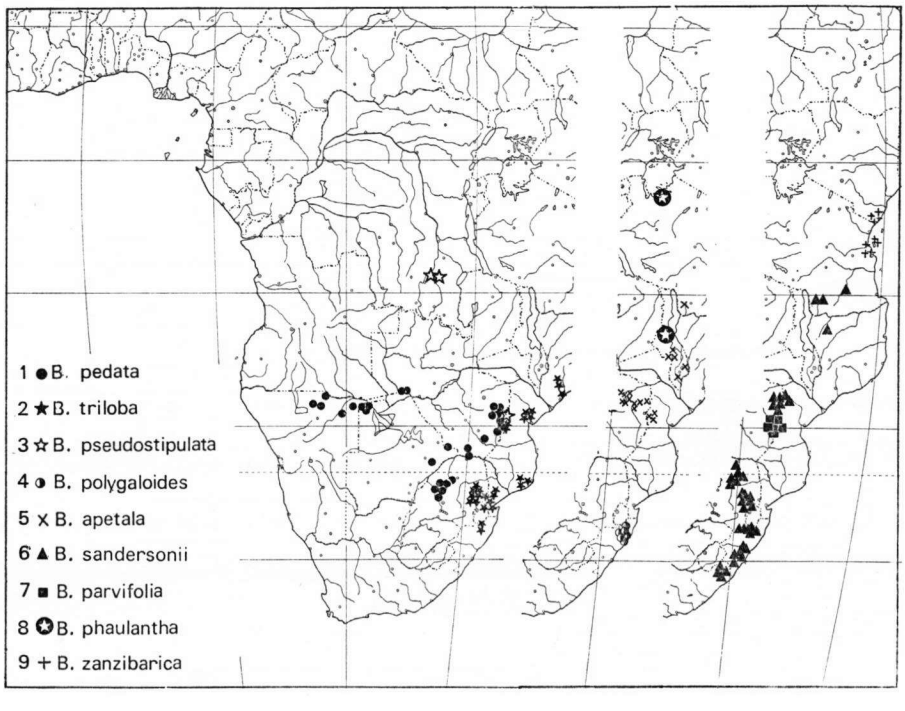

Fig. 5. Localities of *Basananthe* species 1—9.

TANZANIA. Ti, Mwanza, *Davis 208* (K, type).
ZAMBIA. Mupomadzi R., *Astle 4419* (K); Chipatu Dist., *Astle 5404* (K) (exact localities not found on the map).
MALAWI. Central Prov., Chitala to Kasache, *Robson 1570* (BM, BR, K, PRE).

Ecology. 600—800 m. Clayish soils, along watercourses. Flowers and fruits Dec.—April.

Notes. 1. Leaves rather thin, grey-glaucous beneath. Flowers and fruit greenish.

2. Cotyledonous leaves *c.* 1½ by 1—1¼ cm, *c.* 6 mm petioled.

3. At the edge of the outer corona tube there are, besides the corona threads, no inward curved processes.

9. **Basananthe zanzibarica** (Mast.) de Wilde, *comb. nov.* — **Fig. 2f-g; 5.**

Tryphostemma zanzibaricum Mast. in Oliv., Fl. Tr. Afr. 2 (1871) 508; Trans. Linn. Soc. 27 (1871) 639; Engl., Bot. Jahrb. 14 (1891) 388; Hutch. & Pearce, Kew Bull. (1921) 264.
T. pilosum Harms in Engl., Pflanzenw. O. Afr., C (1895) 280; Hutch. & Pearce, Kew Bull. (1921) 264.
T. stuhlmannii Harms in Engl., Pflanzenw. O. Afr., C (1895) 280.

Climbing annual or perennial to *c.* 2 m, glabrous or pubescent (on lower leaf surface and sepals). Tendrils 5—12 cm. *Leaves* simple, broadly ovate to oblong, up to 10 by 6(—7) cm, or leaves deeply (2- or) 3-lobed, base rounded to cordate; lobes ovate to oblong, 1½—7½ by ¾—3 cm; top subacute; margin towards base with remote slender teeth ½—1 mm; petiole ½—4 cm. Stipules 1½—4 mm. False stipules absent. Inflorescences (1- or) 2-flowered; peduncle 1—6 cm (rarely flowers sessile on short shoots), bracts 1—3 mm. *Flowers* glabrous or pubescent; stipe 3—7 mm. Hypanthium 1½—3½ mm wide. Sepals (4½—)6—7 mm, subacute. Petals 0. Outer corona tube barrel-shaped, 2—2½(—3) mm, threads *c.* 2 mm. Disk ¼—½ mm. Inner corona cup-shaped, 1—1½ mm. Stamens 5; filaments 3—3½ mm, anthers 1½(—2) mm. Ovary (½—)1—2 mm; styles 3 (or 4), (largely) free, (½—)2—3½ mm. *Fruit* (excl. the 2—3 mm long gynophore) *c.* 1½ cm, containing 1—5 seeds *c.* 5 mm.

KENYA. K7, Kwale Dist., *Drummond & Hemsley 3956* (BR, EA, K), *Magogo & Glover 438, 852* (EA), *Napper 1373* (EA, K, PRE), *Van Someren 47* (EA), *Verdcourt 3924* (BR, EA, K).
TANZANIA. T6, Eastern Prov., Pugu Hills, *Vaughan 2724* (BM, EA, K); Kisarawe Dist., *Semsei 1327* (BR, EA, K), *Stuhlmann 6127* (B†, type *T. pilosum*; BM, drawing of leaf), *6243* (B†, type *T. stuhlmannii*; BM, drawing of leaf); Zanzibar, *Faulkner 2436* (BR, K); *Kirk s.n.* (K, type *T. zanzibaricum*), *Vaughan 1208, 1628, 1467* (EA, K).

Ecology. Coastal scrub and forest, and hill forest, 0—500 m. Flowers and fruit throughout the year. Sandy soil.

Note. Resembles in habit certain forms of the *B. hanningtoniana*-complex, with which it possibly hybridizes; see below.

10. **Basananthe hanningtoniana** (Mast.) de Wilde, *comb. nov.* — **Fig. 3a-c; 6.**

Tryphostemma hanningtonianum Mast in Hook., Ic. Pl. (1885) t. 1484; Engl., Bot. Jahrb. 14 (1891) 390; Hutch. & Pearce, Kew Bull. (1921) 261.
T. niloticum Engl., Bot. Jahrb. 14 (1891) 389 *in obs.*, et 15 (1893) 577; Hutch. & Pearce, Kew Bull. (1921) 261.
T. volkensii Harms, Bot. Jahrb. 19, Beiblatt n. 47 (1894) 40; Hutch. & Pearce, Kew Bull. (1921) 261.
T. hanningtonianum var. *latiloba* Harms in Engl., Pflanzenw. O. Afr., C (1895) 280. — *T. latilobum* (Harms) Harms *ex* Engl., Pflanzenw. Afr. 3, 2 [Engl. & Drude, Veg. der Erde 9] (1921) 599, *in obs.*
T. snowdenii Hutch. & Pearce, Kew Bull. (1921) 261, fig. 1.
T. stolzii Engl. *et* Harms, in Engl. Pflanzenw. Afr. 3, 2 (1921) 599, *in obs.*, & in Notizbl. Bot. Gart. Berlin 8 (1923) 291.

T. foetidum Lebrun & Taton, Bull. Jard. Bot. Brux. 18 (1947) 283.
T. glaucum Bullock, *in sched.* (*Burtt 3579* in EA).

Erect or climbing $\frac{1}{10}$—3 m, branched, annual or perennial, glabrous, pubescent, scabrous or hispid. Tendrils 1—15 cm. *Leaves* 3—5-lobed, rarely simple, ovate to suborbicular in outline, 1—13 by 1—13 cm, glabrous or hairy, often only beneath, base truncate to cordate; lobes ovate or elliptic to lanceolate, or obovate, up to 8½ cm, top acute to (broadly) obtuse; margin dentate or with remote slender gland-teeth to *c.* 3 mm, often more densely towards the base; petiole ¼—8 cm, sometimes with a few gland-teeth at the top. Stipules 3—15 mm. False stipules absent. Inflorescences (1-or) 2-flowered; peduncle 1—10 cm; bracts ½—4 mm, sometimes caducous or absent. *Flower* stipe 2—10 mm. Hypanthium 1½—4 mm wide. Sepals 3—8 mm, (sub)obtuse to acute, glabrous or hairy. Petals 2—6 mm. Outer corona tube 1½—2¼ mm, threads 1½—2¼ mm. Disk ⅕—½ mm. Inner corona cup-shaped ¾—1½ mm. Stamens 5(—9); filaments 2—3 mm, anthers 1—1½(—2½) mm. Ovary ⅝—2 mm; styles 3 (or 4), free, 1—3 mm. *Fruit* (excl. the 2—6 mm long gynophore) 1—1⅝ cm, containing 1—5 seeds 6—7 mm.

SUDAN. Equatoria, *Baker 214 in Hb. Schweinfurth* (B†, type *T. niloticum*; BM, pencil drawing of leaf), *Silletoe 235* (K).

ETHIOPIA. Wollega Prov., *De Wilde 8888* (WAG); Illubabor Prov., *Mooney 7560* (EA, K), *8816* (K); Kaffa Prov., *Meyer 8985* (K, US, WAG), *9208* (K).

SOMALIA?. *Missione Cons. Torino 204* (FI).

ZAÏRE, For. Central, Penge, *Bequaert 2230* (BR); Lac Edouard & Kivu, Kasindi to Lubongo, *Lebrun 4715* (BR, K; type *T. foetidum*); Haut Katanga, Kasenga, *Robijns 1910* (BR).

UGANDA. U3, Mbale Dist., *Chandler 417* (K); U4, Mungo Dist., *Dümmer 3047* (BM, K); Masaka Dist., *Tallantire 615* (EA, K).

KENYA. Ichaweri (? Tchaweri), *Kirrika 235* (EA, K, PRE); K1, Laisamis, *Adamson 608* (EA, K); Kangetet, *Methew 6791* (K); Garissa Dist., Mado Gashi, *Gillett & Newbould 19182* (EA, K); K4, Kiambu Dist., *Napper c.s. 1716* (EA), *Snowden 598* (BM; K, type *T. snowdenii*); Meru Dist., *Gillett 17016* (EA, K, PRE); Kitui Dist., *Bally 1617* (EA), *Joana 7501* (EA, K), *Lind & Agnew 5649* (EA), *Makin EA. 14036* (EA); Machakos Dist., *Dümmer 4590, 5022* (K), *Gillett & Burtt 17047* (EA, K), *Gillett 17203* (BR, EA, K, PRE, WAG), *19405* (EA), *Hale 110* (K), *Ossent 237* (EA, K), *Scheffler (5)15* (BM, K, L, PRE), *Tweedie 2566* (K), *Verdcourt 3861* (BR, EA, K); K7, Lamu Dist., *Gillespie 237* (K), *Oxford Univ. Exp. H. 12* (K), *Rawlins 340* (EA, K); Teita Dist., *Gilbert 2708* (EA), *Hucks 531* (EA), *600* (EA, K), *Johnston s.n.* (K, syntype *T. hanningtonianum*), *Katende & Lye 4779* (K).

TANZANIA. *Batty 899* (K), *Burtt 2767* (K), *Davis 136* (K); T1, Serengeti, *Glover 13155* (EA); T2, Moshi Dist., *Bigger 606* (EA), *Sharp 3106* (EA); Moulu Dist., *Greenway & Kanuri 11271* (EA, K, PRE) *11883* (ER, EA, K, PRE); T3, Lushoto Dist. (Usambara Mts.), *Archbold 215, 929* (K), *1159* (EA, K), *Braun 1419* (B†, EA), *Drummond & Hemsley 1435* (EA, K), *2842, 3446* (BR, EA, K), *Faulkner 981* (BR, K), *Friis 201* (EA), *Geilinger 1263* (K), *Greenway 1041* (EA, K, PRE), *Harris 968* (EA, K), *Mabberley 707* (EA, K), *Mitchell s.n.* (EA), *Mücke 63* (PRE), *Peter 54616* (B), *Renvoize 1594* (EA, K), *Semsei 2940* (BR, EA, K, PRE), *Soleman 6038* (EA, K), *Tanner 2278* (K), *Verdcourt 1* (EA, K, PRE), *Volkens 117* (B†, type *T. hanningtonianum* var. *latiloba*; BM), *Williams 651* (BR, EA, K), *Zebedayo 26* (EA, K), *Zimmermann 38* (B†, EA), *6587, 6588* (EA); T3, Tanga Dist., *Engler 3332* (EA, PRE), *Volkens 1485* (B†, type *T. volkensii*; BM, pencil drawing of leaf; PRE), *2339* (K), *Zimmermann G. 6586* (EA); T4, Mpanda Dist., *Bullock 2281* (BR, K); T5, Dodoma Dist. *Burtt 3579* (EA; K), *Geilinger 2378* (K), *Githiaka 4143* (EA), *Polhill & Paulo 1281* (BR, EA, K, PRE); Mpwapwa, Dist., *Anderson 343* (EA), *Brzostowski s.n.* (EA), *Burtt 3863* (K), *Hornby 181* (BM, EA, K, PRE), *Rensburg X3* (EA), *Robertson 845* (EA), *Wigg 13736* (EA); T6, Morogoro Dist., *Drummond & Hemsley 1893, 2007* (BR, EA, K), *Hannington s.n.* (K, syntype *T. hanningtonianum*); Ulanga Dist.(Mahenge), *Schlieben 1577* (BM, HBG, K), *1674* (BM, BR, EA, HBG, K), *2078* (BM), *Haerdi 385/0* (EA, K); T7, Chunya Dist., *Richards 19772* (BR, K); Rungwe Dist., *Stolz 603* (B†, syntype *T. stolzii*; BM, K, L), *24835* (PRE); Njombe Dist., *Schlieben 1322* (BM, BR, K); Iringa Dist., *Greenway & Kanuri s.n.* (EA), *14043* (EA, PRE), *Paget-Wilkes 572* (EA), *Richards 20976, 21288* (BR, EA, K), *Thompson 382* (K).

ZAMBIA. *Flanagan 3159* (PRE); Barotse, Senanga Dist., *H.J.A.R.* (K); Southern, *Exell, Mendonça & Wild 1440* (BM), *Fanshawe 5952* (K), *6003* (BR, K), *Martin 613* (BR, K), *Mitchell 15/94* (BR, SRGH), *Robinson 1101* (K); Eastern, Ft. Jameson, *Robson 1035* (BM, K, PRE).

S. RHODESIA. Northern, Urungwe Dist., *Rutherford-Smith 661* (K), *Drummond 5394* (K, PRE, SRGH);

Mtoko Dist., *Wild 5647* (BR, K, SRGH); Western. Shangani Dist., *Goldsmith 39/55, 41/56* (K); Wankie Nat. Park, *Rushworth 1381* (K).

MALAWI. Dedza Dist., *Banda 616* (L, PRE, SRGH).

MOZAMBIQUE. Zambésia, Gurue, *Torre 5101* (BR, LISC).

E c o l o g y. In a variety of habitats. Delicate annual forms in poor sandy soil. Biennial and perennial forms on various soil types: sand, red sand, clay, granite, sand with calcarious outcrops, etc. Steppe, savanna, forest edges, scrub, road sides, waste land, marshes, grassland and rocks; (0—)200—2200 m. Flowers and fruits throughout the year, but apparently most frequent from December to April.

N o t e s. 1. This is a complex species which includes a number of more or less recognizable forms. As far as I can judge from the abundant herbarium material, these forms all merge by specimens with transitional characters. Superposed on the genetic diversity there is apparently a strong phenotypic variability expressed by features as for instance the growth form being annual or perennial. Furthermore the species is found under diverse climatic conditions, viz. strong seasonal climate as well as under almost desert conditions, and in various soil types, and at altitudes ranging from sea level to over 2000 m.

Variability abounds in the following features:

Growth form and habit. There are delicate erect annuals from poor soils, reaching but *c.* 10 cm height, with a weak root. In these annual specimens the cotyledons are sometimes still present, measuring 2—3 by ¾—1¾ cm, and with a petiole of 6—15 mm. Usually these small annuals have small flowers and fruits, and the bracts in the inflorescence are absent or caducous. Later on these annuals may develop a climbing habit, becoming biennial or perennial. Coarse perennial forms are mostly found in montanous regions as in Ethiopia, the Usambara Mountains in Tanzania, etc. These have a thick woody rootstock, and either are more or less woody lianas reaching several metres, or they produce every season (e.g. after burning) strong new shoots. To these coarse forms belongs the type of *T. stolzii*.

It should be noted that in many cases it is difficult, if not impossible, to judge whether the (herbarium) specimen is an annual, biennial or perennial plant.

Indumentum. Glabrous forms are probably most common, but specimens with glabrescent or pubescent stem, leaves, and sepals (the leaves white-pubescent only beneath or at both surfaces) are frequently found, though apparently only among the perennial forms. To these more or less hairy forms belong the types of *T. niloticum. T. volkensii, T. snowdenii* and *T. foetidum.*

The specimens *Greenway & Kanuri 11271* and *11883*, and especially *Makin EA 14036* and *Gillett 19182* are examples of remarkably scabrous or hispid forms, the latter two specimens with a big perennial rootstock.

Leaf shape and texture are very variable. *Schlieben 1322* and *Archbold 1159* have partly entire leaves.

Specimens with rather membranous leaves and predominantly obtuse leaf lobes are described as *T. latilobum* and *T. foetidum.* Sometimes the leaves are distinctly glaucous beneath, e.g. in *Burtt 3579.*

The syntypes of *B. hanningtoniana* represent one of the more common annual or biennial forms with glabrous 3-lobed leaves.

Size of flowers and fruits. As a rule the delicate annual forms from poor sandy soils have the smallest flowers and fruits. Often the flowers are variable in size in one single specimen, apparently also in relation with their age.

2. A few specimens, viz. *Haerdi 385/0* and *Schlieben 1577* and *2078*, all from Ulanga Distr. in Tanzania (T6), have some characters in common with *B. hanningtoniana* and

B. lanceolata, as well as with *B. zanzibarica*. All have simple leaves, with distinct, non-winged petioles with a few slender gland-teeth near the top. A toothed petiole is characteristic for certain forms of *B. lanceolata*. In habit the three specimens resemble *B. zanzibarica*, but the flowers are petalous: *Schlieben 1577* has 5 or 6 sepals and petals, *Schlieben 2078* has 4 or 5 sepals and petals. *Haerdi 385/0* has as 'normal' 5 sepals and petals, but is in habit and nearly all characters identical with *Semsei 1327*, a specimen without petals and doubtlessly belonging to *B. zanzibarica*.

3. As in certain other annual species, sometimes large elliptic cotyledons are still present in full-grown annual specimens.

4. In some annual forms bracts in the inflorescences are absent.

11. **Basananthe lanceolata** (Engl.) de Wilde, *comb. nov.* — **Fig. 3d-h; 6.**

Tryphostemma lanceolatum Engl., Bot. Jahrb. 14 (1891) 388; Harms, Bot. Jahrb. 15 (1893) 577; Pflanzenw. O. Afr., C (1895) 281; Hutch. & Pearce, Kew Bull. (1921) 264, Harms; Notizbl. Bot. Gart. Berlin 8 (1923) 292.

T. cuneatum Engl. & Harms in Engl., Pflanzenw. Afr. 3, 2 (1921) 598, in obs.; Harms, Notizbl. Bot. Gart. Berlin 8 (1923) 292 (in syn. of *T. lanceolatum*).

T. alatopetiolatum Harms, Notizbl. Bot. Gart. Berlin 13 (1936) 424.

Erect, climbing or prostrate, annual or perennial, mostly branched, 15—80 cm, glabrous. Tendrils 2—10 cm, or absent. *Leaves* simple or deeply (2- or) 3-lobed, lanceolate to broadly ovate, 1—12 by ½—4 cm, base subtruncate to narrow acute-attenuate (cuneate), lobes ellipsoid to oblong; top subobtuse to acute-acuminate, margin up to 2 mm deep serrate-dentate; petiole (1/10—)½—5(—7) cm, usually narrowly to broadly winged and with small gland-teeth. Stipules 3—11 mm. False stipules absent. Inflorescences 1- or 2-flowered; peduncle (½—)1—4 cm; bracts 1—3 mm. *Flowers* glabrous; stipe 3—8(—10) mm. Hypanthium 1½—4 mm wide. Sepals 5—11 mm, ± obtuse. Petals 2—7 mm. Outer corona tube 1½—2 mm, threads 1½—2½ mm. Disk ⅕—½ mm. Inner corona cup- or funnel-shaped, ⅜—2 mm. Stamens 5; filaments 2—3½ mm, anthers 1—4 mm. Ovary ⅜—2½ mm; styles free or up to 1 mm connate, (1—)1½—4 mm. *Fruit* (excl. the up to 5 mm long gynophore) 1—1¾ cm, containing 1—5 seeds *c.* 6 mm.

KENYA. K 1, Lolokwi Mt., *Gillett 18966* (EA); K4 (K4/6), Meru Res., *Verdcourt 3749* (BR, EA, K); Machakos Dist., Ithaba, *Bally 8361* (EA, K); Chyulu Mts, *Bally 8000, 8001* (EA, K); K7, Lamu Dist., *Lucas c.s. 252* (EA, K), *Rawlins 113, 122* (EA, K); Teita Dist., *Anon. 1072* (EA), *Greenway & Kanuri 12810* (EA, K, PRE), *Hucks 327* (EA), *Lenthold 105* (EA, K); Kwale Dist., *Dale 3569* (EA, K), *Drummond & Hemsley 3856* (BR, EA, K), *Graham 2022* (EA, K, PRE), *Verdcourt 1937* (BR, EA, K, PRE).

TANZANIA. 'Ostafrika', *Fischer 268* (B†, type *T. lanceolatum*; BM, line drawing of leaf); T2, Arusha Dist., *Drummond & Hemsley 1263* (EA, K); Moshi Dist., *Beesley 273* (K), *Gilbert 4899* (EA), *Volkens 2033* (BM); T3, Pare Dist., *Peter 54617* (B); Lushoto Dist. (Usambara Mts), *Drummond & Hemsley 2991* (BR, EA, K), *Greenway 4015* (EA, K, PRE), *Holst 3168* (HBG, K), *Jaasund 2271* (EA), *Koritschoner 1164* (EA, K); Tanga Dist., *Drummond & Hemsley 3630* (EA, K), *Faulkner 1614* (BR, K), *Greenway 8710* (BR, K, PRE), *Kässner 46* (B†, type *T. cuneatum*; BM, K); T6, Kilosa Dist., *Cole 72* (EA); Rufiji Dist., *Musk 100* (EA, K); T7, Ruaha River, *Renvoize 2215* (K); T8, Kilwa Dist., *Ludanga 985* (EA); Lindi Dist., *Schlieben 5996* (B†, type *T. alatopetiolatum*; BM, BR, HBG); Z, near Zanzibar, *Anon.* in *hb. d'Alleizette 2589* (L, a deviating specimen).

Ecology. Grassland, scrub, savannas, steppe, coastal dunes; also in cultivated land; 0—1700 m. Sandy and gritty soils. Mostly annual or biennial, but also specimens with a different leaf-shape growing from a woody rootstock (see notes). Flowers and fruits apparently throughout the year.

Notes. 1. Very variable in leaf-shape. Decumbent specimens (e.g. *Renvoize 2215*; *Rawlins 133, 122*), as well as certain erect specimens (e.g. *Greenway & Kanuri 12810*,

Lenthold 105, and *Schlieben 5996*) have long, narrow-alate petioles. Such specimens have relatively small flowers and fruits.

The leaves of the following perennial specimens: *Bally 8000, 8001, 8361, Drummond & Hemsley 1263, Gilbert 4899*, and *Verdcourt 3749*, are lanceolate-linear, and sessile or with a very short non-alate petiole. In these specimens the tendrils are sometimes ill-developed or absent, and the leaf margin is inconspicously dentate.

2. A few specimens with some characters intermediate to *B. hanningtoniana* are discussed under that species.

3. The specimen *Hb. d'Alleizette 2589* (L), annotated as from Zanzibar, has a deviating habit. It consists of two shoots of *c.* 30 cm from a woody rootstock. The leaves are lanceolate, with a petiole up to 2 mm, non-alate, with 2 small tooth-like glands at the blade-base. The ovary is *c.* 1 mm stiped (gynophore).

The heterogeneity within this species, as well as in *B. hanningtoniana*, needs further study.

12. **Basananthe nummularia** Welw. — **Fig. 3i; 6.**

B. nummularia Welw., Trans. Linn. Soc. 27 (1869) 28, t. 9 (Sert. Angol.); Mast. in Oliv., Fl. Tr. Afr. 2 (1871) 509; Hiern, Cat. Afr. Pl. Welw. 1, 2 (1898) 382. — *Tryphostemma nummularium* (Welw.) Engl., Bot. Jahrb. 14 (1891) 388; 15 (1893) 588; Hutch. & Pearce, Kew Bull. (1921) 266; Engl., Pflanzenw. Afr. 3, 2 (1921) 598; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 488; A. & R. Fernandes, Garcia de Orta 6 (1958) 665.

Perennial, several branches 5—20 cm from a woody rootstock, glabrous. Tendrils absent. *Leaves* simple, reniform-suborbicular, ½—2 by ½—2 cm, base cordate, top broadly rounded or retuse; margin ½—1½ mm deep serrate-dentate; petiole 1½—8 mm. Stipules 3—6 mm. False stipules absent. Inflorescences 1- or 2-flowered, up to 1 cm peduncled, bracts 1½—4 mm. *Flowers* glabrous; stipe 3—6 mm. Hypanthium 2—2½ mm wide. Sepals 5—7 mm. Petals 4—5 mm. Outer corona tube ⅔—1 mm, threads 2—3 mm. Disk *c.* ½ mm. Inner corona cup-shaped *c.* ½ mm. Stamens 5; filaments 3½—4½ mm, anthers 1¾—2 mm. Ovary 1—1½ mm. Styles 4—5 mm, connate for ½—1 mm. *Fruit* (excl. the up to 2 mm long gynophore) 1—1¼ cm, containing 2 or 3 seeds 6—7 mm.

ANGOLA. Huila Prov., Serra de Chela, *Gossweiler 12719* (BR, LISC); Lopolo, *Welwitsch 871* (BM, type; COI, K, PRE).

Ecology. Sandy and stony (limestone?) ground with scrub, 1200—1800 m. Flowers and fruits in Jan., Febr., and Oct.

13. **Basananthe gossweileri** (Hutch. & Pearce) de Wilde, *comb. nov.* — **Fig. 4a; 6.**

T. gossweileri Hutch. & Pearce, Kew Bull. (1921) 265; A. & R. Fernandes, Garcia de Orta 6, 4 (1958) 663, 664.

Perennial, several shoots 20—35 cm from a woody rootstock, glabrous. Tendrils absent. *Leaves* ovate to elliptic, simple, 1½—3½ by 1—2 cm, base acute to obtuse, top acute, margin with minute ($\frac{1}{10}$ mm) cartilaginous teeth; petiole absent. Stipules ½—1 mm, caducous. False stipules absent. Inflor. (1—)2—3(—4)-flowered; peduncle 1½—3 cm, bracts 1—1½ mm. *Flowers* glabrous; stipe 4—5 mm. Hypanthium *c.* 1½ mm wide. Sepals 2½—4 mm, (sub) obtuse. Petals 2½—3 mm. Outer corona tube *c.* 2 mm, threads ½—¾ mm. Disk absent. Inner corona cup-shaped, *c.* ½ mm. Stamens 5; filaments *c.* 1½ mm, anthers ¾(—1) mm. Ovary sessile, *c.* 1½ mm; styles ½—1 mm, free. *Fruit* not known.

ANGOLA. Bié, Memongue, Cuiriri River, near Cassuango, *Gossweiler 4068* (BM, COI; K, type).

Ecology. Scattered in low scrub in riverbed; between 1000 and 1500 m. Old stems in the specimen are burnt off. Flowers in Sept.

Notes. 1. Once found.

2. Field notes. Rootstock woody, many headed. Stems numerous, glaucous green, like all the leaves; calyx green, corolla whitish pale; corona white.

14. **Basananthe pubiflora** de Wilde, *spec. nov.* — **Fig. 4b; 6.**

Herba perennis erecta pubescens, caule usque ad 40 cm alto. Cirrhi nulli. *Folia* elliptica usque elliptico-oblonga, 2—4 cm longa, 1.2—2 cm lata, subintegra; petiolus 2—5 mm longus. Pseudostipulae nullae. Inflorescentiae biflorae; pedunculus 0.5—5 cm longus. *Flores* pubescentis; stipes 8—12 mm longus. Hypanthium 3—5 mm latum. Sepala (6—)8—11 mm longa. Petala 6—8 mm longa. Coronae exterioris tubus 2—2.5 mm longus; fila (1—)2 mm longa. Discus 0.3—0.5 mm altus. Corona interior cupulata 1—1.5 mm longa. Stamina 5; filamenta 3—4.5 mm longa; antherae 3—3.5 mm longae. Ovarium 2—2.5 mm longum; styli 3—4.5 mm longi, per 1—1.5 mm connati. *Fructus* ignotus.

Perennial with woody rootstock; shoots erect, unbranched, to 40 cm; finely pubescent. Tendrils absent. *Leaves* simple, elliptic to elliptic-oblong, 2—4 by 1¼—2 cm, base obtuse to subacute, top acute, ± acuminate; margin subentire with a few hair-like glands less than ½ mm; petiole ¼—½ cm. Stipules 2—5 mm. False stipules absent. Inflorescences (1- or) 2 (or 3)-flowered; peduncle (½—)1—5 cm; bracts 1½—4½ mm. *Flowers* pubescent; stipe 8—12 mm. Hypanthium 3—4(—5) mm wide. Sepals (6—)8—11 mm, (sub)obtuse. Petals 6—8 mm. Outer corona tube 2—2½ mm, threads (1—)2 mm (variable in one flower). Disk ½—½ mm. Inner corona cup-shaped, 1—1½ mm. Stamens 5; filaments 3—4½ mm, anthers 3—3½ mm. Ovary 2—2½ mm; styles 3—4½ mm, connate for 1—1½ mm. *Fruit* not known.

TANZANIA. T4, Mpanda Dist., Kapapa Camp, track to Mpanda, *Richards 11646* (K, type).

Ecology. Woodland; 1050 m. Flowers in Oct.

Notes. 1. The rootstock shows traces of burning.

2. Whole plant finely pubescent, especially the younger parts.

3. Field annotations: sepals and petals pale green, stamens green, anthers yellow.

4. Known from but a single collection, from the same locality as another here as new described species, 16. *B. hederae.*

15. **Basananthe hispidula** de Wilde, *spec. nov.* — **Fig. 4c; 6.**

Herba perennis hispidula erecta, usque ad 30 cm alta. Cirrhi nulli. *Folia* (sub)sessilia, lanceolata, 1—2.5 cm longa, 1—3 mm lata, integra, supra et subtus ad costam hispida. Pseudostipulae nullae. Inflorescentiae 1- vel 2-florae, (sub)sessiles. *Flores* hispidulis; stipes 6—9 mm longus. Hypanthium 2—2.5 mm latum. Sepala 5—7 mm longa. Petala 4—5 mm longa. Coronae exterioris tubus 1—1.3 mm longus, fila 2.5—3 mm longa. Discus c. 0.3 mm altus. Corona interior cupulata, 0.7—1 mm longa. Stamina 5; filamenta c. 3 mm longa; antherae c. 1.5 mm longae. Ovarium 1—1.5 mm longum; styli 3 vel 4, liberi, 3.5—4 mm longi. *Fructus* ignotus.

Perennial with woody rootstock; shoots unbranched, erect, to 30 cm; hispidulous. Tendrils absent. *Leaves* simple, lanceolate, 1—2½ by $\frac{1}{10}$—$\frac{3}{10}$ cm, base subobtuse, top acute-acuminate; margin entire; petiole 0—1 mm. Stipules 1—1½ mm, caducous. False stipules absent. Inflorescences (1- or) 2-flowered; peduncle 0—2 mm; bracts ½—1 mm. *Flowers* hispidulous; stipe 6—9 mm. Hypanthium 2—2½ mm wide. Sepals 5—7 mm,

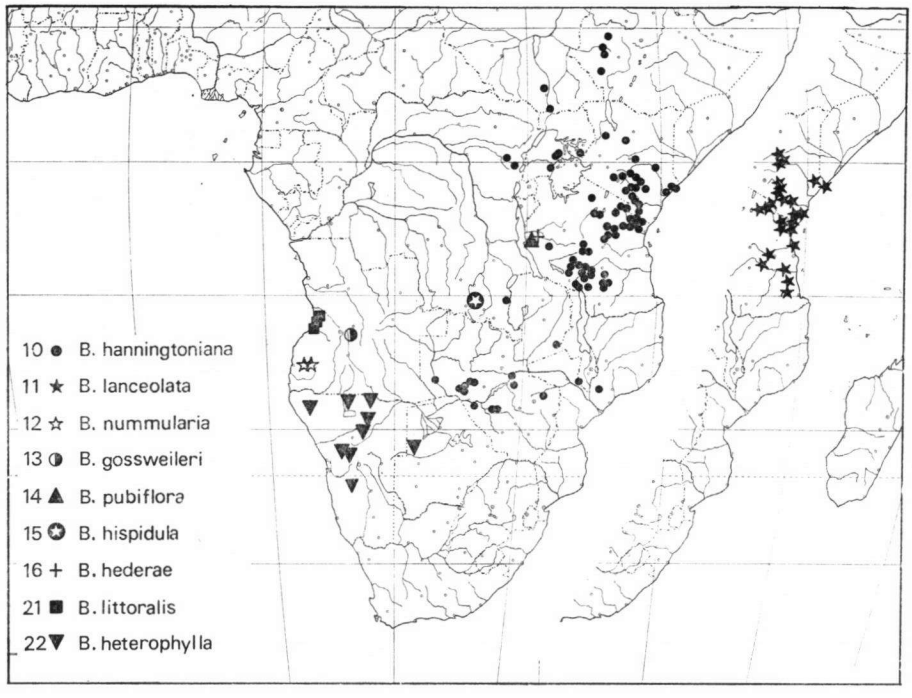

Fig. 6. Localities of *Basananthe* species 10—16, 21—22.

(sub)obtuse. Petals 4—5 mm. Outer corona tube 1—1½ mm, threads 2½—3 mm. Disk *c.* ¼ mm. Inner corona cup-shaped, ¾—1 mm. Stamens 5; filaments *c.* 3 mm, anthers *c.* 1½ mm. Overy 1—1½ mm; styles 3 or 4, free, 3½—4 mm. *Fruit* not known.

ZAÏRE. Katanga, 11 km South of Kansenia railway station, 26°. 04'E, 10°. 23S: *Schmitz 7863* (BR, type).

E c o l o g y. Open shrub-savanna, on sand soil; 1600 m. Flowers in September.

N o t e. Plant nearly entirely hispidulous-pubescent. The lower leaf surface, however, is subglabrous, except for the midrib which is again conspicuously hairy.

16. **Basananthe hederae** de Wilde, *spec. nov.* — **Fig. 4d; 6.**

Herba perennis prostrata pubescens, caulibus usque ad 35 cm longis. Cirrhi nulli. *Folia* suborbiculata usque reniformia, integra vel leviter 3—5-lobata, 1—2.3 cm longa, 1.5—3 cm lata, apice (sub)acuta, basi truncata usque cordata; petiolus 1—4 mm longus. Pseudostipulae nullae. Inflorescentiae sessiles, 1 vel 2-florae. *Flores* pubescentis; stipes 8—16 mm longus. Hypanthium 2—2.5 mm latum. Sepala (5—)6—7 mm longa. Petala 3—5 mm longa. Coronae exterioris tubus c. 1.5 mm longus, fila 3—3.5 mm longa. Discus c. 0.5 mm altus. Corona interior cupulata 0.5—0.8 mm longa. Stamina 5; filamenta 2.5—3 mm longa; antherae c. 2.5 mm longae. Ovarium 1—1.3 mm longum; styli liberi, c. 3.5 mm longi. *Fructus* ignotus.

Perennial with woody rootstock; shoots prostrate, sparingly branched, to 35 cm long; pubescent. Tendrils absent. *Leaves* simple or shallowly 3(—5)-lobed in the upper half, suborbicular to reniform, 1—2¼ by 1½—3 cm, base subtruncate to deeply cordate, top subobtuse to acute, margin entire with a few minute gland-teeth; petiole 1—4 mm.

Stipules 1½—3 mm. False stipules absent. Inflorescences 1- or 2-flowered, sessile; bracts *c.* 1½ mm. *Flowers* pubescent; stipe 8—16 mm. Hypanthium 2—2½ mm wide. Sepals (5—)6—7 mm, subobtuse. Petals 3—5 mm. Outer corona tube *c.* 1½ mm, threads 3—3½ mm. Disk *c.* ½ mm. Inner corona cup-shaped, ½—¾ mm. Stamens 5; filaments 2½—3 mm, anthers *c.* 2½ mm. Ovary 1—1¼ mm; styles *c.* 3½ mm, free. *Fruit* not known.

TANZANIA. T4, Mpanda Dist., Kapapa Camp, *Richards 11613* (K, type).

Ecology. Woodland; 1050 m. Flowers in October.

Notes. 1. Whole plant finely pubescent, especially the younger parts.

2. Field annotations: sepals, petals and stamens green, anthers dark yellow.

3. Known from but a single collection, from the same locality as a second new species collected by Mrs. H. M. Richards, 14. *B. pubiflora*.

17. **Basananthe kottoensis** de Wilde, *spec. nov.* — **Fig. 4e; 7.**

Herba perennis, pubescens, caule c. 5 cm alto. Cirrhi nulli. *Folia* terrae appressa, late ovata usque elliptica, 6—16 cm longa, 5—13 cm lata, minute glanduloso-dentata; petiolus 1—5 mm longus. Pseudostipulae nullae. Inflorescentiae subsessiles, 1—3-florae. *Florum* stipes 15—20 mm longus. Hypanthium 2—2.5 mm latum. Sepala subobtusa, 6—8 mm longa. Petala 5—6 mm longa. Coronae exterioris tubus 1.5—2 mm longus; fila 2—3 mm longa. Discus c. 0.2 mm altus. Corona interior cupulata, 0.7 (—1) mm longa. Stamina 5; filamenta c. 2 mm longa, versus vel quasi ad marginem coronae interioris inserta; antherae c. 1.5 mm longae. Ovarium 1—1.5 mm longum; styli liberi, c. 3.5 mm longi. *Fructus* c. 1.5 cm longus, semina 3—5 sublaevia 6—7 mm longa continens.

Low perennial, pubescent, with woody rootstock or tuber; stem *c.* 5 cm long. Tendrils absent. *Leaves* 2—5, appressed to the soil, simple, broadly ovate to elliptic, 6—16 by 5—13 cm, base subacute to obtuse, top rounded (to acuminate), mucronate, pubescent beneath; margin with remote gland-teeth *c.* ½ mm or less; petiole 1—5 mm. Stipules indistinct *c.* 2(?) mm. False stipules absent. Inflorescences 1—3-flowered; peduncle 1—3 mm; bracts 2—3 mm. *Flowers* pubescent; stipe 15—20 mm. Hypanthium 2—2½ mm wide. Sepals 6—8 mm, subobtuse. Petals 5—6 mm. Outer corona tube 1½—2 mm, threads 2—3 mm. Disk *c.* ½ mm. Inner corona cup-shaped ¾(—1) mm. Stamens 5; filaments *c.* 2 mm, inserted rather close to the rim of the inner corona; anthers *c.* 1½ mm. Ovary 1—1½ mm; styles *c.* 3½ mm, free or connate for *c.* ½ mm. *Fruit* (excl. the *c.* 1 mm long gynophore) *c.* 1½ cm, containing 3—5 seeds, nearly smooth, 6—7 mm.

CENTR. AFRICAN REPUBLIC. Haute-Kotto, Ouadda (Wadda), *Le Testu 2889* (BM, type; P).

Ecology. Savanna, *c.* 1000 m. Flowers and fruit in June.

Notes. 1. Only known from the type specimen. Its locality lies outside the area of the remaining species of the genus. The field label reads '2889 Plante à souche: rhizome? tubercule? 2, 3, 4 ou 5 feuilles étroitement appliqués sur le sol. Fruit immature rouge, mûr? déhiscent. Fleurs de couleur claire incertaine, paraissents s'épanouir sous les feuilles. Wadda 26 Juin 1921 George Le Testu'.

2. A species with a remarkable habit, the leaves in an irregular rozette, appressed to the soil. Similar habits are found in 19. *B. baumii* and relatives, and in a form of 6. *B. sandersonii* described as *Tryphostemma friesii*. In habit it strikingly resembles the passifloraceous *Adenia ovata*, described from the Zambia.

18. **Basananthe reticulata** (Baker *f.*) de Wilde, *comb. nov.* — **Fig. 4f; 7.**

Tryphostemma reticulatum Baker *f.* in Hutch. & Pearce, Kew Bull (1921) 264; A. & R. Fernandes, Garcia de Orta 6, 4 (1958) 663, 664, tab. 9.

Perennial, shoots prostrate or ascending, up to 50 cm long, growing from a woody rootstock; pubescent except upper leaf surface. Tendrils absent. *Leaves* oblong to broadly ovate or elliptic, simple, 3—7 by 1½—4 cm, base rounded to acute, top rounded or obtuse to subacute, margin entire; petiole ¼—¾ cm; blade above glabrous, short-pubescent beneath. Stipules 2—6 mm. False stipules absent. Inflorescences 1—6(—8)-flowered, sessile or peduncle up to ¾ cm; bracts 1½—4 mm. *Flowers* pubescent; stipe 5—14 mm. Hypanthium 2—2½ mm wide. Sepals 5—7 mm, obtuse. Petals 5—7 mm. Outer corona tube 1—2 mm, threads 2—3½ mm. Disk 0—$\frac{1}{10}$ mm. Inner corona cup-shaped, 1—1½ mm. Stamens 5; filaments 2½—3 mm, anthers 1—1½ mm. Ovary glabrous, *c.* ¾—1 mm; styles 3—4 mm, free. *Fruit* pubescent, excl. the 0—1 mm long gynophore *c.* 1½ cm; seeds not known.

ANGOLA. Bié, Serpa Pinto, along the marshes of the Cambambe River, Cuebe, *Gossweiler 3522* (BM, type; COI, *n.v.*).
ZAMBIA. Northern, Abercorn Dist., Mporokoso-Mkupa, *Bullock 1363* (K); Abercorn, *Bullock 1037* (K).

Ecology. Woodland and scrub; sandy ground; ± 1000—1600 m. Flowers in Sept., Oct., and Nov., fruit in Nov.

Notes. 1. Resembles in habit 19. *B. baumii*, but is distinguished by its pubescence.
2. The flowers of all three specimens have glabrous ovaries, but the submature fruit in *Gossweiler 3522* is pubescent. In all other *Basananthe* species the ovary as well as the fruit is glabrous.

19. **Basananthe baumii** (Harms) de Wilde, *comb. nov.*

Tryphostemma baumii Harms in Warb., Kunene-Sambesi Exped. (1903) 310.

Perennial, one or a few shoots up to 10 cm from a woody rootstock, glabrous except lower leaf surface. Tendrils absent. *Leaves* oblong to broadly ovate or obovate, or suborbicular, simple, 3—12 by 1½—6 cm, base acute (-attenuate), top (broadly) rounded to acute, margin entire; petiole ¼—¾ cm; blade above glabrous, beneath densely white papillate or short-hairy in the areoles or along the smaller veins, nerves and reticulation prominent. Stipules 3—8 mm, linear, sometimes ± spathulate or dissected. False stipules absent. Inflorescences 1—5-flowered, sessile or peduncle up to 1½ cm; bracts 2—5 mm. *Flowers* glabrous or sparingly papillate; stipe 7—13(—15) mm. Hypanthium ± cup-shaped, 1—2 by 2—3 mm. Sepals 5½—9 mm, (sub) obtuse. Petals 5—8½ mm. Outer corona inserted ½—1 mm above the base of the hypanthium; tube 1—1¾ mm, threads (1½—) 2—3½ mm. Disk absent or *c.* $\frac{1}{10}$ mm. Inner corona cup- to funnel-shaped 1—2 mm. Stamens 5 or 6; filaments 2½—4 mm, anthers 1—1½ mm. Ovary *c.* 1 mm; styles 3 (or 4), free, (2—)3—6 mm. *Fruit* (excl. the 0—1 mm long gynophore) 1—1½ cm, containing 2 or 3 seeds 6—7 mm.

a. var. **baumii** — **Fig. 4g-h; 7.**

Tryphostemma baumii Harms; Hutch. & Pearce, Kew Bull. (1921) 264 (p.p.); Engl., Pflanzenw. Afr. 3, 2 (1921) 598; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 488; A. & R. Fernandes, Garcia de Orta 6, 4 (1958) 663, 664, tab. 11.
T. mendesii A. & R. Fernandes, Bol. Soc. Brot. 2, 32 (1958) 86, tab. 3; Garcia de Orta 6, 4 (1958) 663, 664, tab. 12.

Leaves in sicco above greenish, beneath grey-white or grey-greenish; nerves beneath, and stem, hypanthium, and venation of sepals yellow-brown to purplish brown. *Peduncle* $\frac{1}{5}$—$1\frac{1}{2}$ cm.

ANGOLA. Huila, Hoque, *Mendes 779* (LISC, type *T. mendesii*); Cubango, Rio Cubango, near Cueio River, *Baum 391* (B†, type *T. baumii*; BM, HBG, K).
ZAMBIA. Northern, Mpika Dist., *Lawton 1464* (K), *Fanshawe 7187* (K).

b. var. **caerulescens** (A. & R. Fernandes) de Wilde, *comb. et stat. nov.* — **Fig. 7.**

Tryphostemma caerulescens A. & R. Fernandes, Bol. Soc. Brot. 2, 32 (1958) 85, tab. 2; Garcia de Orta 6, 4 (1958) 663, 664, tab. 13.

Leaves in sicco above glaucous or purplish(-brown), beneath green-white to grey-purplish; nerves (especially beneath), stem, hypanthium and venation of sepals reddish to purplish. *Peduncle* up to 3 mm.

ANGOLA. Lunda (Mérid.), Dala-Sanrimo road, *Young 380* (BM); Cazage to Dala, *Carissa & Mendonça 294* (BM, type); Móxico, 5 miles over border Kalabo Dist., W. of Sikongo (Chisongo), *Drummond & Cookson 6491* (BM, K, PRE, SRGH).
ZAMBIA. Barotse, Kalabo, *Drummond & Cookson 6457* (K, SRGH).

Ecology. Dry (degenerated) woodland, scrub; sandy soil between rocks; 1000—1600 m. Flowers in Aug., Sept., Nov., fruit in Dec.

Notes. 1. A variable species, related to 17. *B. kottoensis*, 18. *B. reticulata*, and 20. *B. papillosa*. The leaves are often rather coriaceous.

2. When describing *T. caerulescens* A. & R. Fernandes remarked that the species is related to *T. baumii*, the former differing mainly by the broader leaves and purplish colouring. Under the description of *T. mendesii*, the relation of this species to both *T. caerulescens* and *T. baumii* is discussed. The three species were all based on single specimens.

In recent years several new collections have been made, from which it appears that merely one single species is concerned. Characters as the number of flowers, shape of stipules and leaves, presence or absence of papillate hairs on pedicels and flowers, and colouring and consistency of leaves appeared to be highly variable.

Nevertheless, partly for the sake of convenience, two varieties are recognized here.

20. Basananthe papillosa (A. & R. Fernandes) de Wilde, *comb. nov.* — **Fig. 4i; 7.**

Tryphostemma papillosum A. & R. Fernandes, Bol. Soc. Brot. 2, 32 (1958) 87, tab. 4; Garcia de Orta 6, 4 (1958) 663, 664, tab. 10.

Perennial, shoots ± branched at base, suberect or ascending to 25 cm, growing from a woody rootstock; glabrous, except lower leaf surface. Tendrils absent. *Leaves* oblong to (ob)lanceolate, simple, 2—6 by $\frac{1}{4}$—2 cm, base acute, top (sub)acute, margin entire or with minute teeth *c.* $\frac{1}{2}$ mm; petiole absent; blade beneath densely minutely grey-white papillate especially on the smaller veins. Stipules 3—7 mm. False stipules absent. Inflorescences 1—3-flowered, peduncle up to 3 cm; bracts 2—5 mm. *Flowers* glabrous; stipe 3—10 mm. Hypanthium (rather flat) 2—$2\frac{1}{2}$ mm wide. Sepals 5—$6\frac{1}{2}$ mm, (sub)obtuse. Petals 5—6 mm. Outer corona tube 1—$1\frac{1}{2}$ mm, threads 2—3 mm. Disk 0—$\frac{1}{10}$ mm. Inner corona cup-shaped $\frac{3}{4}$—$1\frac{1}{2}$ mm. Stamens 5; filaments 2—3 mm, anthers $\frac{3}{4}$—$1\frac{1}{4}$ mm. Ovary *c.* 1 mm; styles 3 or 4, free, 3—4 mm. *Fruit* not known.

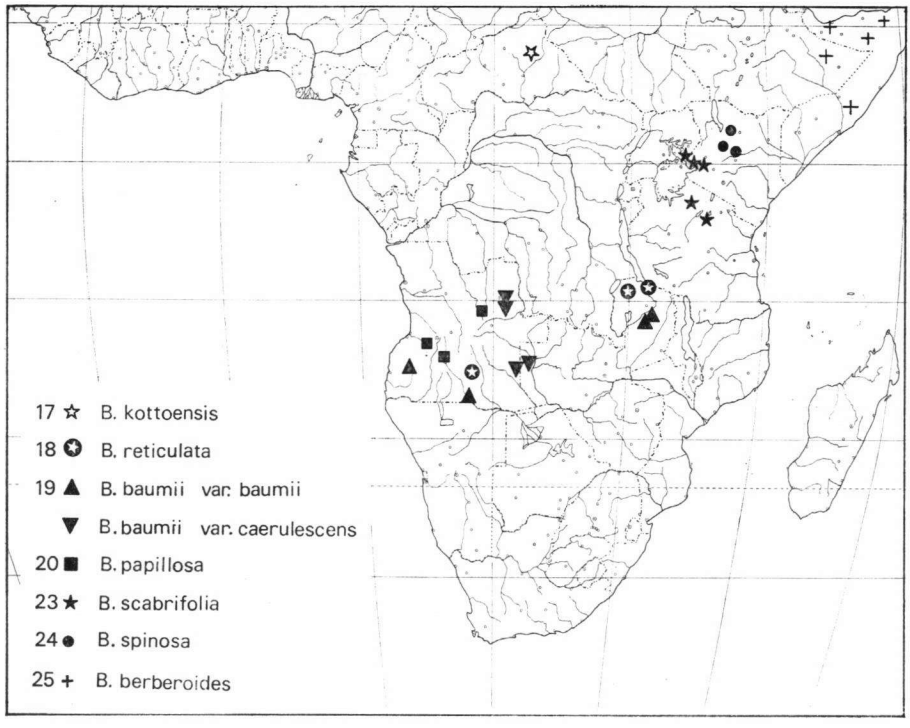

Fig. 7. Localities of *Basananthe* species 17—20, 23—25.

ANGOLA. *s. loc.*, *Gossweiler s.n.* (two specimens, BM); Benguela, near the mission of Huambo, *Tisserant A 140* (COI, *n.v.*, type); Bié, at the Kubango River, *Gossweiler 4206* (BM); Lunda, Xa-Senque (?=Chassengue), *Young 1025* (BM).

E c o l o g y. Open thickets, savanna; ± 1000—1600 m. Flowers Sept., Oct., and Dec., (young) fruit in Sept.

21. Basananthe littoralis Peyr. — Fig. 4j; 6.

B. littoralis Peyr., Bot. Zeitg. 17 (1859) 101; *et* in Sitzb. Acad. Wien Math. Nat. 38 (1860) 569, 570 (Sertum Benguelense, p. 30); Welw., Trans. Linn. Soc. Lond. 27 (1871) 28; Mast. in Oliv., Fl. Tr. Afr. 2 (1871) 509; Hiern, Cat. Afr. Pl. Welw. 1, 2 (1898) 382. — *Tryphostemma littorale* (Peyr.) Engl., Bot. Jahrb. 14 (1891) 388, *in obs.*; 15 (1893) 561; Pflanzenw. Afr. 3, 2 (1921) 598; Hutch. & Pearce, Kew Bull. (1921) 263; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 488; A. & R. Fernandes, Garcia de Orta 6 (1958) 665, tab. 15.

Biennial or perennial herb or shrub to *c.* 1½ m, glabrous. Tendrils absent. *Leaves* (elliptic to) oblong-lanceolate, simple, 1½—5 by ⅔—1½ cm, base acute, top (sub)acute, margin up to 1 mm deep glandular serrate-dentate, more densely so along the ± alate petiole ⅕—1½ cm. Stipules 4—7 mm. False stipules absent (but small first leaves of supra-axillary short-shoot often present). Inflorescences 1- or 2-flowered; peduncle up to 1½ cm, bracts 2—5 mm. *Flowers* glabrous; stipe *c.* 3 mm. Hypanthium *c.* 2½ mm wide. Sepals 8—10½ mm, acute, with 1 or 2 prominent nerves. Petals 6—7½ mm, narrow. Outer corona

tube *c.* 2 mm, threads 2½—3½ mm. Disk *c.* ⅕ mm. Inner corona cup-shaped, *c.* ½ mm. Stamens 5; filaments 4—4½ mm, anthers slender, *c.* 3 mm. Ovary *c.* 3 mm; styles 7—7½ mm, connate for *c.* 5½ mm. *Fruit* subsessile, 1—1½ cm, containing 2 or 3 seeds *c.* 5 mm.

ANGOLA. Benguela, *Gossweiler 1800* (BM, COI), *4946* (BM, COI, K), *Wawra s.n.* (W, type ,*n.v.*), *Welwitsch 872*, (BM, BR, COI, K, PRE).

Ecology. Coastal scrub. Sand and granite soil; 0—50 m. Flowers and fruits June-Aug.

Notes. 1. As in some other species the bracts and bracteoles (as well as the stipules) are very slender, thread-like, and suggestive of small tendrils.

2. Rather closely related to 22. *B. heterophylla* by various characters (leaves; flowers with connate styles, long-acute sepals; thread-like bracts); possibly *B. littoralis* represents but a perennial halophytic (?) form of the annual 22. *B. heterophylla*.

22. **Basananthe heterophylla** Schinz — **Fig. 4k; 6.**

B. heterophylla Schinz, Verh. Bot. Ver. Brand. 30 (1888) 252 — *Tryphostemma heterophyllum* (Schinz) Engl. Bot. Jahrb. 14 (1891) 388, *in obs.*; 15 (1893) 577; Pflanzenw. Afr. 3, 2 (1921) 599; Hutch. & Pearce, Kew Bull. (1921) 261; Harms in E.-P., Nat. Pfl. Fam. ed. 2, 21 (1925) 488; Schreiber in Merxmüller, Prod. Fl. SW. Afr., Fam. 89 (1968) 2.

Annual or biennial to 50 cm, erect, sometimes ± branched at base, glabrous. Tendrils absent. *Leaves* up to 8 by 8 cm, mostly deeply 3-lobed, sometimes partly simple, the lobes oblong-lanceolate 2—7 by ¾—2 cm, top obtuse to acute, margin up to 1(—2) mm deep serrate-setaceous dentate; leaf base subcordate to subacute; petiole 1—5 cm, short winged, with gland-teeth. Stipules 3—6 mm. False stipules absent. Inflorescences 1- or 2-flowered; peduncles ¼—1½ cm, bracts 3—7 mm. *Flowers* glabrous; stipe 2—4 mm. Hypanthium 2½—4 mm wide. Sepals 7—15 mm, long acute, the outer with 2 submarginal prominent nerves. Petals 5—7 mm, (sub)acute. Outer corona tube 1—1½ mm, threads 2½—3½ mm Disk ⅕—⅓ mm. Inner corona cup-shaped, ½—¾ mm. Stamens 5; filaments (inserted near the base of the cup) 4—5 mm, anthers narrow, 2—2½ mm. Ovary 1½—2 mm. Styles 2½—6 mm, connate for 1—3½ mm. *Fruit* (sub) sessile, 1½—1¾ cm, containing 1—4 seeds *c.* 7—8 mm.

SW. AFRICA. Otjituo, *Dinters.n.* (HBG); Amboland, *Dinter 1568* (B†; line-drawing of leaf in BM), *Hb. Schinz 435* (K, isotype *B. heterophylla*); Okavango Native Res., *De Winter 3900* (K, PRE); Kookoveld Res., *De Winter & Leistner 5914* (PRE); Waterberg, *Bradfield 323* (K, PRE); Grootfontein, *Schoenfelder 419* (PRE); Karibib, *Dinter 6834* (BM, HBG, K); Naruchas: *Dinter 7222* (HBG, K).
BOTSWANA. South-West, Khanzi, *Brown 7927* (K).

Ecology. Reported from red sandy soil and white sand, dunes; 1000—1500 m. Flowers and fruits Dec.-April.

Notes. 1. The persistent cotyledons measure 2—2½ by 1—1½ cm, with a petiole of 1—1¼ cm.

2. The leaves resemble certain lobed forms in 11. *B. lanceolata*; dry leaves are membranous, grey-glaucous beneath.

3. Sometimes simple, not-lobed leaves are found, a feature that renders the specific difference with 21. *B. littoralis* rather slight; see also under that species.

23. **Basananthe scabrifolia** (Dandy) de Wilde, *comb. nov.* — **Fig. 11; 7.**

Tryphostemma scabrifolium Dandy, Kew Bull. (1927) 252.

Perennial climber to *c.* 3 m, scabrous, stem scabrescent. Tendrils absent or up to 7 cm. *Leaves* simple, elliptic to oblong, 1½—4½ by ½—1½ cm, base and top subobtuse to acute, margin *c.* 1 mm deep serrate-dentate; petiole up to ½ cm. Stipules 1½—4 mm. False stipules absent (sometimes small first leaves of serial shoot developed). Inflorescences 1- or 2-flowered; peduncle up to 4 cm; bracts 2—3 mm. *Flowers* scabrous-hispid; stipe 8—12 (—15) mm. Hypanthium 2½—3 mm wide. Sepals (6—) 8—10 mm. Petals 4—6 mm. Outer corona tube 2—2½ mm; threads 2½—3 mm. Disk *c.* ½ mm. Inner corona cup- or funnel-shaped, *c.* 1½ mm. Stamens 5; filaments 3—4 mm; anthers 2—3 mm. Ovary *c.* 1½ mm; styles free, 3—4 mm. *Fruit* (excl. the 1—2 mm long gynophore) 1¼—2 cm, containing 1—5 seeds *c.* 7 mm.

UGANDA. U3, *van Someren s.n.* (K, type).
KENYA. K5, Kisumu Dist., *Kokwaro 1689, 1807* (EA), *Tweedie 1686* (K).
TANZANIA. T1, Kirawira Plain, *Richards 20300* (K); T2, Mbulu Dist., *Polhill & Paulo 2368* (BR, EA, K, PRE).

Ecology. Red volcanic soil on rocky scarp, grassland with scattered trees; 900—1400 m. Flowers and fruits throughout the year.

Notes. 1. The specimen *Kokwaro 1807* shows a woody main stem of nearly 1 cm ∅, with a thick corky, dark grey, chaped bark.

2. Fresh flowers reported to have sepals pale green, petals very pale green, corona tube cream purple tinged towards the threads, threads white; anthers cream.

24. **Basananthe spinosa** de Wilde, *spec. nov.* — **Fig. 4m; 7.**

Frutex spinifer c. 1 m altus, scabrellus. Cirrhi nulli; spinae 1—5 cm longae. *Folia* elliptica usque obovata, 0.5—2 cm longa, 0.2—1.5 cm lata, scabro-hispida, dentata; petiolus 0.5—2 mm longus. Pseudostipulae nullae. Inflorescentiae biflorae, floribus spinarum instructis; pedunculus 0.5—1.5 cm longus. *Florum* stipes 3—8 mm longus. Hypanthium 2—3 mm latum. Sepala obtusa, 6—10 mm longa. Petala 4.5—6 mm longa. Coronae exterioris tubus 1.5—2 mm longus; fila 1.5—2 mm longa. Discus 0.3—0.5 mm altus. Corona interior cupulata vel infundibuliformis, 0.7—1 mm longa. Stamina 5; filamenta (1—)2—4 mm longa, antherae 3—3.5 mm longae. Ovarium 1.5—2.5 mm longum; styli c. 1.5 mm longi, per c. 0.5 mm connati. *Fructus* 1—1.5 cm longus, semina 2—5, rugosa, 5—6 mm longa continens.

Thorny shrub, to *c.* 1 m, scabrous. Tendrils absent; thorns (1—)2—4(—5) cm. *Leaves* elliptic to obovate, ½—2 by ¼—1½ cm, base (sub)acute, top acuminate-mucronate; margin ½—1 mm deep dentate; petiole ½—2 mm. Stipules 4—7 mm. False stipules absent. Inflorescences 2-flowered; flowers at or below the middle of the thorns, peduncular part of thorns ½—1½ cm. *Flower* stipe 3—8 mm; bracts (bracteoles) *c.* 3 mm. Hypanthium 2—3 mm wide. Sepals 6—10 mm, obtuse, ± scabrous-hispid. Petals 4½—6 mm. Outer corona tube 1½—2 mm, threads 1½—2 mm. Disk ½—½ mm. Inner corona cup- to funnel-shaped, ¾—1 mm. Stamens 5; filaments (1—)2—4 mm, anthers 3—3½ mm. Ovary 1½—2½ mm; styles (1—)1½ mm, connate for ¼—½ mm. *Fruit* (excl. the *c.* 1 mm long gynophore) 1—1½ cm, containing 2—5 seeds 5—6 mm.

KENYA. K1, Northern Frontier Dist., Marsabit to Lake Paradise, *Bally 5478* (C, EA; K, type); Uaso Nyiro, *Bally 4377* (EA, K); Nyambeni Range, *Bally & Smith B 14723* (K) (exact locality not found).

Ecology. Forest edges, savanna rich in Baobab (*Adansonia digitata*). Lava country; 800—1500 m. Flowers and fruits in May, Oct., and Dec.

Notes. 1. Except for 25. *B. berberoides* this is the only thorny species in *Basananthe*. The thorns are, as in certain species in *Adenia*, the modified peduncle and terminal (first) flower of the inflorescences; they replace the tendrils of other species. See also under 25. *B. berberoides*.

2. In the field notes described as spiny scrambler and very thorny bush. Flowers white, centre blue.

25. Basananthe berberoides (Chiov.) de Wilde, *comb. nov.* — Fig. 4n; 7.

Carania berberoides Chiov., Fl. Somala (1929) 176, tab. 19 fig. 3; Hutch., Gen. Fl. Pl. 2 (1967) 372.

Thorny shrub up to 5 m, scabrous-hispidulous. Tendrils absent; thorns ½—2 cm. *Leaves* ovate to obovate or oblong, ¼—1 by ⅖—½(—¾) cm, base acute, top (sub)acute, or acuminate; margin entire or with some teeth to *c.* 1 mm; petiole up to 1½ mm. Stipules 1—1½ mm. False stipules absent. Inflorescences 1- (or 2-)flowered; flowers solitary or in small bundles on a minute supra-axillary short-shoot; peduncle absent. *Flower* stipe 3—10 mm; bracts ½—1 mm. Hypanthium 2½—3 mm wide. Sepals 6—9 mm, subobtuse, sparingly hispid. Petals 4—6 mm. Outer corona tube ⅝—2 mm, threads 1—2 mm. Disk ¼—½ mm. Inner corona cup-shaped, ½—1 mm high, its upper half forming again 5 small membranous cups (⅛—½ mm) around the basal parts of the filaments. Stamens 5; filaments 2—3 mm, anthers 1½—2½ mm. Ovary 1—1½ mm; styles 1½—3½ mm, connate for ½—2½ mm. *Fruit* (excl. the *c.* ½ mm long gynophore) 1¼—1¾ cm, containing 2 or 3 seeds 8—10 mm.

ETHIOPIA. Harrar Prov., Ogaden, Mersi, *Hemming 1559* (EA, K).

SOMALIA. Former British Somaliland Protectorate, Karin (near Berbera), *Glover & Gilliland 1175* (BM, EA, K); between Hudin and Halin, *Glover & Gilliland 119* (BM, EA, K); Somaliland, Northern Region, E. of Ras Koreh, *Hemming 2108* (EA, K); between Scerèr Hor and Uadi Hamùd (Costa dei Migiurtini), *Puccioni & Stafanini 674* (FI, *n.v.*, syntype); Central region, between Avorrei and Bula Burti, *Puccioni & Stefanini 172* (FI, lectotype).

Ecology. In open terrain, scrub savanna; sandy and stony ground; 0—750 m. Flowers and fruits in Febr., April, June, July, Oct., and Nov.

Notes. 1. This species and *B. spinosa* are the only two thorny *Basananthes*. Both species are not so closely related as may be judged from their resemblance in habit alone. There are two important differences: in *B. spinosa* the flowers are borne on the thorns, and the inner corona is a simple cup-shaped structure as in the remaining *Basananthe* species; in *B. berberoides* the flowers are not borne on the thorns, but on supra-axillary short-shoots, whereas the inner corona has a more complicated stucture by a ring of smaller membranous cups in its upper half, the cups embracing the basal parts of the filaments.

2. Chiovenda (*o.c.* p. 175, 176) distinguished the genus *Carania* from *Tryphostemma* by the spiny habit and the presence of but a single corona. Analysis of the flowers of various specimens (incl. the type, *Puccioni & Stefanini 172*) showed that a double corona is present.

3. The thorns are homologous with the inflorescences or tendrils as in other *Basananthe* species. They are placed in the axils of (caducous) leaves. Hutchinson (*o.c.* pp. 365, 366, 367, and 372) erroneously stated that the thorns are modified leaves.

4. Because of various characters, including the habit, 23. *B. scabrifolia*, 24. *B. spinosa*, and *B. berberoides* form a series of coherent species of which the latter two are thorny.

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New names are in **bold type**, further accepted names in plain type, synonyms in *italics*; numbers refer to species numbers.