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Taxonomic Revision of *Staurogyne* (Nelsonioideae, Acanthaceae) in the Neotropics

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Abstract

Twenty-eight species of *Staurogyne* are recognized from the Neotropics, where the genus is distributed from Mexico to southern Brazil. The study of herbarium specimens, especially from Brazil and other South American countries, including historical collections from many European herbaria, resulted in the recognition of numerous new geographical records. Morphological characters of diagnostic importance are discussed for the genus and species, for which aspects of the inflorescence, corolla, gynoecium and indument are important for identification. In Neotropical *Staurogyne*, the corolla may have two basic forms: 1) short, infundibular, and white (often with markings on the limb and throat), and 2) long, tubular, and yellow or red. Species with the latter form of the corolla are restricted to southeastern Brazil. Eight synonymizations and one lectotyfication are proposed, while a key to species, descriptions, illustrations and comments on taxonomy, phenology and geographical distribution are provided.

Keywords: Brazilian flora, description, morphology, synonymization, lectotypification

Resumo

Vinte e oito espécies de *Staurogyne* são reconhecidas para a região neotropical, onde o gênero se distribuí desde o México até o sul do Brasil. O estudo de espécimes de herbário, especialmente do Brasil e de outros países sul-americanos, incluindo coleções históricas de muitos herbários europeus, resultou no reconhecimento de inúmeros novos registros geográficos. Caracteres morfológicos de importância diagnóstica são discutidos para o gênero e para as espécies, para os quais os aspectos da inflorescência, corola, gineceu e indumento são importantes para a identificação. Nas espécies neotropicais, a corola pode apresentar duas formas básicas: 1) uma curta, infundibuliforme e branca (frequentemente com máculas no limbo e na garganta), e 2) longa, tubular e amarela ou vermelha. Espécies com a última forma da corola são restritas a região sudeste do Brasil. Oito sinonimizações e uma lectotipificação são propostas e são apresentadas chave para as espécies, descrições, ilustrações e comentários sobre taxonomia, fenologia e distribuição geográfica

Palavras-chave: Flora brasileira, descrição, morfologia, sinonimização, lectotipificação

Introduction

Staurogyne Wallich (1831: 80) is a pantropical genus in the Nelsonioideae, comprising *ca.* 140 species distributed in the Neotropics, West Africa and Asia-Malesian region (Champluvier 1991, Daniel & McDade 2014). The species are erect or creeping herbs, subshrubs or shrubs, the flowers bearing an unequally 5-segmented calyx (the posterior segment being larger than the others, the lateral segments much smaller, and the anterior segments of intermediate size), and an androecium of four didynamous stamens with bithecae anthers and a reduced staminode.

In the Neotropics *Staurogyne* is distributed from South America (Brazil, Bolivia, Ecuador, Peru, Colombia, the Guianas and Venezuela) northward to Mexico. Plants occur mostly close to watercourses in forest habitats. Some species are characterized by a short bilabiate infundibular, white to lilac corolla, sometimes purple-spotted, whilst others have a long narrowly tubular, red or yellow corolla (Braz & Monteiro 2005). The first group encompasses the majority of the species, which are widely distributed in the Neotropics; the other group, with approximately one third of the species, is restricted to Central and Southeastern Brazil. These differences in corolla form are the most significant morphological variations for the genus, being adaptations for bee and bird pollination syndromes, respectively (Braz & Monteiro 2006).

Along with five other genera, *Staurogyne* is recognized as belonging to the basal group of Acanthaceae, the Nelsonioideae (Scotland & Vollesen 2000, McDade *et al*. 2008, Daniel & Wenk 2009, McDade *et al.* 2012, APG 2016, Daniel& McDade 2014). They share the family's pleisiomorphic loculicidal capsules without retinacula, the absence of cystoliths on the leaves, as well as the ovules varing in number from six to numerous (Scotland & Vollesen 2000, Daniel & Wenk 2009, McDade *et al*. 2012, Daniel & McDade 2014). The only morphological sinapomporhy accepted is the cochlear descending corolla aestivation (Scotland & Vollesen 2000, Daniel & McDade 2014), but the subfamily is strongly supported by molecular data (McDade *et al*. 2008, Daniel & Wenk 2009, McDade *et al*. 2012, Daniel & McDade 2014). The subfamily represents less than 5% of Acanthaceae species (Braz & Monteiro 2011a), while *Staurogyne* comprises more than 80% of the Nelsonioideae. It differs from the other American Nelsonioideae genera *Elytraria* Michaux (1803: 8) and *Nelsonia* Brown (1810: 480) by the 4-staminate flowers.

Staurogyne has been revised for Africa (Champluvier 1991) and Malaysia (Bremekamp 1953). For the Neotropics,

the most extensive studies were done by Nees von Esenbeck (1847a, 1847b), who established 16 new taxa, both species and varieties, under the name *Ebermaiera*, and Leonard (1937, 1951, 1958), who published new taxa of South America under *Staurogyne* as well as made several combinations, synonyms and lectotypifications. Recentely, Wasshausen (1995, 2006) synonymized and lectotypified two species, and Braz & Monteiro (2011a) proposed further lectotypifications and neotypifications. Other studies are limited to the description of new species (Hiern 1878, Wawra 1883, Lindau 1897, 1898, Hossain 1971, Braz & Monteiro 2005, 2006) and their inclusion in local floras (Wasshausen & Smith 1969, Kameyama 1991, 1995, Profice 1997), which in some cases included misidentified species. In the recent revision of the genera of Nelsonioideae, Daniel & McDade (2014) provide a list of currently recognized species for each genus, including synonymies and distribuition by countries. These authors have synonymized the American monotypic genus *Gynocraterium* Bremekamp (1939: 557) under *Staurogyne*, based on a broader delimitation supported on molecular grounds.

Material and Methods

Morphological studies were performed based on the analysis of previously collected specimens of the genus, at the same time of the investigation on type materials and original description of the species. The following herbaria were consulted: BHCB, BHMH, BM*, BOTU*, BR*, C, CAY, CEN, CEPEC, CESJ, CH, COL, CTES, CVRD*, E, EAC, ESA*, ESAL*, F, FCAB*, FI, GUA, GZU, HB*, HRCB*, HTO, HUEFS, HUFU, IAN, IBGE, INPA, IPA*, K*, L, LE*, M*, MBM, MBML, MG*, MO, NY, OUPR*, P*, PAMG, PEUFR*, R*, RB*, RBR*, SI, SP*, SPF*, U*, UB*, UEC*, UFP*, US, VIC*, VIES*, W* (those personally visited are marked by an asterisks). Loan material was received in HRCB Herbarium in the *Instituto de Biociências*, *Universidade Estadual de São Paulo Júlio de Mesquita Filho* (UNESP), Rio Claro, State of São Paulo, Brazil, where other laboratory activities were also carried out. Herbarium number was cited only when there was no collector number.

Vegetative (branches and leaves) and reproductive (inflorescences, flowers and fruits) structures were studied in detail with a stereomicroscope and latelly used for species description. Maximum and minimum dimensions of each structure were indicated. The measurement of the leaves was usually taken from those from 3rd to 4th nodes from the apex downwards. Indument was described using the terminology of Ahmad (1978), who studied the trichomes in Acanthaceae, and denominated (a) the "non-glandular multicellular hair", as simple trichomes; (b) the "long-stalked glandular hair", as glandular hairs; and (c) the "glandular subsessile (short stalked) disc-shape hair", as disc-shape hairs. The inflorescences were characterized as: (a) leafy, for those with flowers in the axils of bracts identical to the vegetative leaves; (b) bracteate, for those with flowers in the axils of distinct bracts, strongly differentiated in shape and dimensions from the leaves. The venation types recognized were based on Hickey (1973) classification, termed as follows: (a) 1-nerved, when the venation is pinnate; (b) 3-nerved, when the venation is actinodromous, with three equivalent veins from the base; or (c) acrodromous, when there are one or more pairs of basal arched veins, besides the central one. For other structures the definitions of Stearn (1998) were adopted and as was also the terminology specific to the family used by Leonard (1951), Ezcurra (1993, 2002), Wasshausen (1995), Scotland & Vollesen (2000), Wasshausen & Wood (2004) and Daniel & McDade (2014). Figures are presented for those species never illustrated before and for those whose figures are in rare books; for those available in the intenet, only the references are presented.

Taxonomic Treatment

Staurogyne Wallich (1831: 80)

Lectotype (designated by Leonard 1951: 5):—*S. argentea* Wallich (1831: 80).

Ebermaiera Nees von Esenbeck (1832: 75). Type:—*E. humilis* Nees von Esenbeck (1832: 75) ≡ *Staurogyne humilis* (Nees) Kuntze (1891: 497).

Gynocraterium Bremekamp (1939: 557). Type:—*G. guianense* Bremekamp (1939: 557) ≡ *Staurogyne guianensis* (Bremek.) Daniel & McDade (2014:37).

Erect or creeping herbs, shrubs, subshrubs; glandular trichomes sometimes present in the vegetative parts. *Leaves* opposite, usually petiolate, margin entire, membranous to chartaceous, cystoliths absent. *Inflorescence* a thyrse with units of one flowered opposit reduced dichasia that take the form of a raceme or a spike, cylindrical to pyramidal, rarely subcapitate, or rarely a panicle; bracteate, leafy at base or rarely all the inflorescence leafy; flowers decussate, rarely sub-opposite or alternate, each one usually accompanied by 1 bract and 2 bracteoles (4 bracteoles in *S. brachiata*); bracts and bracteoles green or colored, 1-nerved, 3-nerved or 3−5-acrodromous veins, bracts elliptic (long-subulate with truncate base in *S. guianensis*); pilosity with glandular or simple trichomes generally present on the inflorescence and other floral parts. *Flowers* sessile or pedicellate; calyx green or colored, deeply 5-parted, segments unequal, the posterior usually wider and longer than the others, with 3−7 acrodromous veins, rarely inconspicuous, lateral pair of segments usually smaller, subulate, rarely lanceolate or linear, anterior pair of segments with intermediate size, rarely equal to the lateral pair, oblong to lanceolate, rarely subulate; corolla sub-bilabiate slightly curved, infundibular white or lilac, sometimes with markings on limb and throat, sometimes tubular and yellow or red, basal tube generally well defined, 5 lobes oblong, suborbicular or subtriangular, the anterior lobe generally larger and different from the others, the 2 posterior generally smaller; stamens 4, frequently didynamous, included to sub-exserted, generally inserted in the base of the corolla; anthers bithecous, reniform to oblong, introrse, connective often expanded dorsally; staminode reduced, generally inserted between the posterior pair of stamens, filiform or expanded at apex, antheriform; nectariferous-disk inconspicuous (elongated, longitudilnally sulcate and slightly extended beyond the ovary in *S. guianensis*); ovary cylindrical to sub-conical, ovules 6–36 per locule, style filiform, stigma bifid (subcrateriform in *S. guianensis*), the posterior lobe divided into two segments or truncate, the anterior lobe oblong to elliptic, usually longer. *Capsule* cylindrical, sometimes sub-conical, sessile, usually sparsely pilose, retinacula absent; seeds 6−34 per locule, subglobose to slightly angled, usually hairy, smooth or with protrusions on the surface.

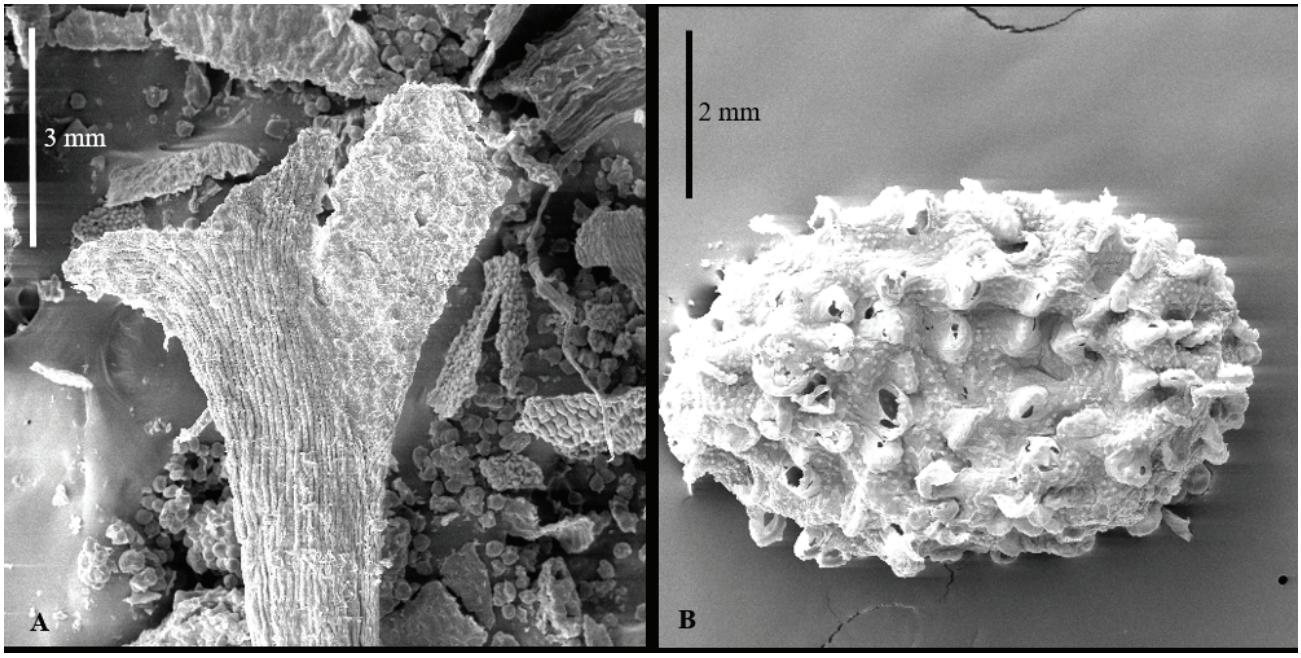

FIGURE 1. *Staurogyne* in the neotropics. A. *S. parva*, stigma, showing the anterior lobe slightly divided (Fernandes 2862). B.Seed of *S. spraguei* (Maguire &Politi 27410). (photoed by the authors)

Distribution and habitat:—The natural limits of *Staurogyne* in the Neotropics extends from northwestern Mexico (Daniel & Lott 1993), to the southern Brazil. In South America it occurs solely in very well preserved native forest vegetation and is commonly found in shady moist places, near streams, distributed in the Amazon and Atlantic Forests, and also in the gallery forests of the *Cerrado* domain. For other Nelsonioideae in the Neotropics, *Nelsonia* and *Elytraria* are widely distributed in South America, from the Amazon Forest, to the Brazilian *Cerrado* and Atlantic Forest (Profice *et al*. 2015). In the *Caatinga* domain *Nelsonia* and *Elytraria* are mostly registered in the remaining Atlantic Forest that occurs especially in isolated mountains, also called *Brejos de Altitude* or *Florestas Úmidas* (Humid Forest) (Tabarelli & Santos 2004, IBGE 2012). Except for one collection in the State of Bahia in 1822 (*L. Riedel* 01,6 (LE)), *Staurogyne* does not ocurr in this remaining Atlantic Forest of the Caatinga domain. While *Elytraria* occur in dry understory, *Nelsonia* and *Staurogyne*, occur primarily near to streams or rivers. Although it is often suggested

that *Nelsonia* is introduced in the Neotropics (Daniel &Wenk 2009, McDade *et al*. 2012), we reject this idea based on our extensive consultation of herbaria collections and its occurrence in natural vegetation in a great part of Brazilian territory, as well as for *Elytraria* and *Staurogyne*, as also registred by Profice *et al*. (2015).

Taxonomic notes:—The genus name refers to the posterior lobe of the bifid stigma which is divaricate, giving it the shape of a cross (*stauros* = cross; *gyne* = gynoecium) (Wallich 1831) (Figure 1A). However, stigmas with the posterior lobe 2-divided also occur in other African Nelsonioideae genera (Champluvier 1991) and this feature only occurs in some species of *Staurogyne*, many of which have the posterior lobe concave, with the two laterals slightly or deeply prolonged, or with a truncate apex. The only species with a subcrateriform stigma is *Staurogyne guianensis*, that also has quiet different bracts and other characteristics from those described above. Due to the difficulties in obtaining the seeds from the herbarium specimens, these have not been investigated; from those analyzed, different surfaces have been observed (Daniel & Lott 1993, McDade *et al*. 2012), including some protrusions (Figure 1B), as also observed in other members of the Acanthaceae (Balkwill & Campbell-Young 1999, Ruengsawang *et al*. 2012, Daniel & McDade 2014, Idriunas *et al*. 2014). Seed characters deserve further investigation. Another important aspect that merits additional study is the variation in the trichomes, which has been simplified in the present account although they show different forms (see Materials and Methods).

Key to the species of Neotropical *Staurogyne*

1. Flowers in a bracteate inflorescence; corolla infundibular, 4−16.5(−27) mm long, white to purple, sometimes the limb and throat with purple or vinaceous spots 2
- Flowers in bracteate or leafy inflorescence; corolla tubular, 16−47 mm long, red or yellow 18
2. Bracts and bracteoles subulate, truncate at base; bracts, bracteoles and calyx whitish; corolla 19−27 mm long; stigma subcrateriform ..... *S. guianensis*
- Bracts and bracteoles elliptic, lanceolate, obovate, rarely bracteoles linear, both narrow at base;bracts, bracteoles and calyx green, red or yellow; corolla 4−16.5 mm long; stigma distintinctly 2-divided 3
3. Panicles densely branched, with corymbiform subunits ..... *S. fastigiata*
- Spikes or racemes, rarely panicles lax, not corymbiform 4
4. Leaf blade linear or linear-lanceolate, at least ten times as long as wide ..... *S. stolonifera*
- Leaf blade with other forms, shorter 5
5. Plant creeping, densely branched 6
- Plant erect, rarely branched 9
6. Leaf blade ovate-elliptic to suborbicular 7
- Leaf blade lanceolate, ovate-lanceolate, oblong-lanceolate or oblong-ovate 8
7. Leaves sessile to subsessile; inflorescences terminal and axillary, elongate; calyx ciliate ..... *S. miqueliana*
- Leaves petiolate, petiole 4−5.8 mm long; inflorescence terminal, subcapitate; calyx not ciliate ..... *S. trinitensis*
8. Branches and leaves lax; glandular trichomes absent on rachis, bracts, bracteoles and calyx ..... *S. spraguei*
- Branches and leaves dense; glandular trichomes present on rachis, bracts and bracteoles, rarely present in the calyx ..... *S. repens*
9. Inflorescence terminal and subcapitate ..... *S. veronicifolia*
- Inflorescence terminal and axillary, elongated 10
10. Leaf blade 1.1−5.0 cm long 11
- Leaf blade longer than 5.2 cm 12
11. Plant sparsely branched; flowers opposite at the base and becoming alternate soon above along the rachis; corolla 4.5−5.9 mm long ..... *S. diantheroides*
- Plant densely branched, flowers always opposite along the rachis; corolla 6−9.3 mm long ..... *S. euryphylla*
12. Leaf blade oblong-lanceolate to narrowly lanceolate (at least six times longer than wide) ..... *S. lepidagathoides*
- Leaf blade elliptical or ovate-lanceolate (up to four times longer than wide) 13
13. Leaves entirely pilose on both surfaces ..... *S. parva*
- Leaves glabrous to glabrescent on the upper surface, lower surface with trichomes restricted to the veins 14
14. Bracts colored 15
- Bracts green 16
15. Petiole 0.8−2.1 cm long; bracts broad-elliptic to suborbicular, 3.3−5.6 mm broad ..... *S. mandioccana*
- Petiole 2.1−6.3 cm long; bracts elliptic to lanceolate-elliptic, 0.8−2.8 mm broad ..... *S. sylvatica*
16. Glandular trichomes absent on rachis, bracts, bracteoles and calyx ..... *S. alba*
- Glandular trichomes present on rachis, bracts, bracteoles and calyx 17
17. Petiole 7−12 mm long; inflorescence up to 3.3 cm long; bracts 9.5−10.1 × 3.5−5 mm ..... *S. riedeliana*
- Petiole 1−4.2 cm long; inflorescence 2.5−11.5 cm long; bracts 4.7−8.5 × 1.5−3 mm ..... *S. eustachya*
18. Corolla red 19
- Corolla yellow to greenish-yellow 20
19. Raceme spiciform, dense; bracts and bracteoles red to purple ..... *S. itatiaiae*
- Raceme lax; bracts and bracteoles green ..... *S. rubescens*
20. Panicles terminal and axillary ..... *S. brachiata*
- Racemes terminal and/or axillary 21

21. Inflorescence bracteate 22
- Inflorescence leafy 26
22. Bracts and bracteoles colored; bracts 3−7 acrodromous nerved 23
- Bracts and bracteoles green; bracts 1-nerved or 3- nerved 24
23. Glandular trichomes restricted to the corolla, rarely occurring in the calyx; corolla 2.4−2.8 cm long, yellow to greenish toward the lobes, lobes densely pubescent ..... *S. anigozanthus*
- Glandular trichomes present in all reproductive parts; corolla 3.5−4.7 cm long, yellow, lobes sparsely hairy ..... *S. elegans*
24. Glandular trichomes restricted to the corolla and fruit, rarely present on the calyx ..... *S. minarum*
- Glandular trichomes present in the whole plant 25
25. The whole plant sparsely pilose; inflorescence lax, with bracts soon distinct distally in form, size and venation from the leaves ..... *S. flava*
- The whole plant densely hirsute; inflorescence dense; leaves gradually reduced into bracts distally ..... *S. hirsuta*
26. Leaves lanceolate, 1.8−6×0.5−1.3 cm; petiole 3−8 mm long ..... *S ericoides*
- Leaves elliptic to ovate, 4.4−14.5 × 2−6 cm; petiole 6−23 mm long 27
27. Pedicel 3.4−11 mm long; posterior segment of the calyx 16−20 × 3−4.5 mm ..... *S. warmingiana*
- Pedicel 12−17 mm long; posterior segment of the calyx 6.9−15 × 3−6 mm ..... *S. vauthieriana*

1. *Staurogyne alba* Braz & Monteiro (2006: 581). Type:—BRAZIL. Paraná: Morretes, Véu de Noiva, 21 July 1985, *J. Cordeiro & J.M. Silva 108* (holotype: MBM!). (Figure in Braz & Monteiro 2006: 580)

Herb 30−60 cm tall, sometimes 2−3 stems, rarely branched, glabrescent or with sparse simple trichomes. *Petiole* 1−3.1 cm long; blade elliptic to ovate-elliptic, 5.2−11 × 2−4.8 cm, apex slightly acuminate to acute, base abruptly attenuated, adaxially glabrous, sometimes with few simple trichomes, abaxially with simple trichomes restricted to veins. *Inflorescence* in dense, terminal and axillary,bracteate spike, terminal ones 2.5−4.5 cm long, axillary ones subcapitate, 1.2−2.5 cm long, on both peduncle 0.1−2 cm long; flowers opposite; rachis densely pilose with simple trichomes; bract and bracteoles green, sparsely simple pilose, bract elliptic to elliptic-lanceolate, 2−6.5 × 5−11.7 mm, 1-nerved, bracteoles lanceolate to lanceolate-obovate, 3.7−7 × 0.7−1.8 mm. *Flowers* sessile; calyx green, posterior segment 9−14.2 × 2.9−6.3 mm, (rarely 3-)5-nerved, lateral pair of segments 7.1−10.5 × 0.4−1.3 mm, anterior pair of segments 8.5−12 × 1.3−2.6 mm, sparsely pubescent with simple trichomes, rarely also glandular, sometimes ciliate; corolla white, 10.4−15.2 mm long, basal tube 2−4 mm long, anterior lobe 3.1−4.7 mm long, sparse simple and glandular trichomes externally and internally; posterior stamens 4−5 mm long, anterior stamens 4.9−6 mm long, staminode 1.4−1.9 mm long; ovules 15−19 per locule, posterior lobe of the stigma slightly concave to slightly divided. *Capsule* 8.5−9 × 3−3.2 mm, sparsely pilose with glandular trichomes.

Specimens examined:—BRAZIL. Paraná: Ipiranga, Serra do Mar, 19 September 1908, *Dusén 6741* (F, LE); Ipiranga, 23 August 1914, *Jonsson 833* (F, K, LE); Morretes, Rio Bromado, 13 September 1979, *Hatschbach & Kasper 42502* (MBM); Piraquara, Banhado, 24 September 1944, *Hatschbach 137* (MBM); Banhado, 2 November 1948, *Hatschbach 1051* (RB). Santa Catarina: Garuva, Monte Cristo, 8 October 1960, *Reitz & Klein 10122* (L, MBM); Monte Cristo, 21 October 1966, *Klein & Ravenna 6839* (HB, L); Ibirama, Horto Florestal Instituto Nacional do Pinho, 11 October 1956, *Reitz & Klein 3853* (L).

Distribution and habitat:—*Staurogyne alba* is restricted to the southern Brazilian Atlantic Forest in Paraná and Santa Catarina States, usually occurring at high elevations (800−1300 m) on its northeastern limits (Braz & Monteiro 2006).

Phenology:—Collected with flowers from July to September and fruits from September to October.

Taxonomic notes:—*Staurogyne alba* is characterized by erect 2−3 stems not branched, pedunculate inflorescence (with the terminal ones elongated and the axillary ones short, subcapitate), green1-nerved bracts, pedicelate flowers, white corolla and glandular trichomes restricted to the flower. It is similar to *S. riedeliana* (Nees von Esenbeck 1847a: 18) Kuntze (1891: 497), *S. mandioccana* (Nees von Esenbeck 1832: 80) Kuntze (1891: 497), *S. eustachya* Lindau (1897: 644) and *S. sylvatica* Lindau ex Braz & Monteiro (2006: 584) in the corolla morphology and the geographical distribution, but beside the aspects above mentioned, several distinctive feature between these species and *S. alba* are listed in Braz & Monteiro (2006).

2. *Staurogyne anigozanthus* (Nees) Kuntze (1891: 497). *Ebermaiera anigozanthus* Nees von Esenbeck (1847a: 16). Lectotype (designated by Braz & Monteiro 2011b: 174):—BRAZIL. Minas Gerais: Ouro Preto, August 1824, *L. Riedel 348* (lectotype: LE!; isolectotype: GZU). (Fig. 2A–B, 4)

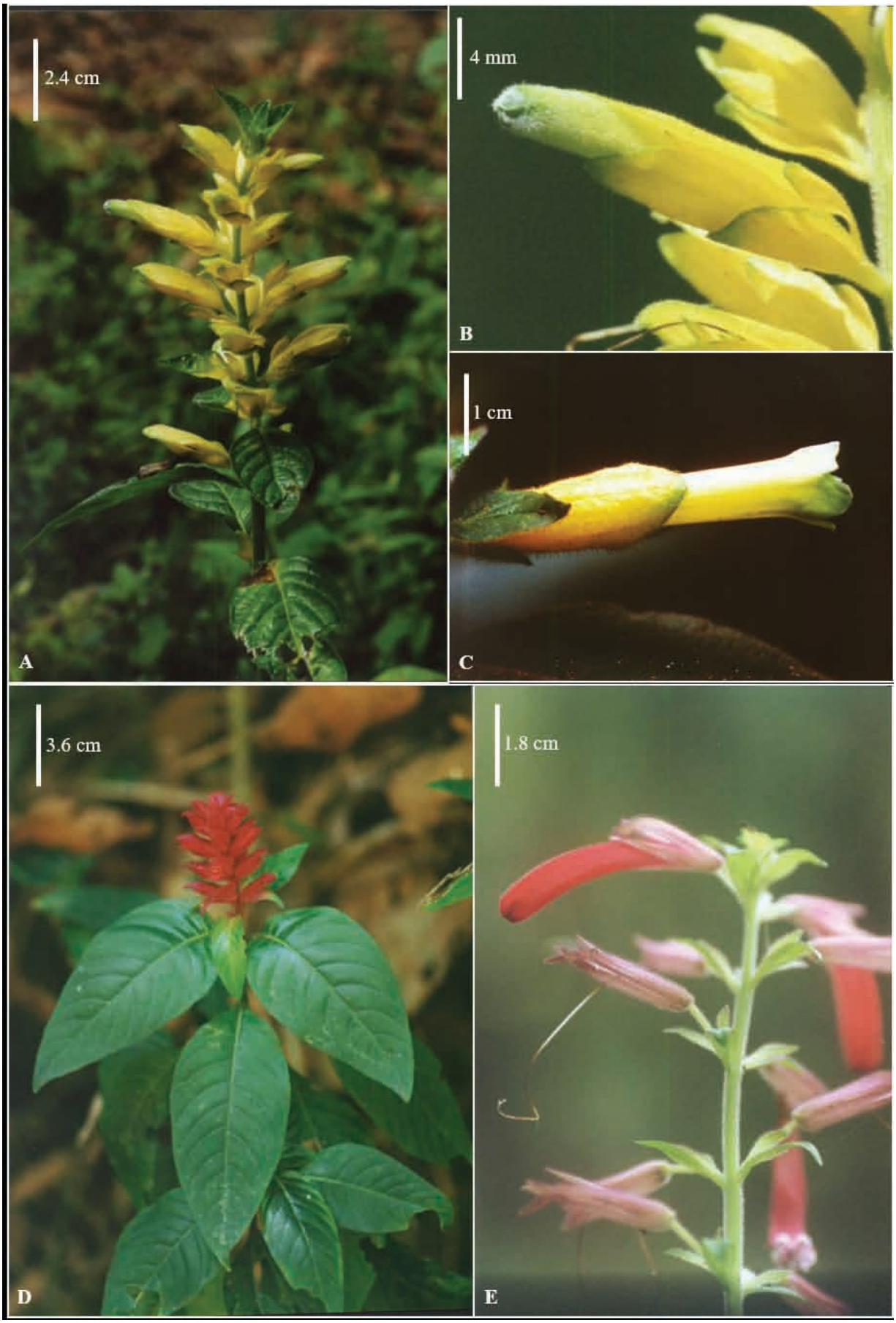

FIGURE 2. *Staurogyne* with tubular corolla. A–B. *S. anigozanthus*. C. *S. vauthieriana*. D. *S. itatiaiae*.E. *S. rubescens*. (photoed by the authors)

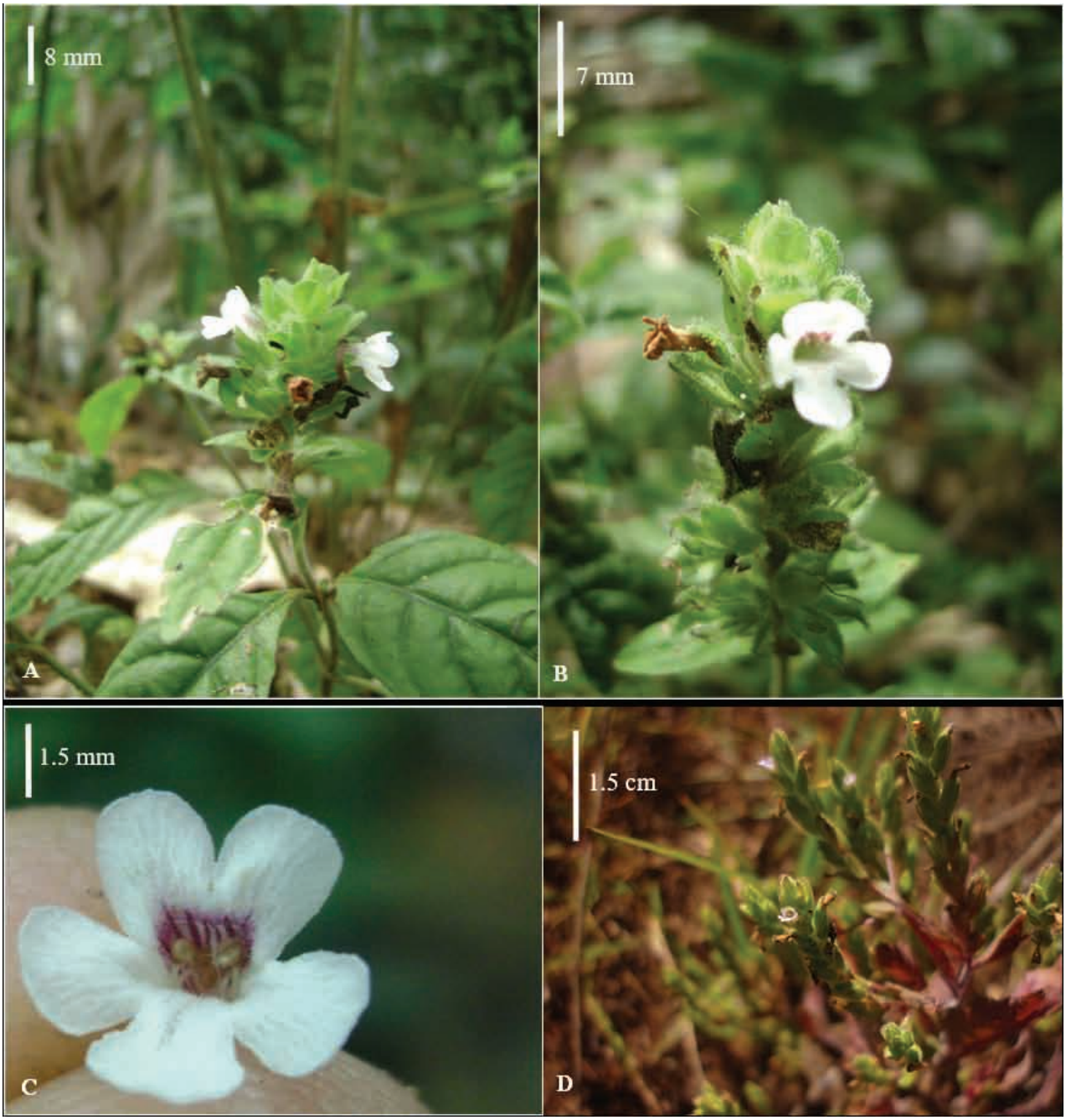

FIGURE 3. *Staurogyne* with infundibular corolla. A–C. *S. euryphylla*. D. *S. fastigiata*. (A–C photed by the authors; D photoed by R. Sartin)

Herb 0.5−1.0 m tall, rarely branched, sparsely pilose with simple trichomes, glabrescent at the base. *Petiole* 6−30 mm long; blade elliptic to lanceolate-elliptic, 6.5−16 × 2.2−5.2 cm, apex acute to acuminate, base acute to attenuate, adaxially with scattered simple trichomes, general restricted to the veins abaxially and rarely with disc-shape trichomes. *Inflorescence* in dense, terminal, bracteate spike-like raceme, 3.5−8 cm long, peduncle 0.3−1.5 cm long; flowers opposite; rachis densely simple pilose; bracts and bracteoles yellow to yellowish-green, sparsely simple pilose, bract suborbicular to broad-elliptic, 10−17 × 6−11 mm, with 3 acrodromous veins, bracteole elliptic to oblong-lanceolate, 6−11.9 × 1.7−5 mm. *Pedicel* 3−7 mm long; calyx yellow, sparsely simple pilose, rarely also glandular, non-ciliate, posterior segment 18.8−33 × 6−13 mm, 5−7-nerved, lateral pair of segments 12−18 × 1−2.5 mm, anterior pair of segments 16−20× 3−5.2 mm; corolla yellow at the base, greenish toward the lobes, 2.4−2.8 cm long, basal tube 2−3 mm long; anterior lobe 1.5−2.8 mm, externally pilose with dense glandular trichomes, internally glabrous; posterior stamens 1.8−2.0 cm long, anterior stamens 2−2.3 cm long, staminode 2−3.2 mm long; ovules 18−23 per locule, posterior lobe of the stigma deeply concave to slightly divided. *Capsule* 14−20 × 4 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Espírito Santo: Muniz Freire, 4 August 1983, *Hatschbach 46703* (C, CEPEC, F, MBM, RB), 21 July 1982, *Hatschbach 45168* (CEPEC). Minas Gerais: Alto Caparaó, Serra do Caparaó, 30 June 1988, *Krieger et al. 107* (CESJ); Fervedouro, Serra do Brigadeiro, 10 July 1999, *Lombardi 3092* (BHCB); Mariana, July 1824, *Riedel s.n.* (LE 10); Ouro Preto, Morro de São Sebastião, no date, *Damazio* s.n. (OUPR 92); Ouro Preto, Serra do Itacolomi, 21 June 1957, *Pereira 3049 & Pabst* (HB, RB); Ouro Preto, Serra do Itacolomi, February 1892, *Ule 2662* (R), July 1824, *Riedel s.n.* (LE 348), Serra do Baú, 5 March 1994, *Roschel &Diass.n.* (OUPR 9952). Without locality, 1936, *Rodini s.n.* (OUPR95), 1831, *Ackermann s.n.* (BR 840390), 29 July, *Damazio s.n.* (RB55645), no date, *Damazio 1511* (RB), no date, *Scüch s.n.* (W32.707).

Distribution and habitat:—*Staurogyne anigozanthus* occurs in forests at 530−1250 m elevation, the higher elevations being registered on the hills surrounding Ouro Preto, in the State of Minas Gerais, and the lower elevations in eastern State of Espírito Santo in the lowlands arround the Caparaó Mountain.

Phenology:—Collected with flowers and fruits between April and August.

Taxonomic notes:—*Staurogyne anigozanthus* is easily recognized by the showy congested racemes, with the colored bracts, bracteoles and calyx, and by corolla lobes externally densely hirsute and green. It resembles *S. minarum* (Nees von Esenbeck 1847a: 17) Kuntze (1891: 497) by the pilosity of the corolla, but these species differ especially by the dense raceme (not lax) and the bracts suborbicular to broad-elliptic, 6−11 mm broader (not elliptic, 3−7 mm broader). The showy inflorescence, with yellow bracts, bracteoles and flowers, visited by hummingbirds (D. M. Braz personal observation), gives it ornamental potential, especially in areas similar to its natural habitats or with similar climate.

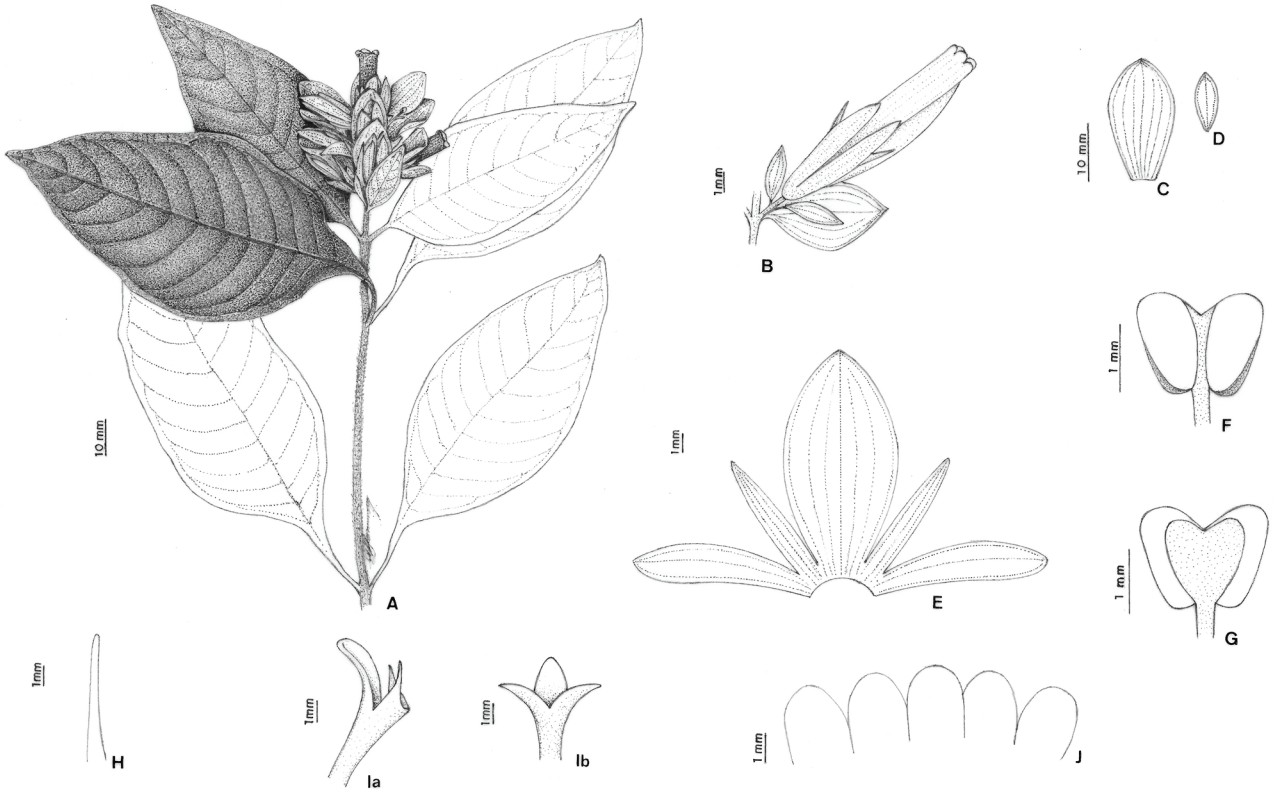

FIGURE 4. *Staurogyne anigozanthus*. A.Flowering branch. B. Flower, bract and bracteoles. C. Bract. D. Bracteole. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view (Ia) and frontal view (Ib). J. Corolla lobes. (A, C–D from *Hatschbach 46703*; B, E–J from *Roschel & Dias* (OUPR 9952).

3. *Staurogyne brachiata* (Hiern) Leonard (1937: 402). *Ebermaiera brachiata* Hiern (1877: 69). Type:—BRAZIL. Rio de Janeiro: Petrópolis, March 1869, *A. Glaziou 3070* (holotype: P!; isotypes: R!, BR!; photograph: F!). (Figure in Wawra 1883: t.10) (Fig. 5)

Staurogyne wawrana Leonard (1937: 402). *Ebermaiera gracilis* Wawra (1883: 94), *non S. gracilis* Kuntze (1891: 497), syn. nov. Type:—BRAZIL. Rio de Janeiro: Petrópolis, 1879, *V.F.H. Wawra 55* (holotype: BR!).

Subshrub ca. 1 m tall, glabrous at the base, branches glabrescent. *Petiole* 1.2−3 cm long; blade elliptic to lanceolate, 6.7−18 × 2.7−6.1 cm, apex acuminate, base attenuate, glabrous on both surfaces, lower surface rarely with disc-shape trichomes. *Inflorescence* in lax, terminal and axillary, bracteate panicle, 4−15 cm long, peduncle 1.5−4 cm long; flowers opposite; rachis usually sparsely simple and glandular pilose; bracts and bracteoles slightly yellow to yellow-greenish, sparsely pilose with glandular trichomes, bract lanceolate to elliptic, 5−8 × 1.5−2.5 mm, usually with 3 acrodromous veins, 1-2 pairs of bracteoles, lanceolate to linear-lanceolate, 5−7 × 0.9−1.5 mm. *Pedicel* 9.5−22 mm long; calyx greenish-yellow, sparsely glandular pilose, non-ciliate, posterior segment 2.5−3.5 × 11−14 mm, 3−5-nerved, lateral pair of segments 9−10 × 0.9−1 mm, anterior pair of segments 11−12.5 × 1.5−2 mm; corolla yellow, 2.1−3.2 cm long, basal tube ca. 3.5 mm long, anterior lobe 1.3−3 mm long, internally and externally sparsely pilose with glandular trichomes; posterior stamens 6.8−10 mm long, anterior stamens 9.2−12 mm long, staminode 1.7−4.3 mm long; ovules ca. 22 per locule, posterior lobe of the stigma truncate to slightly concave. *Capsule* 11−12 × 3−3.5 mm, sparsely glandular pilose.

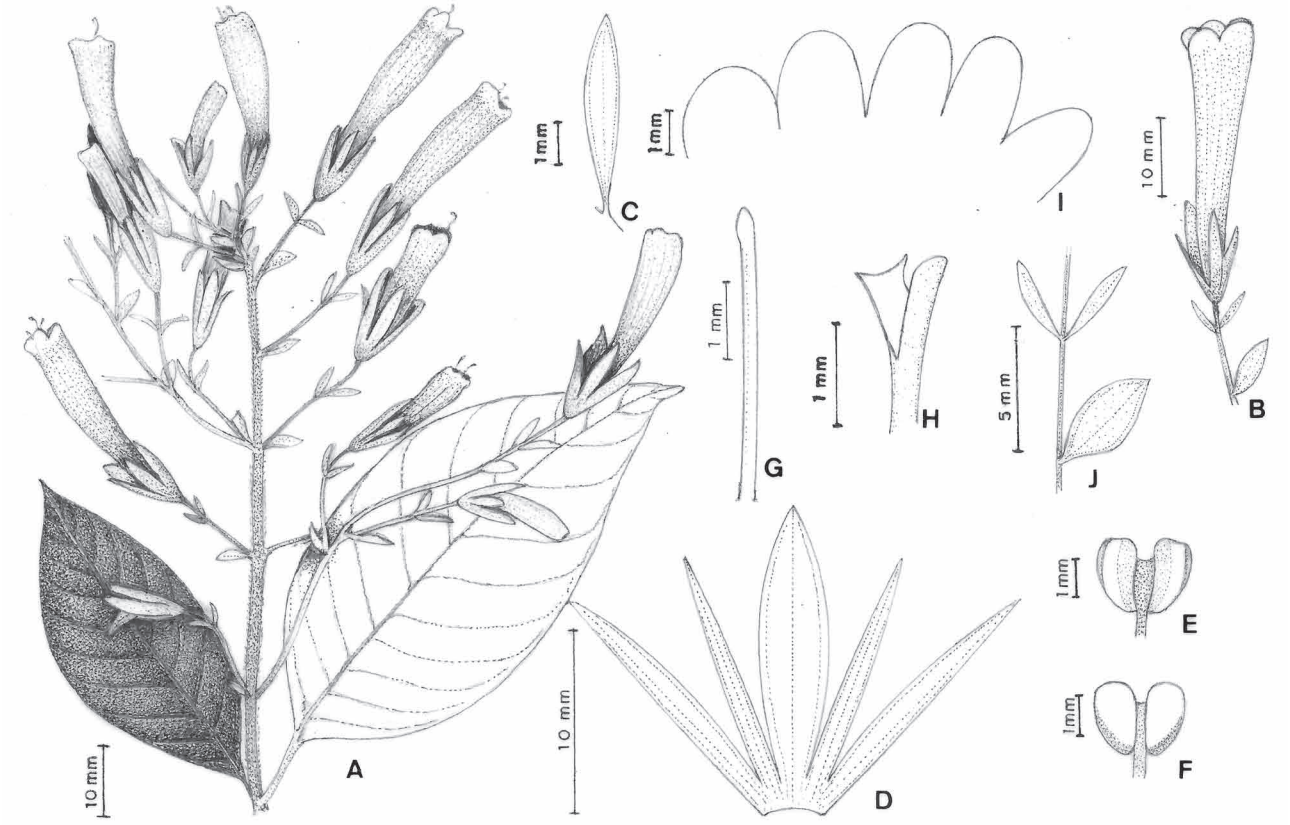

FIGURE 5. *Staurogyne brachiata*. A. Flowering branch. B. Flower, bract and bracteoles. C. Bract. D. Calyx. E. Anther in dorsal view. F. Anther in frontal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes. J. Floral pedicel, bract and a pair of bracteoles (A, D, H–I from *Duarte 9940*;B–C, G from *Khulmann 118*; E–F from *Duarte 9240*).

Specimens examed:—BRAZIL.Rio de Janeiro: Nova Friburgo, Jardim Botânico, 1951, *Duarte 4290* (RB); Petrópolis, 1879, *Wawra 55* (BR); Nova Iguaçu, Tinguá, 1 August 1957, *Emydgio 1281* (R); Petrópolis, Serra da Estrela, 16 April 1937, *Kuhlmann 118* (RB, US); Petrópolis, 1964, *Duarte 9940* (HRCB, RB); Petrópolis, March-April 1869, *Glaziou 15291* (C, K, LE, P).

Distribution and habitat:—*Staurogyne brachiata* is endemic to the State of Rio de Janeiro, in the Atlantic rain forest, occurring above 800m elevation.

Phenology:—It was collected with flowers in March and April.

Taxonomic notes:—*Staurogyne brachiata* is distinct from the other species of the genus by the absence of pubescence on vegetative parts, the compound inflorescence, with flowers long-pedicellate, usually two pairs of bracteoles present, and the androecium inserted in the upper half of the corolla.

Leonard (1937) established the name *Staurogyne wawrana* for the species originally described as *Ebermaiera gracilis* because of the existence of *S. gracilis*. The analysis of the protologues and types, in addition to materials of several herbaria, showed that the only distinguishable morphological feature between the two species is the stigma

with a subcapitate lobe as described for *S. wawrana*. However, this difference was not observed in any of the studied material of the genus, including the type material of *E. gracilis*, and *S. wawrana* is now treated as a synonym of *S. brachiata*. The taxon described by Wawra (1883) was richly described and illustrated in a watercolor picture on its original publication.

4. *Staurogyne diantheroides* Lindau (1897: 645). Lectotype (designated by Braz & Monteiro 2011b: 175):—BOLIVIA. Santa Cruz: José Miguel de Velasco, 200 m elevation, July 1892, *O. Kuntze s.n.* (lectotype: US 702151!; isolectotype: NY 278273!). (Fig. 6)

Herb 6−20cm tall, rarely branched, with dense simple trichomes toward the apex. *Leaves* sessile or petiole up to 5 mm long, blade ovate to elliptic-lanceolate, 1.1−4.9 × 0.3−1 cm, apex acute, base acute to obtuse, with sparse simple trichomes restricted to the veins in both surfaces, adaxially sometimes glabrescent or abaxially with glandular trichomes. *Inflorescence* in dense, terminal, bracteate spike, 0.7−2.1 cm long, sessile; flowers opposite at the base, alternate to subopposite above; rachis, bracts and bracteoles densely simple and glandular pilose; bracts and bracteoles green, bract elliptic to broad-elliptic, 2.1−5.3 × 5−12 mm, 3 acrodromous veins, rarely 3-nerved, bracteoles oblong, 5−6.3 × 1.1−1.5 mm. *Flowers* sessile, calyx green, sparsely pilose with glandular and simple trichomes, non-ciliate, posterior segment 4.8−5 × 0.9−1 mm, slightly 3-nerved, lateral pairof segments 3.8−4.2 × 0.3−0.4 mm, anterior pair of segments 4−4.2 × 0.4−0.5 mm; corolla white, usually with purplish markings at limb and throat, 4.5−5.9 mm long, basal tube ca. 0.9 mm long, anterior lobe 1.4−1.9 mm long, externally with scattered simple trichomes, internally glabrous; posterior stamens 1−1.9 mm long, anterior stamens 1−2.1 mm long, staminode 0.4−0.5 mm long; ovules 20−24 per locule, posterior lobe of the stigma slightly divided to concave. *Capsule* 4.1−4.6 × 0.9−1.4 mm, sparsely pilose with glandular trichomes.

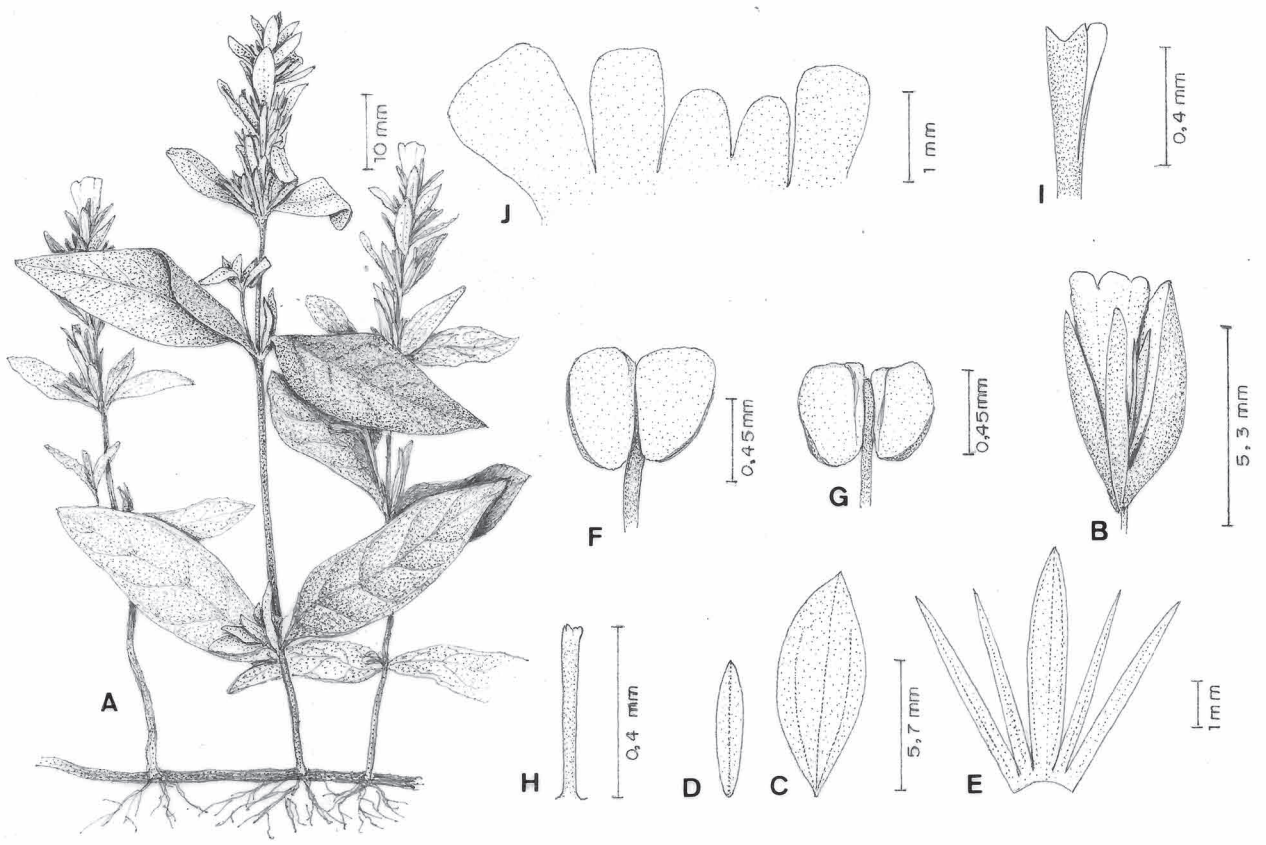

FIGURE 6. *Staurogyne diantheroides*. A.Flowering branch. B. Flower, bract and bracteoles. C. Bract. D. Bracteole. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes. (A, C–E, H from *Steinbach 2479*; B, F–G, I–J from *Wood 10052*).

Specimens examed:—BOLIVIA. Beni: Ballivián, 26 August 1985, *Beck 12176* (K); Ballivián, 2 July 1987, *Beck 5628* (CTES), 4 July 1984, *Beck 5635* (K). Santa Cruz: Bañado de Dolores, August 1916, *Steinbach 2479* (U); Neflo de Chaves, 22 July 1995, *Wood 10052* (K); Ichilo, 6 October 1997, *Wood & Menado 12.689* (K). BRAZIL. Mato Grosso:

Poconé, 15 July 1992, *Schessl 157/1-3* (K), 6 November 1992, *Schessl 201/1-1* (K); Serra da Chapada, 1847, *Riedel s.n.* (LE 15). Tocantins: withou locality, September 1844, *Weddell 2453* (P).

Distribution and habitat:—This Amazonian species was described to Bolivia and recently registered in Brazil (Profice *et al.* 2010). It occurs in forested areas, sometimes disturbed, above 300 m elevation.

Phenology:—Collected with flowers and fruits mainly during July and August.

Taxonomic notes:—*Staurogyne diantheroides* is a delicate herb, especially characterized by the elliptic to ovate-elliptic leaves, the terminal spikes with green bracts and bracteoles and the bracts acrodromous or actinodromous 3-nerved. It is similar to *S. spraguei* Wasshausen (1992: 149) in the habit and the shape of corolla, but differs by the erect (not creeping) stem, the leaves ovate to elliptic-lanceolate (not oblong-ovate to oblong-lanceolate, smaler), 1.1−4.9 × 0.3−1 cm (not 1.4−4.3 × 0.2−0.6 cm) and the terminal sessile (not terminal and axillary pedunculate) inflorescence.

5. *Staurogyne elegans* (Nees) Kuntze (1891: 497). *Ebermaiera elegans* Nees von Esenbeck (1847a: 17). Lectotype (designated by Braz & Monteiro 2011b: 175):—BRAZIL. Minas Gerais: Ad Vieira do Matto, no date, *J.B.E.Pohl 3151* (lectotype: W!; isolectotypes: BR!, GZU!). (Fig. 7)

Subshrub 1−1.5 m tall, sparsely branched, sparsely pilose with simple trichomes, glabrous at the base. *Petiole* 6−18 mm long; blade lanceolate, 9.5−19 × 1.8−5 cm, apex acuminate to acute, base attenuate to acute, adaxially glabrescent or sparsely simple pilose, abaxially with trichomes restricted to the veins, rarely with disc-shape trichomes. *Inflorescence* in dense, terminal, bracteate raceme,4.5−15 cm long, peduncle 1−2.7 cm long; flowers opposite; rachis sparsely pilose with glandular and simple trichomes; bracts and bracteoles yellow-greenish, sparsely glandular pilose, bract elliptic to suborbicular, rarely lanceolate, 8−15 × 3.2−7 mm, 3−5 acrodromous veins, bracteoles lanceolate-obovate, 6−11 × 1.5−3.3 mm. *Pedicel* 6−14.8 mm long; calyx yellow-green to yellow, sparsely pilose with glandular trichomes, non-ciliate, posterior segment 5.5−9 × 19−31 mm, 3−5-nerved, lateral pair of segments 13−20 × 1−2 mm, anterior pair of segments 9.5−29 × 2−4mm; corolla yellow, 3.5−4.7 cm long, basal tube 3−5.5 mm long, anterior lobe 4−6 mm long, externally pilose with sparse glandular trichomes, internally glabrous; posterior stamens 3−4.3 cm long, anterior stamens 3.2−4.5 cm long, staminode 2.5−8 mm long; ovules 19−26 per locule, posterior lobe of the stigma concave. *Capsule* 14−17 × 4−5 mm, sparsely glandular pilose.

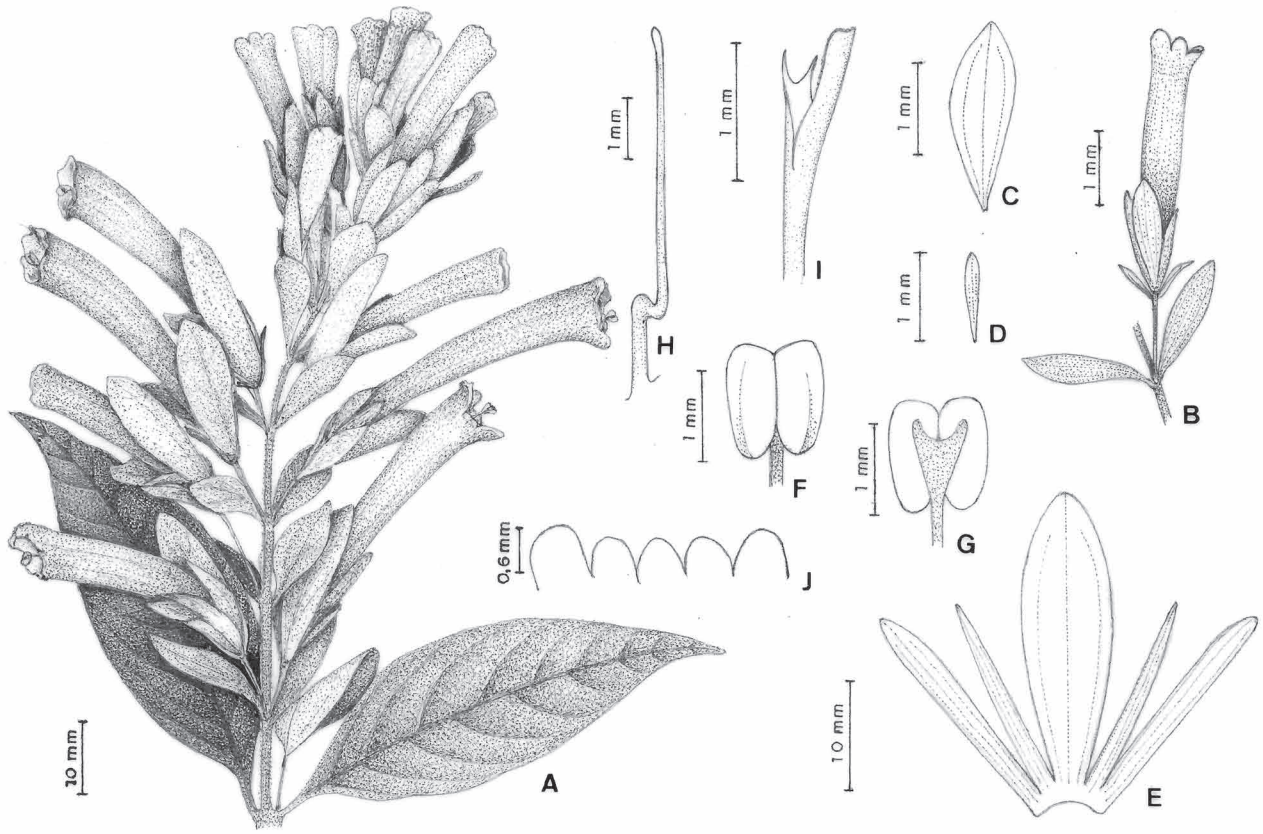

FIGURE 7. *Staurogyne elegans*. A.Flowering plant. B. Flower, bracts and bracteoles. C. Bract. D. Bracteole. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in frontal view. J. Corolla lobes. (A, E–G from *Campos & Souza CFSC-13756*;B–D, H–J from *Novelino et al. CFSC-11427*).

Specimens examined:—BRAZIL. Minas Gerais: Conceição do Mato Dentro, Serra do Cipó, 13 July 1940, *Foster & Mello-Barreto 10834* (ESA, HB), Parque Nacional da Serra do Cipó, 5 July 1989, *Kameyama et al.CFSC-11542* (HRCB, SPF); Santana do Riacho, Serra do Cipó, 25 April 1994, *Campos & Souza CFSC-13756* (HRCB, SPF), 16 April 1989, *Novelino et al. CFSC-11427* (SPF).

Distribution and habitat:—*Staurogyne elegans* has an extremely restricted occurrence, collected only in the *Serra do Cipó*, in the southern portion of the Espinhaço Range, State of Minas Gerais, at elevations above 700m, near creeks and humid shady habitat, inside the gallery forests.

Phenology:—It was collected with flowers and fruits from April to July.

Taxonomic notes:—*Staurogyne elegans* is easily recognized by its glabrescent lanceolate leaves, the inflorescence with showy colored bracts and bracteoles, greenish-yellow, and by the corolla much longer than the calyx. It is close to *S. anigozanthus* in the showy inflorescence with petal-like bracts, but differs mainly by the presence of glandular trichomes on all reproductive parts (rachis, bracts, bracteoles, calyx, corolla and fruit) (not glandular trichomes restricted to corolla and fruit, rarely in the calyx) and the corolla 3.5−4.7 cm long (not 1.8−3.3 cm). *S. elegans* was mistakenly treated as *S. minarum* by Kameyama (1995) when she studied the Acanthaceae of *Serra do Cipó*.

6. *Staurogyne ericoides* Lindau (1898: 44). Type:—BRAZIL. Minas Gerais: Alegria, 9 June 1884, Fl. Jouves(?), *A. Glaziou 15295* (holotype: P!; isotypes: C!, K!, R!; photograph: FI!). (Fig. 8)

Ebermaiera minarum var. *microphylla* Nees von Esenbeck (1847a: 17), syn. nov. Lectotype (designated here):—BRAZIL. Minas Gerais: *L. Riedel s.n.* (lectotype LE 467!).

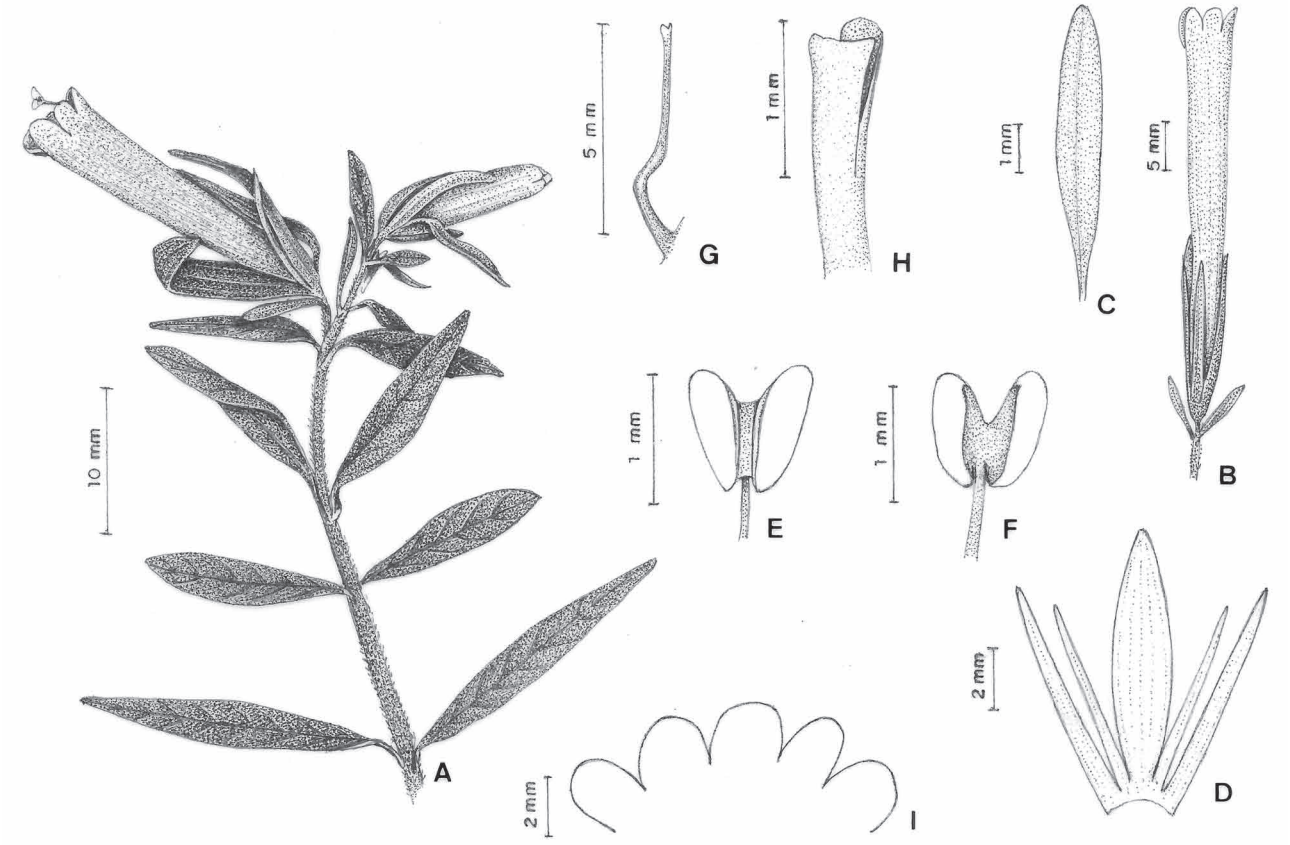

FIGURE 8. *Staurogyne ericoides*. A.Flowering branch. B. Flower and bracteoles. C. Bracteole. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in frontal view. I. Corolla lobes (A from *Teixeira* (BHCB 25204); B–I from *Vasconcelos* (BHCB 41845)).

Subshrub 0.5−1 m tall, usually branched, densely pilose with glandular trichomes. *Petiole* 3−8 mm long; blade lanceolate to linear, 1.8−6 × 0.5−1.3 cm, apex acute, base acute to subobtuse, sparsely glandular and simple pilose on both surfaces, sometimes dense in the veins. *Inflorescence* in lax, leafy raceme; flowers opposite; bracteoles green, lanceolate to elliptic-obovate, 3.7−7 × 0.9−1.1 mm, sparsely pilose with glandular trichomes. *Pedicel* 3−7.6 mm long; calyx yellow to greenish-yellow, sparsely glandular and simple pilose, non-ciliate, posterior segment 11.7−17 ×

2.3−4 mm, 3-nerved, lateral pair of segments 9.3−12.9 × 0.7−1.2 mm, anterior pair of segments 9.7−15 ×1−1.9 mm; corolla tubular, yellow, 2.4−3.5cm long, basal tube 2−6 mm long, anterior lobe 3−4.1 mm long, externally pubescent with glandular and simple trichomes, rarely glabrous, internally glabrous; posterior stamens 1.7−3 cm long, anterior stamens 2−2.9 cm long, staminode 3−7.5 mm long; ovules 28−34 per locule, posterior lobe of the stigma truncated to slightly divided. *Capsule* 9.0−12.6 × 2.5−3.3 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL.Minas Gerais: Betim-Brumadinho, 8 July 1940, *Oliveira 101* (RB); Catas Altas, Serra do Caraça, 31 May 1998, *Vasconcelos s.n.* (BHCB-41845); Furnas, Ribeirão das Capivaras, 26 August 1972, *Emydgio et al. 3630* (R); Itabirito, 5 July 1994, *Teixeira s.n.* (BHCB-25204, SPF-100239); Jaboticatubas, P. N. Serra das Bandeirinhas, 9 September 1992, *Campos et al. CFSC-12985* (SPF); Lavras, 10 April 2001, *Chaddad Jr. 48* (ESA); Lavras, Reserva Poço Bonito, 6 June1987, *Gavilanes 3083* (ESAL); Lavras, Reserva Poço Bonito, 24 March 1991, *Gavilanes 5000* (ESAL); Mariana, 9 July 1997, *Roschels.n.* (OUPR-8822); Nova Lima, Serra da Muctuca, Barreiro, 15 April 1945, *Williams & Assis 6638* (R; U); Rio das Velhas, 1 June 1903, *Damásio 1555* (RB); Ouro Branco, Serra do Ouro Branco, 27 July 2002, *Coiafa 184* (VIC); Ouro Branco, Serra do Ouro, 13 July 2002, *Paula et al. 162* (VIC); Ouro Branco, Serra do Ouro, 1915, *André s.n.* (R-102379); Ouro Preto, Chapada, 5 August 1980, *Lima et al. 1282* (RB); Ouro Preto, Timbopeba, August 1824, *Riedel s.n.* (LE-06); Ouro Preto, 1896, *Silveira & Thomas 1008* (R), 15 February 1999, *Silva s.n.* (OUPR-8563), 31 July 1976, *Davis & Shepherd 59676* (UEC), July 1892, *Magalhães 481* (OUPR), *Damazio 1749* (OUPR); without locality, 25 May 1980, *Baldini s.n.* (OUPR-25458), 26 May 1980, *Baldini s.n.* (OUPR-25459), 1831, *Ackermann s.n.* (BR-840394), no date, *Riedel s.n.* (LE 06), no date, *Kassis s.n.* (OUPR-097), no date, *Damazio s.n.* (OUPR-091).

Distribution and habitat:—*Staurogyne ericoides* is endemic to the State of Minas Gerais, occuring in riparian forests of the southern portion of the Espinhaço Range and extending some kilometers to the south.

Phenology:—It was collected with flowers and fruits from February to August, but mainly in the months of July and August.

Taxonomic notes:—*Staurogyne ericoides* is recognized by its lanceolate to linear leaves, and the leafy inflorescence, with the flowers occurring in the axiles of the apical leaves. Other species whose flowers also occur in the axiles of the apical leaves are *S. vauthieriana* (Nees von Esenbeck 1847a: 15) Kuntze (1891: 497) and *S. warmingiana* (Hiern 1877: 68) Leonard (1937: 402); nevertheless in these two species the leaves are ovate or elliptical and 2−6 cm broad (not lanceolate to linear, 0.5−1.3 cm broad). *Staurogyne ericoides* is also close to *S. hirsuta* (Nees von Esenbeck 1847a: 18) Kuntze (1891: 497) by the glandular indumentum throughout the plant and the lanceolate leaves, but they differ by the leaves 0.5−1.3 cm broad (not 0.9−2.2 cm broad), the flowers in a lax leafy (not dense bracteate) raceme and the corolla 2.4−3.5 cm long (not 2.7−4.5 cm long).

When *Ebermaiera minarum* var. *microphylla* was established by Nees von Esenbeck (1847a: 17), three gatherings, *Ackermann s.n.*(BR 840394), *L. Riedel s.n.*(LE 06) and *L. Riedel s.n.*(LE 467), were cited, and they are syntypes according to Art. 9.5 of ICN (Melborne Code, McNeill *et. al.* 2012). Since no holotype was designated, *Riedel s.n.* (LE 467) is here designated as the lectotype because of its good condition. Lindau (1898) overlooked this taxon and published it again as *S. ericoides*.

7. *Staurogyne euryphylla* Hossain (1972: 381). *Ebermaiera riedeliana* var. *latifolia* Nees von Esenbeck (1847: 19), *non S. latifolia* Bremekamp(1969: 76). Type:—BRAZIL. Rio de Janeiro: "pr. Esperança", June 1822, *L. Riedel 70* (holotype: LE!). (Fig. 3A–C, 9)

Herb 15−40 cm tall, densely branched, sparsely pilose with simple trichomes, rarely also glandular. *Petiole* 2−8 mm long; blade elliptic to ovate-elliptic, 1.9−5 × 1−2 cm, apex acute, base acute to subobtuse, adaxially with sparse simple trichomes, sometimes restricted to veins, abaxially restricted to veins, usually with disc-shape trichomes. *Inflorescence* in dense, terminal and axillary, bracteate spike, terminal ones 2−3.5 cm long, sessile, axillary ones subcapitate, 1.3−1.8 cm long, peduncle up to 2 mm long; flowers opposite; rachis, bract and bracteoles sparsely glandular and simple pilose; bract and bracteoles green, bract elliptic, slight obovate to suborbicular, 4.9−8.9 × 2.4−6.5 mm, 3-nerved, bracteoles lanceolate-obovate, 3.8−6.2 × 0.8−1.9 mm. *Flowers* sessile or subsessile; calyx green, sparsely pubescent with glandular trichomes, subciliate, posterior segment 6.5−13 × 1.8−2.6 mm, 3-nerved, lateral pair of segments 3.8−5.1 × 0.3−0.4 mm, anterior pair of segments 5.9−6.1 × 0.9−1.1 mm; corolla white, usually with purple markings at limb and throat, 6−9.3 mm long, basal tube 1.5−2 mm long, anterior lobe 1.1−2.9 mm long, externally pubescent with scattered simple trichomes, rarely glandular, internally glabrous; posterior stamens 1.5−2.8 mm long, anterior stamens 2.1−3 mm long, staminode 0.4−0.9 mm long; ovules 13−15 per locule, posterior lobe of the stigma slightly concave to divided, rarely truncated. *Capsule* 6.5−7.9 × 2.3−2.9, sparsely glandular-pilose.

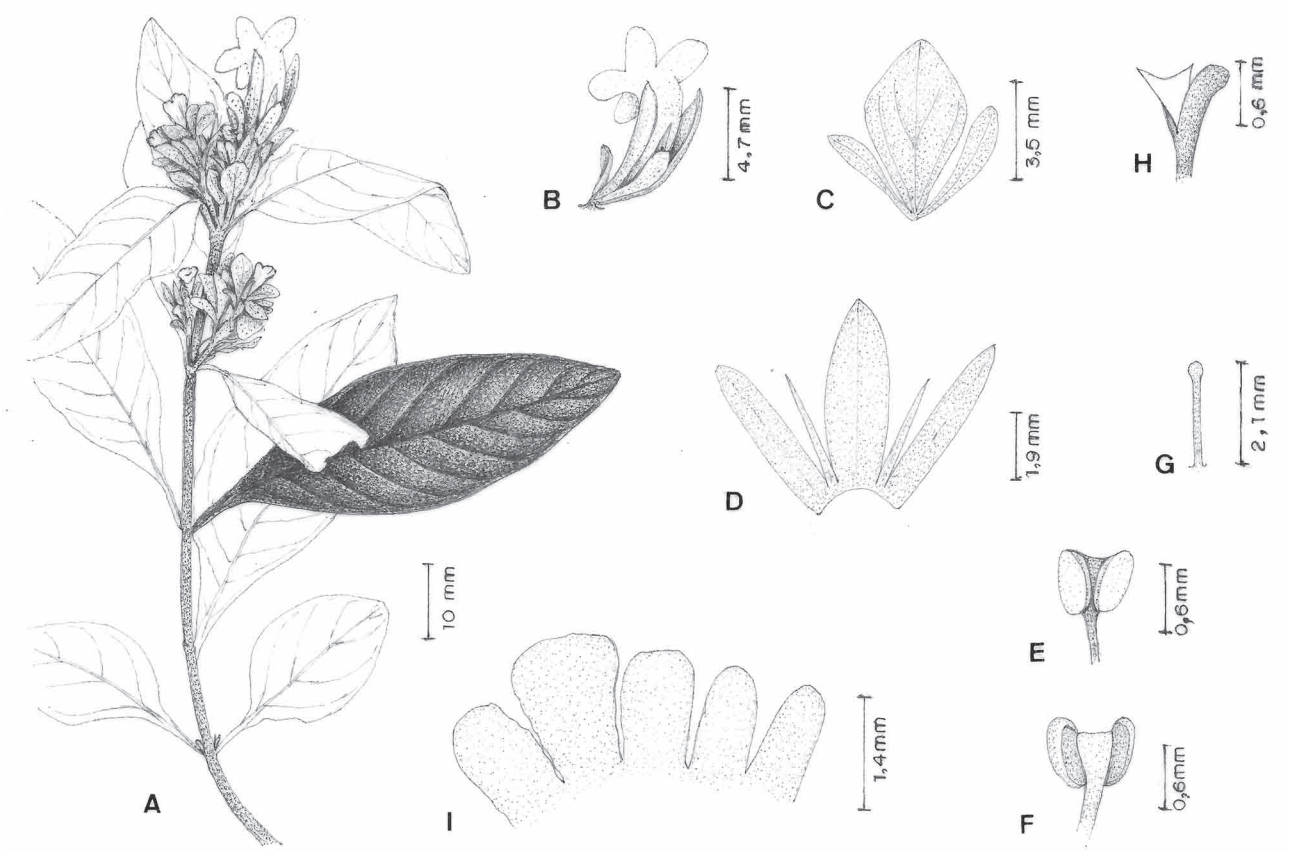

FIGURE 9. *Staurogyne euryphylla*. A.Flowering branch. B. Flower, bract and bracteoles. C. Bract and bracteoles. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes (from *Martinelli 3140*).

Specimens examined:—BRAZIL. Rio de Janeiro: Barra do Piraí, Ipiababas, 13 Octoer 1986, *Carauta 5384* (GUA). Nova Friburgo, Serra de Macaé de Cima, 7 July 1978, *Viana 1333 et al.* (GUA), 14 September 1891, *Glaziou 19746* (B, C, G, K, P); Paracambi, P.N.M. Curió, 18 September 2009, *Braz 294 &Araújo* (RBR), 22 November 2010, *Braz 338 &Souza* (RBR); Rio de Janeiro, Represa dos Ciganos, 8 September 1966, *Ichaso 68* (RB); Rio de Janeiro, Serra dos Pretos Fôrros, 30 September 1977, *Martinelli 3140 et al.* (RB); Jacarepaguá, Mata dos Três Rios, 24 June 1958, *Pereira et al. 3897* (HB); Teresópolis, 1918, *s.c. s.n.* (RB 14908); Teresópolis, P. N. Serra dos Órgãos, 6 September 1970, *Barcia s.n.*(R198610), 14 July 1948, *Rizzini 248* (RB).

Distribution and habitat:—*Staurogyne euryphylla* is endemic to the State of Rio de Janeiro, in the Atlantic Rain Forest, where it occurs in the central mountains and its surroundings, above 200 m elevation.

Phenology:—Collected with flowers and fruits mainly in September.

Taxonomic notes:—This is a small plant, that forms a carpet in the understory of the forest (*Ichaso 68*; personal observation) (Fig. 3A-C). It is also recognized by the relatively small leaves, elliptic to ovate-elliptic, by the elongated terminal inflorescence and the axillary ones shorter, the green bracts usually with acrodromous venation and a supra-acrodromous pair of veins. Hossain (1972) established this new name when uplifting the variety *Staurogyne riedeliana* var. *latifolia* to the rank of species because *S. latifolia* Bremekamp (1969: 76) was already used, without any further comments beyond the citation of names. *Staurogyne euryphylla* is similar to *S. parva* Braz & Monteiro (2006: 583) in the green bracts and the small habit, but differs especially by the leaves 1.9−5 cm long (not 5.8−11.5 cm), the sparse (not dense) pubescent branches and the petioles 2−8 mm long (not 9−33 mm).

8. *Staurogyne eustachya* Lindau (1897: 644). Neotype (designated by Braz & Monteiro 2011b: 175):—BRAZIL. Santa Catarina: Blumenau, 31 August 1884, *C.A.W. Schwacke 206* (neotype: R!). (Fig. 10)

Herb 30−80 cm tall, rarely branched, with sparse simple trichomes. *Petiole* 1−4.2 cm long; blade elliptic to ovate, 7.2−12 × 3.2−6.4 cm, apex acute to slightly cuneate, base obtuse-attenuate, adaxially glabrous or sparsely simple pilose, abaxially restricted to veins, sometimes with scattered disc-shape trichomes. *Inflorescence* in dense, terminal

and axillary, bracteate spike, 2.5−11.5 cm long, peduncle 0.5−2.5 cm long; flowers opposite; rachis, bracts and bracteoles with dense simple and glandular trichomes; bracts and bracteoles green, bract oblong to elliptic-oblong, 4.7−8.5 × 1.5−3 mm, 1−3-nerved, bracteoles linear, 2.2−6.2 × 0.5−0.9 mm. *Flower* subsessile; calyx whitish-green, sparsely simple and glandular pilose, non-ciliate, posterior segment 7−11.1 × 2.5−4.6 mm, 3-nerved, lateral pair of segments 6−10.1 × 0.4−0.8 mm, anterior pair of segments 7−10.8 × 0.8−1.7 mm; corolla white, usually with purple markings at limb and throat, 9−12.8 mm long, basal tube 1.3−2.7 mm long, anterior lobe 2.5−4.1 mm long, externally and internally usually pubescent with scattered simple trichomes, rarely glandular; posterior stamens 2.3−4 mm long, anterior stamens 3−4 mm long, staminode 0.7−1.7 mm long; ovules 16−20 per locule, posterior lobe of the stigma deeply concave to divided. *Capsule* 7−9 × 1.9−4.2 mm, sparsely glandular pilose.

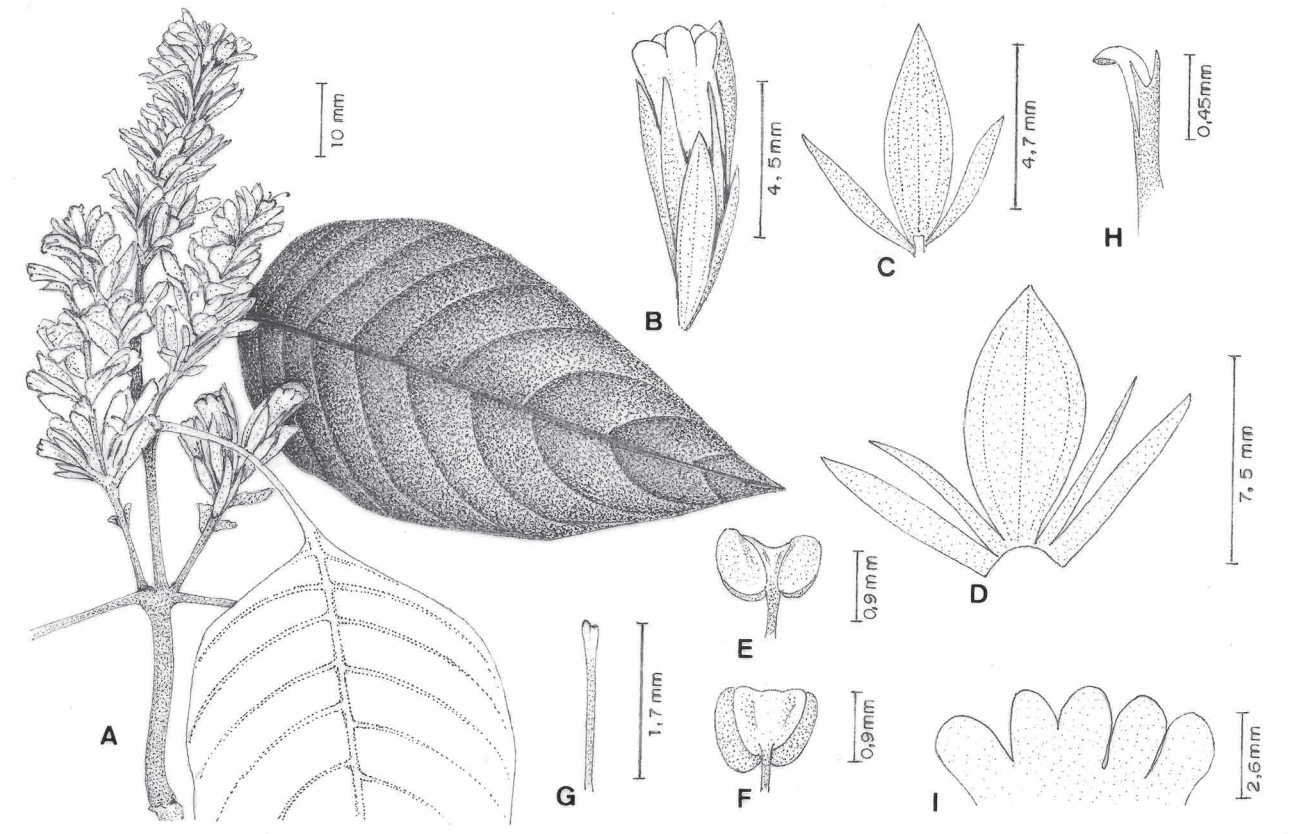

FIGURE 10. *Staurogyne eustachya*. A.Flowering branch. B. Flower, bract and bracteoles. C. Bract and bracteoles. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes (A–B from *Hatschbach*; E–G from *Ribas &Cordeiro 559*;C–D, H–I from *Ribas & Brunner 364*).

Specimens examined:—BRAZIL. Paraná: Antonina, São Sebastião, 11 September 1970, *Hatschbach 24698* (C, MBM), 10 August 1966, *Hatschbach 14574* (C, MBM, P); Guaraqueçaba, Ribeirão do Bananal, 8 October 1970, *Hatschbach 24892* (MBM); Guaratuba, Alto da Serra, 27 August 1960, *Duarte & Hatschbach 5352* (RB); Morretes, Engenheiro Lange, 1 September 1991, *Ribas & Brunner 364* (MBM); Rio Ipiranga, 15 September 1966, *Hatschbach & Guimarães 14725* (C); Parque Estadual Pico do Marumbi, 19 September 1999, *Kozera & Kozera 1223* (ESA); Est. Itupaca, 17 September 1968, *Hatschbach 19738* (F); São José dos Pinhais, Rio Pequeno, 28 September 1993, *Ribas & Cordeiro 559* (HUEFS, MBM); Cabeceiras do Rio Arraial, 24 July 1958, *Hatschbach 4893* (HB, MBM); Purgatório, 19 July 1967, *Hatschbach 16710* (MBM); Sengés, Rio Itararé, 7 October 1971, *Hatschbach 27126* (MBM). Santa Catarina: Azambuja-Brusque, 16 September 1947, *Reitz C1851* (RB); Blumenau, September 1884, *Ule 945* (F); Florianópolis, Palhoça, 17 September 1950, *Kuhlmann s.n.* (RB73670); Mata da Bateia, 27 October 1947, *Reitz C1913* (RB).

Distribution and habitat:—*Staurogyne eustachya* shows a subtropical distribution, occurring in southern Brazil. It can be found under the rain forest, on trail margins or hill slopes, usually in humid habitats of the Serra do Mar, reaching up to approximately 1000 m elevation.

Phenology:—Collected with flowers mainly in August and September and with fruit until October.

Taxonomic notes:—*Staurogyne eustachya* is a showy plant, characterized by axillary dense spikes generally as long as the terminal ones, long-pedunculate, and by the green bracts with veins almost imperceptible, even with optical microscope, approximately the same size or slightly smaller than the flowers. It is close to *Staurogyne sylvatica* Lindau ex Braz & Monteiro (2006: 584) and *S. mandioccana* (Nees von Esenbeck 1832: 80) Kuntze (1891: 497), but differs from *S. sylvatica* by the bracts and bracteoles colored (not green), the bracts 1.5−3 mm broad (not 3.3−5.6 mm broad), the sessile flowers (not pedicelate) and the corolla 9−12.8 mm long (not 10−16.5 mm), and from *S. mandioccana* by the bracts oblong to elliptic-oblong (not broad-elliptic to suborbicular) and the pilosity also in the rachis, bracts and bracteoles (not restrict to the flower and fruit). Other distinctive characteristics are seen in Braz & Monteiro (2006).

9. *Staurogyne fastigiata* (Nees) Kuntze (1891: 497). *Ebermaiera fastigiata* Nees von Esenbeck (1847: 20). Type:—BRAZIL. Goiás: without locality, without date, *G. Gardner 3414* (holotype: GZU). (Fig.3D, 11)

Herb 10−30 cm tall, usually not branched, with dense simple and glandular trichomes toward the base. *Leaves* sessile or with a petiole up to 7 mm long; blade oblong-elliptic to ovate-elliptic, 2.4−5.2 × 0.9−1.8 cm, apex acute, base obtuse-attenuate, with sparse glandular and simple trichomes in both surfaces, denser in veins and margin. *Inflorescence* in lax, terminal and axillary, bracteate panicles, densely branched with corimbiform units of spikes, sometimes twice compound, 2.2−5.8 cm long, peduncle 1−3.2 cm; flowers subopposite at base, alternate above; rachis, bracts and bracteoles sparsely simple and glandular pubesent; bracts and bracteoles green, bract elliptic to ovate-elliptic, 4.9−6.4 × 1.9−3.1 mm, 1-nerved or 3-acrodromous veins above, bracteoles oblong to elliptical, 2.6−3.3 × 1−1.3 mm. *Flowers* sessile; calyx green, sparsely pilose with glandular and simple trichomes, non-ciliate, posterior segment 5.2−5.5 × 2.1−2.3 mm, 3-nerved, lateral pair of segments3.3−3.8 × 0.3 mm, anterior pair of segments 4.1−4.7 × 0.5−0.6 mm; corolla white, purple at limb, 5.5−7 mm long, anterior lobe 1.9−2 mm long, externally with scattered glandular and simple trichomes, internally glabrous; stamens 1.8−2 mm long, staminode 0.4−0.6 mm long; ovules 26−28 per locule, posterior lobe of the stigma slightly concave. *Capsule* not found.

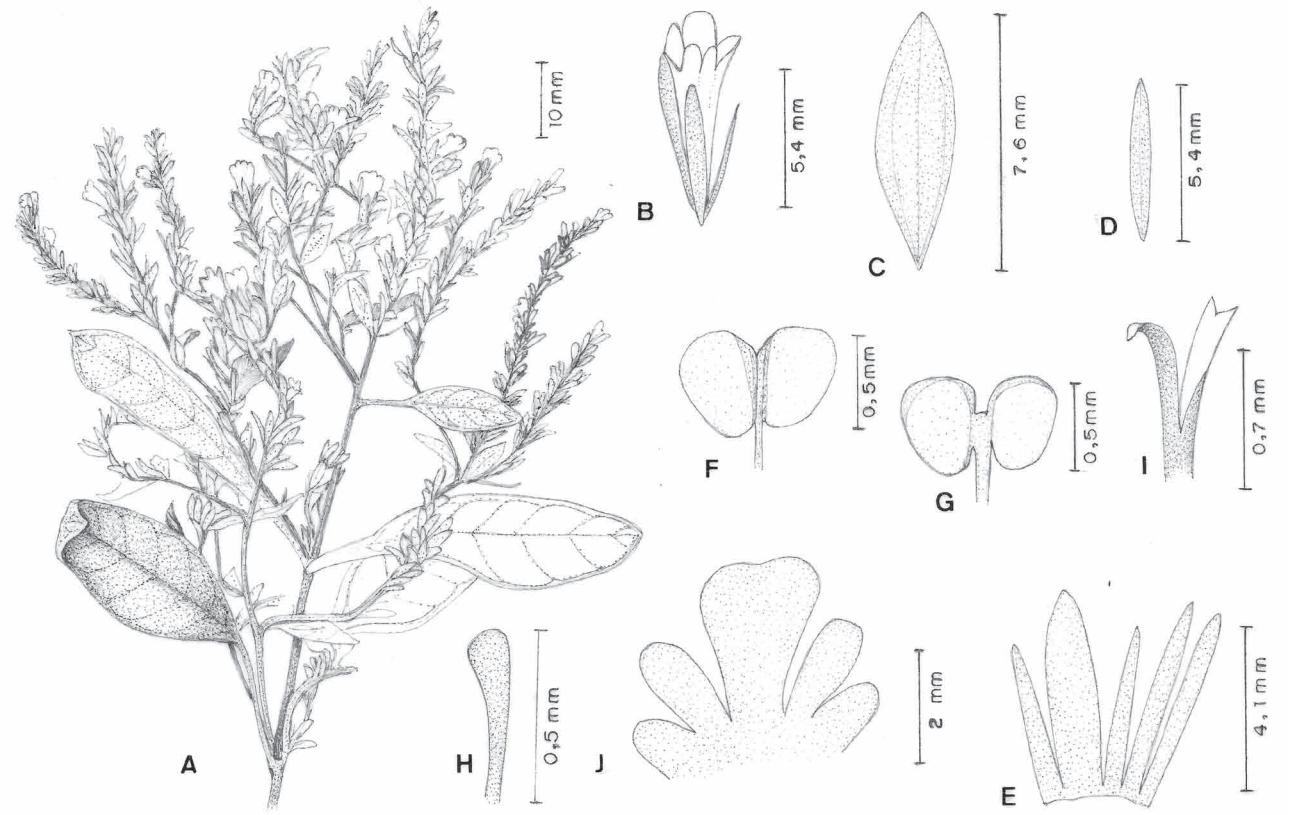

FIGURE 11. *Staurogyne fastigiata*. A.Flowering branch. B. Flower. C. Bract. D. Bracteoles. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes (from *Alston 5954*).

Specimens examined:—BRAZIL. Without locality, without date, *Burchell 2664* (K), *Geattroy s.n.* (P). VENEZUELA. Carabobo: Chirgua, 1 January 1939, *Alston 5954* (BM).

Distribution and habitat:—*Staurogyne fastigiata* was described from Brazil but is now also recorded in Venezuela.

Phenology:—The only localized collection indicates its flowering in January.

Taxonomic notes:—*Staurogyne fastigiata* is the only species of the genus with the inflorescences in panicles with three corymbiform spikes, sometimes twice compound. This species has been recently registrered by photogragh in the State of the type locality, in Brazil (Fig. 3D).

10. *Staurogyne flava* Braz & Monteiro (2006: 581). Type:—BRAZIL. Minas Gerais: Sacramento, "Campo Rupestre, beira de córrego, local sombreado. Flores tubulosas de cor amarela. Erva", 3 August 1984, *R.C. Vieira & N.M. Castro 288* (holotype: HUFU!). (Figure in Braz & Monteiro 2006: 582)

Herb to subshrub 40−80 cm tall, sparsely branched, sparsely pilose with glandular and simple trichomes. *Petiole* 6−15 mm long; blade broad-elliptic to elliptic, rarely subrhomboidal, 5.3−12 × 1.8−4.2 cm, apex acute to slightly-acuminate, base acute to attenuate, sparsely glandular and simple pilose on both surfaces, rarely restricted to veins. *Inflorescence* in lax, terminal, bracteate raceme, rarely panicle, 3−15 cm long, peduncle 1−2.5 cm long; flowers opposite; rachis, bract and bracteoles pilose with scattered glandular trichomes; bract and bracteoles green, sometimes yellowish-green, bract elliptic to subrhomboidal, 5−12 × 2−4 mm, 1−3-nerved, bracteoles oblong-lanceolate to obovate, 3−10 × 1−1.7 mm. *Pedicel* 4−8(−10) mm long; calyx yellow to greenish-yellow, sparsely glandular pilose, non-ciliate, posterior segment 11−17(−20) × 1.7−5 mm, 3-nerved, lateral pair of segments 6.5−12 × 0.3−0.8 mm, anterior pair of segments 10−14 × 1−2 mm; corolla yellow, 2.3−3.7(−4.3) cm long, basal tube 2−4 mm long, anterior lobe 2−4.2 mm long, externally pilose with sparse to subdense glandular trichomes, internally glabrous; posterior stamens 1.6−2.7(−3.2) cm long, anterior stamens 1.8−2.8(−3.5) cm long, staminode 2−5 mm long; ovules 24−30(−33) per locule, posterior lobe of the stigma concave or divided, sometimes deeply concave. *Capsule* 8−15 × 2−3.5 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Distrito Federal: Brasília, Parque Municipal do Gama, 25 May 1965, *Sucre 270* (HB, IAN, RB), 20 October 968, *Heringer 11757* (RB), 31 August 1964, *Irwin &Soderstrom 5834.* (K, RB, U), 20 March 1964, *Pereira 9045* (HB, RB), 06 May 1963, *Pires et al. 9623* (F, RB, SP), Chapada da Contagem, Parque Municipal do Gama, 3 February 1968, *Irwin et al. 19491* (K, M, P, BR). Goiás: Caldas Novas, Serra de Caldas, 10 July 1976, *Hatschbach 38790* (C, HB, MBM), 11 June 1996, *Cavalcante 1978* (SPF); Corumbaíba, 22 June 1993, *Cordovil 347 et al.* (CEN, SPF). Minas Gerais: Carmo do Rio Claro, 7 September 1961, *Andrade & Emerich 1069* (HB); Chapada dos Perdizes, Serra de Carrancas, 9 September 1939, *Heringer 245*(BHCB); Guapé, Serra do Guapé, 7 September 1961, *Andrade &Emerich1108* (R); Itabira, Serra de Itabira, 18 August 1948, *Damasio 55642* (RB); Moeda, Serra da Moeda, 12 September 1998, *Lombardi 2397* (BHCB), 4 August 1987, *Andrade et al. 173* (BHCB); Nova Lima, 8 August 1998, *Stehmann 2377* (BHCB), Retiro das Pedras, 14 June 2000, *Lombardi 3954* (BHCB); Prados, 7 July 1991, *Stehmann s.n.*(BHCB-21500, SPF); Rio Preto, May 1897, *Brandão 2314* (R); Sacramento, 3 August 1984, *Vieira &Castro 288* (HUFU); São João Del Rey, 8 July 1936, *Mello-Barreto 4711* (F, HB, R); Paraíso, 8 September 1945, *Brade 17564 & Barbosa* (RB).

Distribution and habitat:—This taxon has a relatively wide distribution in Brazil, occurring in the Brazilian Central Plateau and in several isolated mountain ranges to the southeast, usually above 600 m elevation. It is found in shaded and moist places, often occurring between rocks along the riverbanks of gallery forests and in semideciduous forests.

Phenology:—It was collected with flowers almost all the year, but especially from May to August, and with fruits in July and August.

Taxonomic notes:—*Staurogyne flava* is recognized by the glandular trichomes on all its parts, the tenuous branches with elliptic leaves, the elliptic to subrhomboidal bracts, the lax inflorescence and the long-pedicellate flowers. It is close to *S. hirsuta* in the corolla, the pilosity and the bracts and bracteoles usually green, but differs by the broad-elliptic to elliptic, rarely subrhomboidal (not lanceolate to lanceolate-elliptic) leaves, the shorter bracts (0.5−1.2 cm) (not 1−3.5 cm) and the lax (not dense) inflorescence.

11. *Staurogyne guianensis* (Bremek.) Daniel & McDade (2014: 37). *Gynocraterium guianense* Bremekamp (1939: 557). Type:—GUYANA. Mataruki River, Boundary Upper Essequebo. On floor of partial clearing under tall rain forest trees, 6 July 1935, *J. G. Myers 5840* (holotype: K!).(Figure in Wasshausen 2006: 34, Braz & Monteiro 2011a: 446)

Herb to subshrub 20−80 cm tall, usually not branched, sparsely simple pilose, glabrescent toward the base. *Petiole* 6-16 mm long; blade elliptic to lanceolate, 7.8−17.2 × 2.2−7.8 cm, apex long-acute, base obtuse-attenuate, rarely acute,

with scattered simple trichomes, adaxially glabrous. *Inflorescence* in dense, terminal, bracteate spike, 2.3−6.5 cm long, peduncle 0.5−0.8 cm; flowers opposite, subopposite toward the apex; rachis sparsely to densely simple pilose; bracts and bracteoles whitish, with sparse simple trichomes usually in the mid vein, bract subulate, rarely linear-lanceoate, 11−18.3 × 0.9−2.2 mm, 3-nerved, bracteoles subulate, 13.5−21 × 0.7−1.7 mm. *Flowers* sessile; calyx whitish, sparsely pilose with simple trichomes, ciliate, posterior pair of segment 15−20.1 × 1−2.5 mm, 3-nerved, lateral and anterior pair of segments 11−17.5 × 0.7−1.3 mm; corolla white, 13.5−22 mm long, basal tube 7.5−11.7 mm long, anterior lobe 2.2−4.5 mm long, generally glabrous; stamens 4.5−9 mm long, staminode 1.1−1.5 mm long; ovules 6−10 per locule, stigma subcrateriform, slightly lobed. *Capsule* not found.

Specimens examined:—BRAZIL. Amazonas: Presidente Figueiredo, 22 March 1986, *Ferreira et al. 6959* (INPA). Pará: Oriximiná, 9 September 1980, *Ferreira et al. 2342* (INPA); Santarém, 18 June 1954, *Fróes 30826* (IAN). **FRENCH GUIANA**. Crique Maripa: Bassin de l'Orapu, 31 October 1967, *Oldeman 2415* (CAY). Crique Favard: Plaine et Montagne de Kaw, 14 February 1996, *Jansen-Jacobs et al. 5304* (CAY); Montagnes de la Trinité, Bassin de la Mana, 53°21'W 4°36'N, 14 March 1997, *Granville 13358* (CAY); Sauts Couéki: Bassin de l'Yaloupi, 10 April 1970, *Granville 309* (CAY); Saut Moutouchy: Bassin de l'Oyapock, 55°15'W, 3°25'N, 15 June 1970, *Oldeman 721* (CAY); Trois-Sauts - Village Wayampi, Bassin de l'Oyapock, 17 March 1975, *Jacquemin 1598* (CAY); Rupununi District: Kuyuwini Landing, Kuyuwini River, 10 October 1992, *Jansen-Jacobs et al. 2852* (K).

Distribution and habitat:—*Staurogyne guianensis* occurs in the Amazon region, in the Guianas and Suriname (Bremekamp 1939, Wasshausen 2006, Daniel & McDade 2014), reaching its southern limit in northern Brazil, on the boundaries of the rain forest with seasonal forest. It is found in dense forest understory growing in soil or on rocks at low and medium altitudes, usually near rivers (Braz & Monteiro 2011a).

Phenology:—It was collected with flowers almost throughout the year, but especially in March; collections with fruits were not found.

Taxonomic notes:—*Staurogyne guianensis* is easily recognized by its terminal spike with subulate calyx segments, bracts and bracteoles, and the calyx segments subequal. The basal leaves can be whitish or reddish in living material and the bracts and flowers are whitish (*Granville 309*, *Granville 13358*; *Jansen-Jacobs et al. 5304*.). It is noteworthy that the collections of *S. guianensis* were previously identified as *S. fockeana* Bremekamp (1938: 146), which is now synonymized under *S. miqueliana* Kuntze (1891: 497). *S. guianensis* differs from the latter by the herbaceous or subshuby (not creeping) habit, the leaves elliptic to lanceolate, 7.8−17.2 × 2.2−7.8 cm (not ovate to ovate-elliptic, 0.9−2.3 × 0.3−1.2 cm), and the bracts subulate (not lanceolate to elliptic).

12. *Staurogyne hirsuta* (Nees) Kuntze (1891: 497). *Ebermaiera hirsuta* Nees von Esenbeck (1847a: 18). Lectotype (designated by Braz & Monteiro 2011b: 175):—BRAZIL. Minas Gerais: "Tejuco," 1883, *A.C. Vauthier 239* (lectotype: P!; isolectotype: GZU!).(Fig. 12)

Staurogyne glutinosa Lindau (1897: 644). Type:—BRAZIL. Minas Gerais: without date, *C.A.W. Schwacke 10515* (holotype: B destroyed; neotype (designated here):—F-photo negative number 5866 (F on-line image!).

Subshrub 30−60 cm tall, usually branched, densely pilose with glandular trichomes. *Petiole* 3−11 mm long; blade lanceolate to elliptic-lanceolate, 3.5−7.9 × 0.9−2.2 cm, apex and base acute, pilose with dense simple and glandular trichomes on both surfaces. *Inflorescence* in usually dense, terminal, bracteate raceme, 7−10.5 cm long, sessile, rachis, bract and bracteoles densely glandular pilose; bract and bracteoles green, rarely yellowish-green, bract elliptic to lanceolate-elliptic, 10−35 × 4.5−11 mm, usually 1-nerved, bracteoles lanceolate to lanceolate-obovate, 4−8.5 × 1.3−2.4 mm. *Pedicel* 3.5−6.5 mm long; calyx yellow to slightly green at the apex, sparsely pilose with glandular trichomes, rarely simple, non-ciliate, posterior segment 14.4−22 × 3−5 mm, 3-nerved, lateral pair of segments 10.2−16 ×0.5−1.3 mm, anterior pair of segments 13−21 × 1.5−2.8 mm; corolla yellow, 2.7−4.5 cm long, basal tube 2.5−5 mm long, anterior lobe 3.5−5.5 mm long, externally with glandular and simple trichomes, sometimes dense, internally glabrous; posterior stamens 1.9−4.2 cm long, anterior stamens 1.7−4 cm long, staminode 2.3−7 mm long; ovules 25−36 per locule, posterior lobe of the stigma slightly truncate or concave, rarely divided. *Capsule* 4−4.5 × 10−11 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Minas Gerais: Belo Horizonte, 13 May 1935, *Mello-Barreto 3234* (HB, R), Serra do Curral, 19 June 1955, *Roth 1778* (RB); Jaboticatubas, Serra do Cipó, 5 August 1972, *Hatschbach 29866* (HB, MBM), 20 August 1972, *Joly & Semir 3003* (RB, UEC), 20 February 1968, *Irwin et al. 20574* (UB, W), 8 April 1974, *Semir & Sazima 4989* (UEC), 14 February 1968, *Irwin et al. 20009* (BR, K, M, P, UB); Ouro Branco, 1915, *André s.n.* (R-102.379); Santana do Riacho, Serra do Cipó, 7 September 1987, *Simão & Pires CFSC-10439* (SPF), 30 May 1991,

Pirani et al. CFSC-12317 (SPF), 1 October 1999, *Lombardi 3200* (BHCB), 6 September 1980, *Forero et al. 7772* (SPF), 6 September 1980, *Forero et al. 7913* (SPF), 24 May 1980, *Cordeiro &Pirani CFSC-6120* (SPF), 7 June 1997, *Farinnaccio et al. 59* (HRCB), 5 July 2001, *Souza et al. 25196* (ESA), Parque Nacional da Serra do Cipó, 5 July 1989, *Kameyama et al. CFSC-11537* (HRCB, SPF); Tiradentes, 30 June 1987, *Leitão-Filho et al. 19333* (UEC).

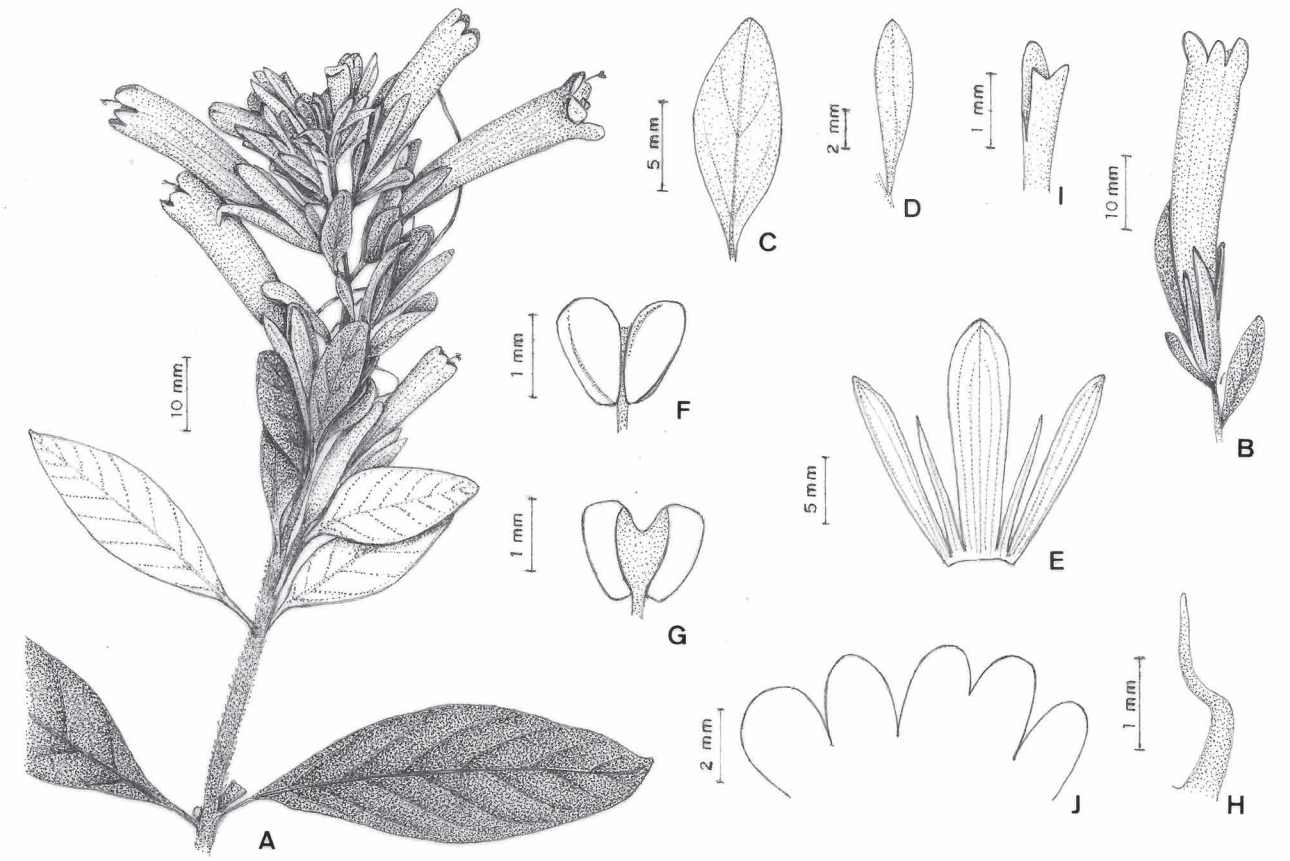

FIGURE 12. *Staurogyne hirsuta.* A.Flowering branch. B. Flower, bract and bracteoles. C. Bract. D. Bracteoles. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes (A–E, J from *Souza 6391*; F–G from *Kameyama et al. CFSC-11537*).

Distribution and habitat:—*Staurogyne hirsuta* is endemic to the Serra do Cipó, in the southern portion of the Espinhaço Range, in the State of Minas Gerais, at elevations above 1000 m.

Phenology:—It was collected with flowers and fruits mainly from May to September.

Taxonomic notes:—*Staurogyne hirsuta* is especially recognized by the glandular pilosity usually dense all over the plant, by the leaves usually lanceolate, the raceme leafy-bracteate, with leaves gradually diminishing up to the apical bracts and slightly differentiated. *Staurogyne hirsuta* is close to *S. ericoides* by the lanceolate leaves, but differs by leaves with dense (not sparse) pilosity, the dense raceme (not lax), the bracts differenciated (not identical) from the leaves, and the corolla 2.7−4.5 mm long (not 2.4−3.5 mm). It is also close to *S. flava* and some differences between the two species are discussed under the latter. Kameyama (1995) treated *Staurogyne glutinosa* as a synonym under *S. hirsuta*.

13. *Staurogyne itatiaiae* (Wawra) Leonard (1937: 402). *Ebermaiera itatiaiaie* Wawra (1883: 93). Type:—BRAZIL. Rio de Janeiro: Itatiaia, 1879, *V.F.H.Wawra 434* (holotype: W!). (Figure in Wawra 1883: t.11) (Fig. 2E, 13)

Subshrubto shrub 1−1.5 m tall, sparsely branched, sparsely pilose with simple trichomes, glabrescent toward the base. *Petiole* 6−17 mm long; blade subobovate to elliptic, 3−5.4 × 7.5−14 cm, apex acute to slightly acuminate, base attenuate, adaxially glabrous, abaxially with sparse simple trichomes restricted to the veins. *Inflorescence* in dense, terminal and axillary, bracteate panicules, sometimes spikes, 3.5−10.5 cm long, peduncle 0.3−1.3 cm; flowers opposite; rachis pilose with dense glandular and simple trichomes; bracts and bracteoles purplulish-red, sparsely glandular pilose, bract elliptic to lanceolate, 9−12.2 × 2.5−4.5 mm, 3 acrodromous veins; bracteoles lanceolate to

slightly obovate, 7−10.8 × 1−2 mm. *Flowers* sessile to subsessile; calyx red to purple, sparsely pilose with glandular trichomes, non-ciliate, posterior segment 12−17 × 3−5 cm, 3−5-nerved, lateral pair of segments 12−16 × 0.5−0.8 mm, anterior pair of segments 14−17 × 0.5−2.7 mm; corolla red, 1.6−2 cm long, basal tube 5−8 mm long, anterior lobe 1.9−2 mm long, externally with sparse glandular trichomes, internally glabrous; posterior stamens 5.5−8 mm long, anterior stamens 7.5−9 mm long, staminode 1.7−3.5 mm long; ovules 20−22 per locule, posterior lobe of the stigma slighltly divided to subtruncate. *Capsule* 8−13 × 3.5 mm, sparsely glandular pilose.

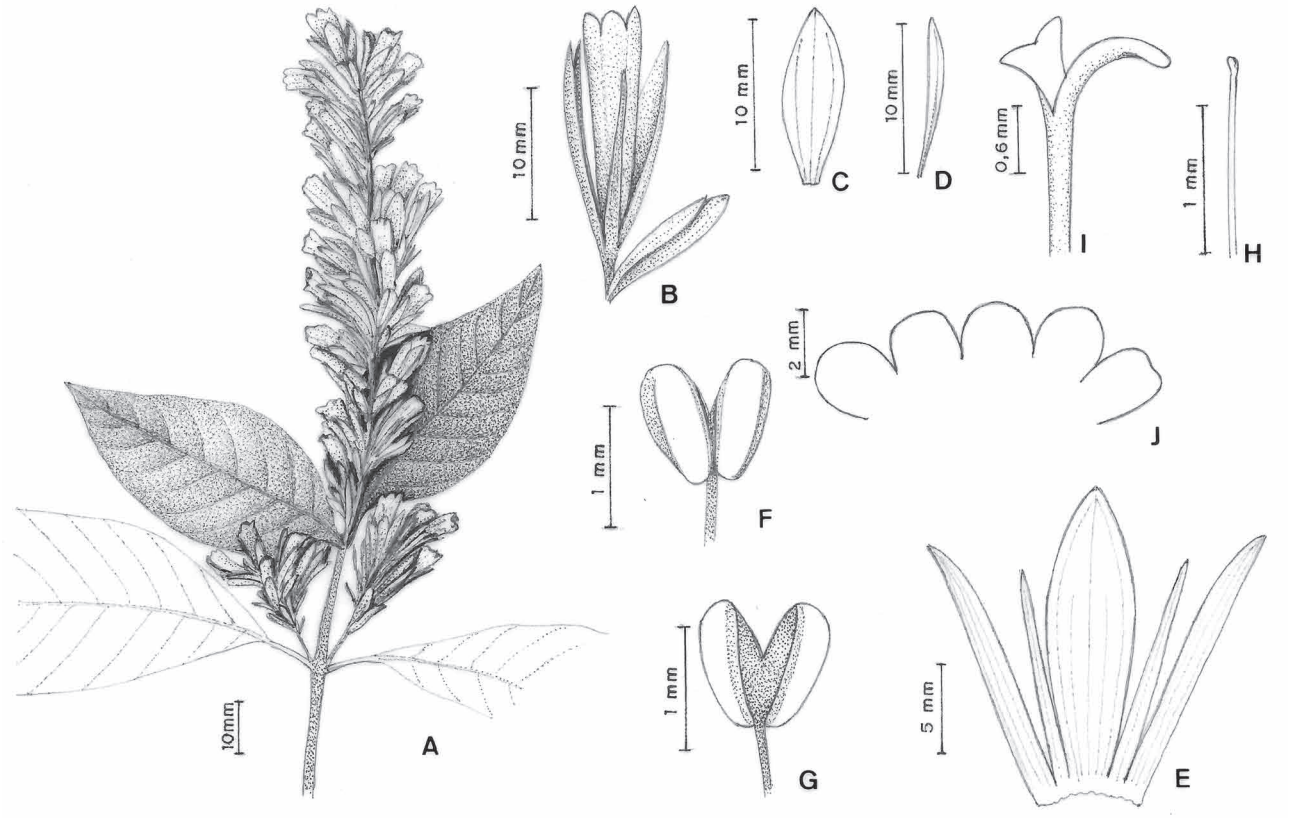

FIGURE 13. *Staurogyne itatiaiae*. A.Flowering branch. B. Flower, bract and bracteole. C. Bract. D. Bracteole. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes (A–B, F–J from *Hunt 6391*; C–E from *Brade 14544*).

Specimens examined:—BRAZIL. Rio de Janeiro: Itatiaia, 18 June 1930, *Brade 10076* (R),18 June 1902, *Dúsen 758* (R), June 1945, *Viana s.n.* (RBR-1479), 18 April 1927, *Zenny s.n.* (W-10106), 20 April 1959, *Flaster 21* (R), Parque Nacional do Itatiaia, Mar 1958, *Monteiro s.n.*(RBR-1482), 22 July 1958, *Monteiro s.n.* (RBR-1459), July 1958, *Monteiro s.n.*(RBR-1798), 23 July 1966, *Hunt 6391* (K, R, SP), 24 July 1966, *Eiten & Eiten 7330* (SP), 29 May 1969, *Plowman & Sucre 5177* (K), 4 March 1962, *Pereira 6985* (HB), 15 June 1963, *Pereira 7636* (HB), 17 October 1945, *Altamiro & Walter 1* (R), July 1953, *Pereira et al. 99* (R), 21 May 1935, *Brade 14544* (R), 29 April 1980, *Santos 7* (R), 30 May 1969, *Sucre & Plowman 2877* (R), 30 April 1985, *Martinelli et al. 10741* (R), 29 July 1901, *Hermendoff 656* (R). São Paulo: Bananal, Serra da Bocaina, Estação Ecológica Bananal, 27 November 1994, *Catharino et al. 2024* (SPF, UEC), 10 May 1995, *Proença et al. 48*(SPF), 3 December 1957, *Peviani 68* (FI).

Distribution and habitat:—*Staurogyne itatiaiae* occurs in the Mantiqueira Range, in Itatiaia, State of Rio de Janeiro, and to the south in the Bocaina Range, State of São Paulo (Braz & Monteiro 2005). It is found in humid forests, in shady habitats on borders of trails and roads and inside the forest, generally above 1000 m elevation.

Phenology:—It was collected with flowers and fruits during March to September, but flowering especially in July.

Taxonomic notes:—Representatives of *Staurogyne itatiaiae* are easily recognized by the showy inflorescence, with purple to red petal-like bracts, bracteoles and calyx, beside the red corolla. Based on flower color, it is next to *S. rubescens* Braz & Monteiro (2005: 55), from which it differs mainly by the bracts and bracteoles petal-like (not green and leaf-like) and the sessile flower (not pedicelate). The many studied collections show that *S. itatiaiae* was abundantly found until the 1960s, but there are few recent records from the species, which can be directly associated with the devastation of native vegetation in the region. It was well illustrated in the publication by Wawra (1883), in which he described the basionym of the species.

14. *Staurogyne lepidagathoides* Leonard (1951: 5). Type:—COLOMBIA. Department of Bolívar: Buenavista, east of Sincé, 24 January 1918, *F.W. Pennel 3983* (holotype: US; isotype: NY). (Fig. 14)

Herb 10−50 cm tall, rarely branched, with dense simple trichomes towards apex. *Petiole* 0.2−0.8 mm long; blade oblong-lanceolate to narrowly lanceolate, 5.6−9.6 × 0.7−1.5 cm, apex and base acute, simple trichomes restricted to veins or sparsely pilose on both surfaces, abaxially sometimes dense. *Inflorescence* in dense, terminal and axillary, bracteate spikes, terminal ones 1.3−7.5 cm long, axillary ones up to 2 cm long, both subsessile or peduncle up to 7 mm; flowers opposite at base, alternate above; rachis with dense simple trichomes; bracts and bracteoles green, sparsely glandular and simple pilose, bract elliptic, 6.8−10.6 × 1.6−3.1 mm, 3 acrodromous veins, bracteoles linear,5.5−8 × 0.3−0.8 mm. *Flowers* sessile to subsessile; calyx green, pilose with sparse glandular and simple trichomes, non-ciliate, posterior segment 4.8−7.9 × 0.5−1 mm, 3-nerved, lateral pair of segments 3.9−6 × 0.2−0.5 mm, anterior pair of segments 4.8−7 × 0.3−0.6 mm; corolla white, 6.8−9 mm length, basal tube 2−3 mm long, anterior lobe 1.8−2.8 mm long, externally and internally with scattered glandular and simple trichomes; posterior stamens 2−3 mm long, anterior stamens 2.3−2.5 mm long, staminode 0.4−0.9 mm long; ovules 22−26 per locule, posterior lobe of the stigma slighthly concave. *Capsule* 4.7−5.5 × 0.7−2 mm, glabrous.

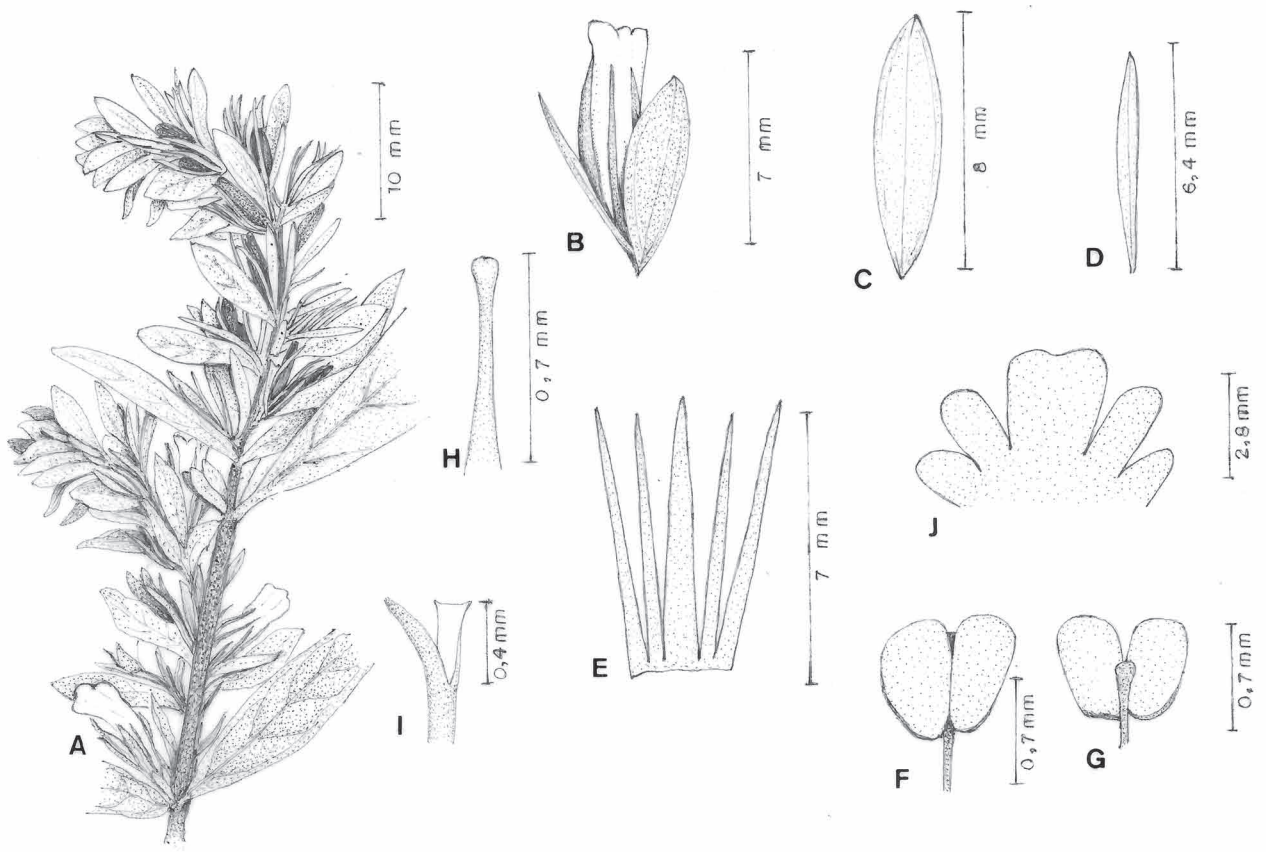

FIGURE 14. *Staurogyne lepidagathoides*. A.Flowering branch. B. Flower, bract and bracteoles. C. Bract. D. Bracteoles. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes (from *Souza 18667*).

Specimens examined:—BRAZIL. Mato Grosso: Juruena, 10 July 1997, *Souza et al. 18667* (ESA, UEC); Xavantina, 12°54'S, 51°52'W, 21 June 1968, *Ratter et al. 1878* (E, IAN, K, P, RB, UB, UEC). FRENCH GUIANA. Karouany: 1856, *Sagot 809* (K). SURINAME. Kayzer Airstrip: 27 November 1963, *Irwin et al.* 57652 (K, P, U). VENEZUELA. Portuguesa: Guanare, 13 February 1985, *Stergios 7824* (K).

Distribution and habitat:—*Staurogyne lepidagathoides* occurs in the Amazon region from the northern coast of South America, in Colombia, Venezuela, Guyana and Suriname, reaching its south limit in Brazil, on the boundaries of the rain forest with the seasonal forest.

Phenology:—It was collected with flowers and fruits in July.

Taxonomic notes:—*Staurogyne lepidagathoides* is recognized by the large oblong-lanceolate to lanceolate leaves, by the terminal elongated inflorescence and the axillary ones smaller. In the specimens collected northward, the leaves can be thinner and hairy, in comparison to the southward collections. It differs from *S. diantheroides*, which has close

distribution, by the leaves 5.6−9.6 cm long (not 1.1−4.9 cm) and the corolla 6.8−9 mm long, (not 4.5−5.9 mm). The epithet *lepidagathoides* was chosen by the similarity with certain members of *Lepidagathis* Willdenow (1800: 400), another Acanthaceae genus from the Neotropics (Leonard 1951).

15. *Staurogyne mandioccana* (Nees) Kuntze (1891: 497). *Ebermaiera mandioccana* Nees von Esenbeck (1832: 80). Neotype (designated by Braz & Monteiro 2011b: 176):—BRAZIL. Rio de Janeiro: without date, *L. Riedel 797* (neotype: LE!). (Fig. 15)

Ebermaiera mandioccana var. *triandra* Hiern (1877: 69), syn. nov. Type:—BRAZIL. Rio de Janeiro: Corcovado, 11 September 1969, *A. Glaziou 3806* (holotype: P!, isotypes: BR!, C!).

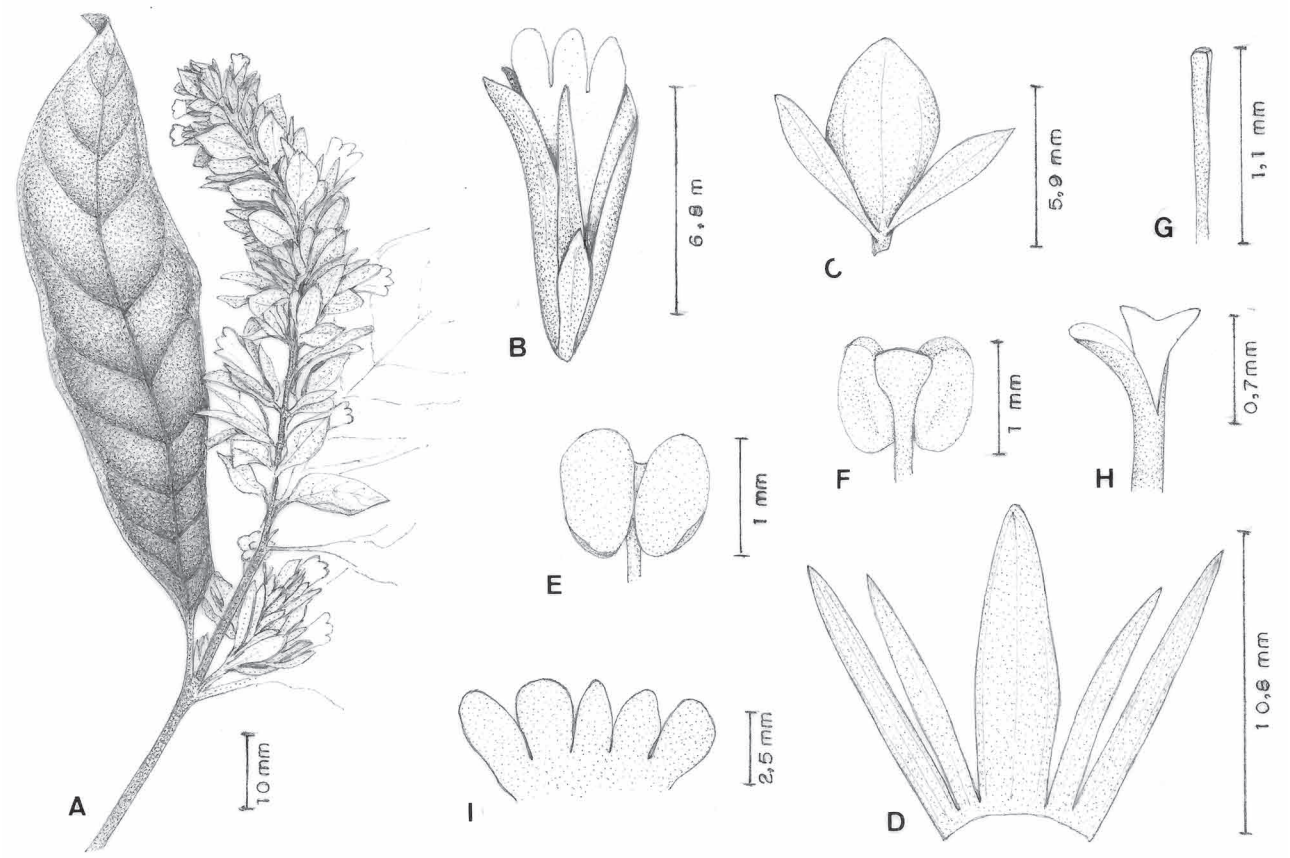

FIGURE 15. *Staurogyne mandioccana*. A.Flowering branch. B. Flower and bracteoles. C. Bract. D. Bracteoles. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes (A–D, H–I from *Carauta 1787*; E–G from *Carauta 651*).

Herb or subshrub 40−80 cm tall, usually branched, sparsely pilose with simple trichomes. *Petiole* 8−21 mm long; blade elliptic, 6.5−11.9 × 1.9−3.6 cm, apex acute to slightly acuminate, base acute to slightly attenuate, adaxially glabrous, abaxially with sparse simple trichomes restricted to the veins, usually with scattered disc-shape trichomes. *Inflorescence* in dense, terminal and axillary, bracteate spike-like raceme, terminal ones 2.3−8.4 cm long, peduncle 1−5 mm, axillary ones 1−2.9 cm long, peduncle 2−10 mm long; flowers opposite; rachis, bracts and bracteoles sparsely pilose with simple trichomes, rarely also glandular; bracts and bracteoles yellowish to greenish-white, bract broad-elliptic to suborbicular, sometimes slightly obovate, 5.5−9.5 × 3.3−5.6 mm, 3 acrodromous veins, bracteoles elliptic to lanceolate-elliptic, 4.3−7.5 × 1.1−1.9 mm. *Pedicel* 0.3−1.2 mm long, sometimes flowers sessile; calyx greenish-white to yellowish, sparsely glandular and simple pilose, dense in the veins and margin, non-ciliate, posterior segment 6−10.8 × 2.0−4.6 mm, 3-nerved, lateral pair of segments 5.8−9.5 × 0.5−1.1 mm, anterior pair of segments, 6.2−11 × 0.9−2 mm; corolla white to lilac, sometimes with purple markings at limb and throat, 7.8−10.3 mm long, basal tube 2−3 mm long, anterior lobe 2.8−3 mm long, externally with dense simple trichomes, rarely glandular, internally usually glabrous; posterior stamens 2−3.1 mm long, anterior 2.6−3.5 mm long, staminode 0.6−1.3 mm long; ovules 11−16 per locule, posterior lobe of the stigma slightly divided to slightly concave. *Capsule* 6.5−9 × 2.4−3.2 mm, sparsely glandular pilose to glabrescent.

Specimens examined:—BRAZIL. Rio de Janeiro: Rio de Janeiro, Alto da Boa Vista, Reserva Florestal do Departamento de Conservação Ambiental, 28 August 1975, *Carauta 1787 & Dunn-Araújo* (F, GUA, RB); Rio de Janeiro, Serra da Carioca, 25 October 1968, *Carauta 651* (F, GUA), October 1933, *Brade 12904* (RB); Rio de Janeiro, Reserva Florestal da FEEMA, 27 September 1990, *Carauta 6248* (GUA); Rio de Janeiro, Floresta da Tijuca, 20 August 1971, *Andrade s.n.* (R-198609); Rio de Janeiro, Corcovado, 11 September 1869, *Glaziou 3806* (C, P), 2 June 1948, *Duarte & Pereira 1128* (RB); Rio de Janeiro, Morro do Sumaré, August 1920, *Constantino s.n.* (RB-12332), 31 October 1939, *Ducke & Kuhlmann s.n.* (RB-41477); Rio de Janeiro, Morro do Queimado, 13 September 1949, *Brade & Duarte 2007* (RB); Macaé, 5 July 1831, *Riedel s.n.*(LE-797). Minas Gerais: Rio Preto, July 1897, *Brandão 2549* (R). Santa Rita do Jacutinga, 29 July 1970, *Urbanno 9031-A* (CESJ).

Distribution and habitat:—*Staurogyne mandioccana* is endemic to the Brazilian Southeastern Atlantic Forest, occurring in several nearby mountains, above 450 m elevation.

Phenology:—It was collected with flowers and fruits from July to October.

Taxonomic notes:—*Staurogyne mandioccana* is recognized by its glabrous leaves, the bracteate terminal inflorescence longer than the axillary ones, by the colored bracts broad-elliptic to suborbicular, with acrodromous venation, and by the bracts and the calyx about the same size of the corolla. It is related to *S. sylvatica* in the characters of the inflorescences and corolla, but differs by the bracts 5.5−9.5 mm long (not 3.8−6.5(−7) mm), the corolla 7.8−10.3 mm long (not 10−16.5 mm), and the pedicel 0.3−1.2 mm long (not 1.5−3 mm). Braz & Monteiro (2006) reported other features, beside a very distinctive distribution to both species. *Staurogyne mandioccana* was the first species described in the genus from the Neotropics.

Hiern (1877) proposed *Staurogyne mandioccana* var. *triandra*, which was considered to be different from var. *mandioccana* by the size of the petiole, the larger spike with ovate bracts and 3 stamens. However, in the type specimens of var. *triandra*, all flowers has 4 stamens and no one with 3 stamens was seen. Based on the analyzed material, the delimitation of varieties could not be justified either based on distribution of individuals or morphology, and the variety *triandra* is now included as a synonym under *S. mandioccana*.

16. *Staurogyne minarum* (Nees) Kuntze (1891: 497). *Ebermaiera minarum* Nees von Esenbeck (1847a: 17). Lectotype (designated by Braz & Monteiro 2011b: 176):—BRAZIL. Minas Gerais: "jango loco", September 1841, *G. Gardner 5129* (lectotype: W!; isolectotypes: BM!, E!, FI!, K!, P!, R!, RB!). (Fig. 16)

Shrub 1−2 m tall, sparsely branched, usually pilose with sparse simple trichomes, sometimes glabrescent at the base. *Petiole* 4−12 mm long; blade lanceolate to elliptic, 7−18.5 × 2.2−5 cm, apex acute to slightly acuminate, base attenuate, sometimes subobtuse, adaxially glabrous, rarely with simple trichomes, abaxially with trichomes restricted to veins. *Inflorescence* in lax, terminal, bracteate raceme, 8−15 cm long, peduncle 0.7−2.5 cm long; flowers opposite, rarely subopposite; rachis, bracts and bracteoles sparsely simple pilose; bracts and bracteoles green to yellow-green, bract elliptic, 5−15 × 3−7 mm, 3 acrodromous veins, sometimes 3-nerved, bracteoles elliptic to lanceolate, 4−8 × 1−2 mm. *Pedicel* 5−15 mm long; calyx yellow, sparsely pilose with simple trichomes, rarely glandular in the bud, non-ciliate, posterior segment 14−22 × 3.5−7 mm, 3−7-nerved, lateral pair of segments 11−16 × 1−2.5 mm, anterior pair of segments 15−20 × 2.4−4 mm; corolla yellow at the base, greenish toward the lobes, 1.7−3.4 cm long, basal tube 3.5−5 mm long, anterior lobe 2.5−3.2 mm long, externally pilose with scattered simple and glandular trichomes, internally glabrous; posterior stamens 1.5−2.1 cm long, anterior stamens 1.7−2.5 cmlong, staminode 2.5−4 mm long; ovules 18−22 per locule, posterior lobe of the stigma usually deeply divided, rarelly concave. *Capsule* 11−13 × 5 mm, sapersely glandular pilose.

Specimens examined:—BRAZIL. Minas Gerais: Catas Altas, Parque Natural do Caraça, 26 April 2001, *SanMartin-Gajardo 44* (HRCB), 3 April 1980, *Tales s.n.*(BHCB-1968, F), 26 July 1989, *Romaniuc-Neto & Cordeiro 877* (HRCB; SP), 20 September 1997, *Ferraro 5450* (CTES, MBM), 22 May 1997, *Mello-Silva 1338* (SPF), 18 February 1991, *Arbo et al. 5270* (CTES, SPF), 14 March 1990, *Marcondes-Ferreira et al. 221* (SPF), 1816-1821, *Saint-Hilaire 994* (P); Nova Lima, Mata do Jambreiro, 30 July 1990, *Andrade* (BHCB 19943, SPF 100243). Santa Bárbara, 8 March 1982, *Hensold CFSC-2924* (SFF, HRCB), Serra do Caraça, 14 March 1993, *Kameyama & Esteves 25* (HRCB, SPF), 14 March 1990, *Marcondes-Ferreira et al. 221* (SPF, UEC), 27 May 1983, *Pirani & Yano 697*(HRCB, SPF), 23 May 1987, *Zappi & Scatena CFSC-10964* (SPF, HRCB), 11 September 1990, *Freire-Fierro & Zappi 1645* (HRCB, SPF); Ouro Preto, without date, *Martius 943* (M).

Distribution and habitat:—*Staurogyne minarum* has a restricted distribution, occurring only near the *Caraça* and *Santa Barbara* mountains, in the central portion of the State of Minas Gerais, at elevations above 700m.

Phenology:—It was collected with flowers from February to July, and fruits from July to September.

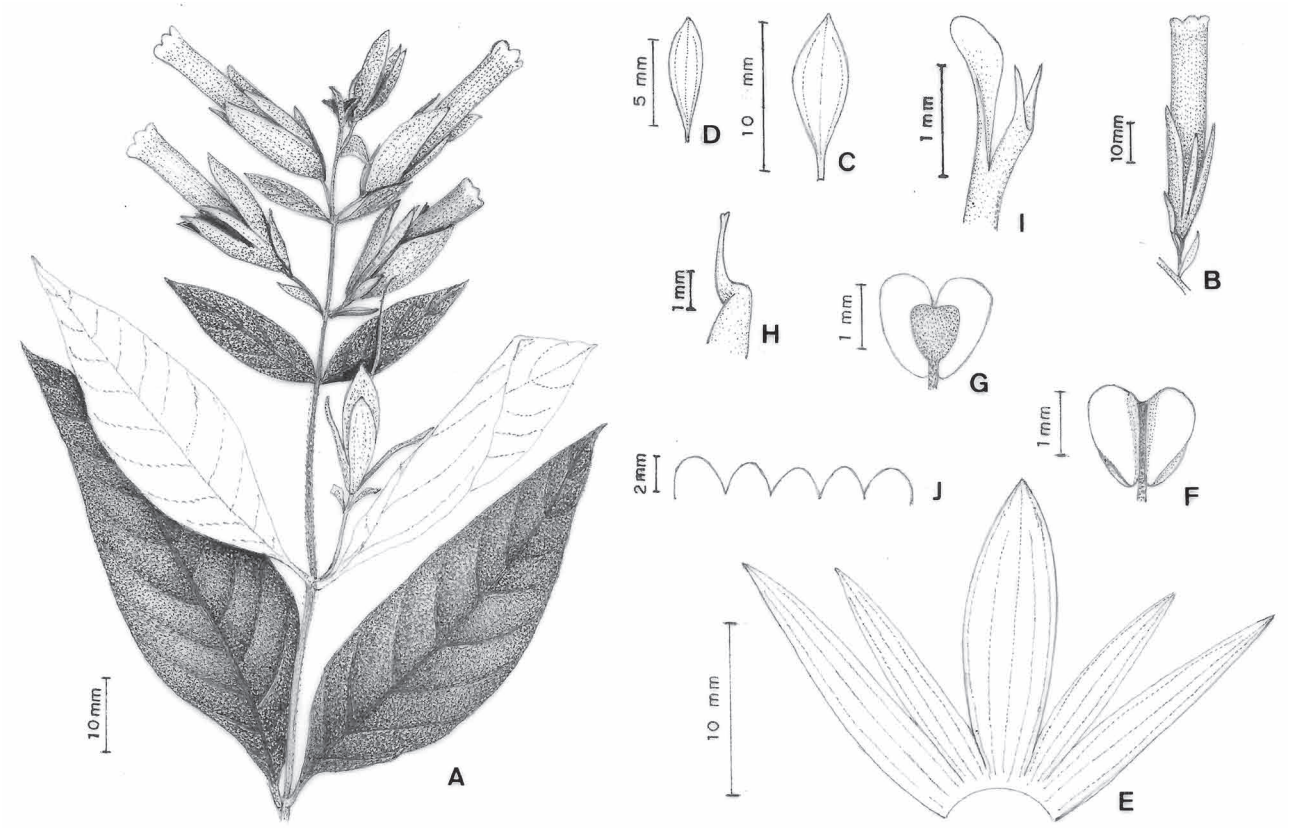

FIGURE 16. *Staurogyne minarum*. A.Flowering branch. B. Flower, bract and bracteoles. C. Bract. D. Bracteoles. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes (A from *Zappi & Scatena CFCR-10964*; B–J from *San Martin-Gajardo 44*).

Taxonomic notes:—*Staurogyne minarum* is recognized by the branches and leaves generally glabrous, by the lax raceme, with bracts usually green, by the long-pedicellate flowers and specially by the glandular trichomes present only in the corolla and fruit. It was relatively common to find *S. anigozanthus* specimens wrongly identified as *S. minarum*, based on the relatively short tubular corolla, greenish-yellow, with dense trichomes, but they differ by the glabrous (not hairy) leaves, the lax (not dense) inflorescence and the bracts 3−7 mm broad (not 6−11 mm broad).

17. *Staurogyne miqueliana* Kuntze (1891: 497). *Ebermaiera humilis* Miquel (1850: 128). Type:—SURINAME. "in arenosis secus ipsum fluvium. Bergendal fluv.", October (year unknow), *H. Focke 1159* (holotype: U!). (Fig. 17)

Staurogyne agrestis Leonard (1937: 400), syn. nov. Type:—PANAMÁ. Matías Hernandes - Juan Diaz, without date, *P.C. Standley 31936* (holotype: US!).

Staurogyne fockeana Bremekamp (1938: 146), syn. nov. Type:—SURINAME. "in cultivi", *H. Focke 1146* (holotype: U!).

Staurogyne stahelii Bremekamp (1938: 145), syn. nov. Type:—SURINAME.Boven…Rio, Expedite naar het Wilhelmingebergteb "DeMcan" cal, 17 March 1926, *G. Stahel 272* (holotype: U!).

Staurogyne wullschlaegeliana Bremekamp (1938: 147), syn. nov. Type:—SURINAME. Paramaribo: in arenosis, 1857, *H.R. Wullschlaegel 426* (holotype: BR!).

Creeping herb, densely branched, pubescent with scattered simple trichomes. *Leaves* subsessile, or with a petiole up to 2 mm long; blade ovate to ovate-elliptic, 0.9−2.3 × 0.3−1.2 cm, apex acute to obtuse, base obtuse, rarely subcordate, with sparse simple trichomes on both surfaces, abaxially densely pilose along veins. *Inflorescence* in dense, terminal and axillary, bracteate spike, terminal ones up to 7 cm long, sessile, axillary ones 0.7−2.2 cm long, peduncle 0.3−0.7 mm long; flowers opposite at the base, alternate above; rachis, bracts and bracteoles sparsely simple pilose; bracts and bracteoles green, bract lanceolate to elliptic, 8−10 × 2−5 mm, 1-nerved, bracteoles linear-lanceolate, 4.5−6.5 × 0.5−0.9 mm. *Flowers* sessile; calyx greenish, sparsely pilose with glandular trichomes, ciliate, posterior segment 5.5−6 × 0.7−0.9 mm, 3-nerved, lateral pair of segments 4−4.5 × 0.3−0.4 mm, anterior pair of segments 5−5.7 × 0.3−0.4 mm;

corolla white, 3.8−5.1 mm long, basal tube 1−1.5 mm long, anterior lobe 1.7−2.3 mm long, externally and internally glabrous; posterior stamens 1−1.3 mm long, anterior stamens 1.2−1.5 mm long, staminode 0.4−0.6 mm long; ovules 28−30 per locule, posterior lobe of the stigma truncate. *Capsule* 3.5−4 × 0.7−0.9 mm, sparsely glandular pilose near the apex.

Specimens examined:—BRAZIL. Mato Grosso: Ilha, 13 November 1907, *Guedes 2291* (MG); May 1911, *Hoehne & Mildbread 4225* (RB). Pará: Monte Alegre, August 1957, *Black 57-20.118* (IAN); May 1911, *Hoehne 4224 & Mildbread* (RB). GUYANA. October 1904, *Bartlett 8360* (K); 22 November 1935, *Myers 5715* (K). NICARAGUA. "1853-56", *Wright* (P). SURINAME. Paramaribo: 1857, *Wullschlaegel 426[a]* (BR). Tanjimama: 16 November 1954, *Mennega 412* (U). Without locality: 17 March 1926, *Stahel 272* (U), October (year unknow), *Focke 1159* (U), sine date, *Focke 1146* (U), Sine date, *Jansen* (E 116.844).

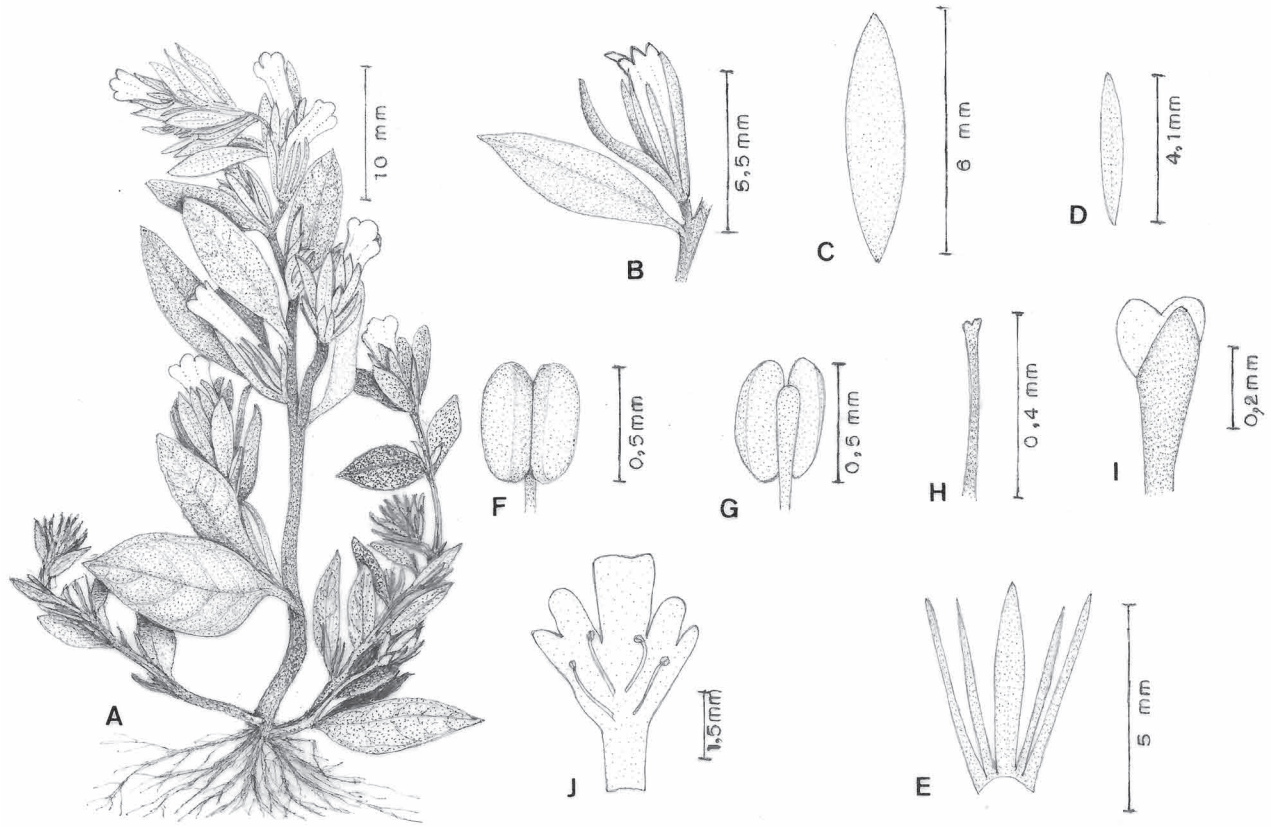

FIGURE 17. *Staurogyne miqueliana*. A.Flowering plant. B. Flower, bract and bracteoles. C. Bract. D. Bracteoles. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in dorsal view. J. Corolla in internal view (from *Black 5720*).

Distribution and habitat:—Beyond the type locality, *Staurogyne miqueliana*is referred to Nicaragua, Costa Rica, Panama, Venezuela and Mexico (Daniel & Lott 1993), and is now also registered in Brazil. Daniel & Lott (1993) registered its occurrence (as *S. agrestis*) in North America, extending its distribution from northern Brazil up to Mexico.

Phenology:—It was reported as colleted with flowers and fruits between January and May (Daniel & Lott, 1993) and also between August and November.

Taxonomic notes:—*Staurogyne miqueliana* is especially recognized by its ciliate calyx and by the anterior stamens inserted approximately in the middle of the corolla. It resembles the Amazon species *S. repens* (Nees von Esenbeck 1847: 20) Kuntze (1891: 497) and *S. trinitenisis* Leonard (1937: 401) by the creeping habit, but differs from *S. repens*by the hairy (not glabrescent) leaves, the bracts 8−10 mm long (not 4.3−8 mm long) and the corolla 3.8−5.1 mm long (not 4.8−7.8 mm), and from *S. trinitenisis* by the leaves ovate to ovate-elliptic (not suborbicular to broad-ovate), 0.9−2.3 cm long (not 1.2−2.2 cm long) and the bract lanceolate to elliptic (not broad-elliptic to elliptic-ovate). Leonard (1937) presented a detailed description and illustration of *S agrestis*, but the holotype cited does not differ from that of *S. miqueliana*. Likewise, among the five species described by Bremekamp (1938) from Surinam, three are here included as synonyms, *S. fockeana*, *S. stahelii* and *S. wullschaegeliana*. Of these, some variation appears more significant in the type of *S. wullschaegeliana*, which has a more ovate to suborbicular leaf blade, however, no other

differences nor other materials that could support the taxon were found. Bremekamp (1938) described these species from Suriname based only in the type collections (holotypes). The author already mentioned the similarity between its pollen grains and reported the similarity between *S. stahelii* and *S. agrestes*. Wasshausen (2006) consulted and recorded almost the same collections of those used by Bremekamp when studying the Acanthaceae in the Guianas (Guyana, Suriname and French Guiana) recently, including some old collections from the years 1856-19154, and no other actual collection was recorded. The characters mentioned by Wasshausen (2006) for the differentiation of *S. agrestis* (form and base of the leaf blade, form and venation of the bracts, and glandular trichomes in the calyx and bracts) are variable in the studied specimens, not supporting more than one taxa.

18. *Staurogyne parva* Braz & Monteiro (2006: 583). Type:—BRAZIL. Espírito Santo: SantaTereza, Nova Lombardia, "erva em semi-sombra, em local com muita matéria orgânica, pilosidade branca e vinácea", 15 May 1985, *H.Q.B. Fernandes 1142* (holotype: MBML!). (Fig. Braz & Monteiro 2006: 584) (Fig. 1A)

Herb to subshrub 20−40 cm tall, usually branched at the base, pilose with simple trichomes, dense toward the apex. *Petiole* 9−33 mm long; blade lanceolate-elliptic, sometimes slight-ovate, 5.8−11.5 × 1.8−3.4 cm, apex acute, base acute to slight-cuneate, with sparse simple trichomes on both surfaces. *Inflorescence* in dense, terminal, bracteate spike, 2.5−13.5 cm long, sessile or peduncle up to 8 mm long; flowers opposite; rachis, bract and bracteoles densely simple pilose; bract and bracteoles green, bract broad-elliptic to suborbicular, 9−12.5 × 4.5−7 mm, 3-nerved, bracteoles lanceolate to lanceolate-elliptic, 5.7−8 × 0.8−1.5 mm. *Flowers* subsessile; calyx green, sparsely pilose with glandular and simple trichomes, sometimes slightly ciliate, posterior segment 8.5−11.5 × 2−3.3 mm, 3-nerved, lateral pair of segments 5−9 × 0.3−0.8 mm, anterior pair of segments 8.7−12 × 1−1.6 mm; corolla white, with vinaceous markings at limb and throat, 9.3−15 mm long, basal tube ca. 3.0 mm long, anterior lobe 2.1−4.5 mm long, externally and internally with sparse simple trichomes; posterior stamens 4−5.4 mm long, anterior stamens 4.5−5.8 mm long, staminode 1−3.5 mm long; ovules 6−7 per locule, posterior lobe of the stigma slightly divided. *Capsule* 6.5−7 × 3.2−3.8 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Espírito Santo: Goipaboaçu, 2 December 1985, *Boone 927* (MBML); Estação Biológica de Santa Luzia, 19°58'S, 40°32'W, 21 November 1989, *Fernandes 2862* (MBML).

Distribution and habitat:—*Staurogyne parva* is an herb that usually grows in semi-shaded places with good quantity of organic matter (*Fernandes 1142*). It is endemic to the State of Espírito Santo, southeastern Brazil, occurring in low montane rainforest, at or near riverbanks at elevation of 300−850 m.

Phenology:—It was collected with flowers and fruits in May and flowers in December.

Taxonomic notes:—*Staurogyne parva* can be recognized by its short habit, by the lanceolate to lanceolate-elliptic leaves, hairy on both surfaces, by the bracteate elongated inflorescence, with green bracts generally larger than the calyx, and especially by the reduced number of ovules per locule/seeds per valve (6−7). *S. parva* differs from *S. veronicifolia* (Nees von Esenbeck 1847: 18) Kuntze (1891: 497), which also occurs in the State of Espírito Santo, by the leaves pilose (not glabrescent), the elongate terminal (not subcapitate) inflorescence, the bract with distinct venation (not inconspicuous) and the calyx sometimes slightly ciliate (not always ciliate).

19. *Staurogyne repens* (Nees) Kuntze (1891: 497). *Ebermaiera repens* Nees von Esenbeck (1847: 20). Lectotype (designated by Braz & Monteiro 2011b: 176):—BRAZIL. Mato Grosso: Cuiabá, June 1827, *L. Riedel1087* (lectotype: LE!). (Fig. 18)

Creeping herb, densely branched, floral branches somewhat erect, with simple dense trichomes, scattered at the base. *Leaves* sessile or with a petiole up to 3 mm long; blade ovate-lanceolate, 0.9−5.3 × 0.3−0.7 cm, apex acute, base acute to obtuse, adaxially glabrescent, abaxially with sparse simple trichomes restricted to the veins. *Inflorescence* in lax, terminal and axillary, bracteate spike, 1.2−7.3 cm long, terminal ones sessile, axillary ones with peduncle 2−3.4 cm long; flowers opposite at the base, alternate above; rachis, bracts and bracteoles sparsely simple and glandular pilose; bracts and bracteoles green, not-ciliate, bract elliptic to slightly oblong, 4.3−8 × 1.4−3.6 mm, 1−3-nerved, bracteoles lanceolate to linear-lanceolate, 3.2−5.2 × 0.7−0.9 mm. *Flowers* sessile to subsessile; calyx green, pilose with sparse simple and glandular trichomes, non-ciliate, posterior segment 3.8−7 × 0.7−1.6 mm, 3-nerved, lateral pair of segments 3−5.5 × 0.3−0.6 mm, anterior pair of segments 3.5−5.5 × 0.5−0.7 mm; corolla white with vinaceous markings at limb and throat, 4.8−7.8 mm long, basal tube 1.5−2.3 mm long, anterior lobe 1.8−2.8 mm long, externally with sparse simple trichomes, internally glabrous; posterior stamens 0.9−2.3 mm long, anterior stamens 1−2.7 mm long, staminode 0.3−0.7 mm long; ovules 19−20 per locule, posterior lobe of the stigma divided to deep-concave. *Capsule* not found.

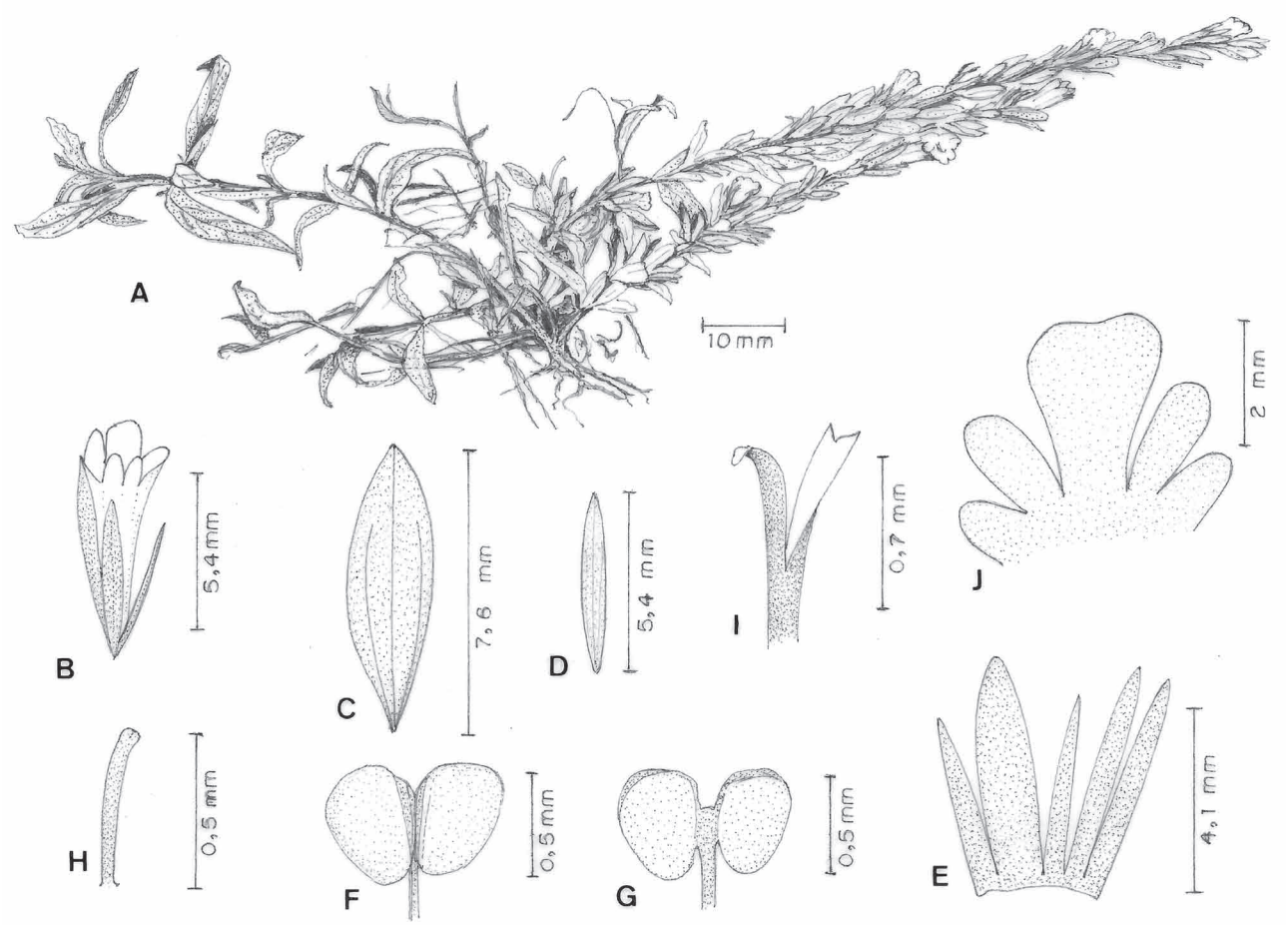

FIGURE 18. *Staurogyne repens*. A.Flowering plant. B. Flower, bract and bracteoles. C. Bract. D. Bracteoles. E. Calyx. F. Anther in frontal view. G. Anther in dorsal view. H. Staminode. I. Stigma in lateral view. J. Corolla lobes. (A, E–J from *Vieira & Castro 288*; B–D from *Cavalcante et al. 1978*).

Specimens examined:—BRAZIL. Amazonas: São Gabriel da Cachoeira, 1 August 1852, *Spruce 2212* (BM, BR, E, K, P); São Gabriel da Cachoeira, March 1852, *Muer 2212* (P).Mato Grosso: Cuiabá, June 1827, *Riedel* 1 (LE).Pará: 13 November 1907, *Guedes s.n.* (MG-2291). Without locality: s.d.,*Jansen s.n.* (E-116844).

Distribution and habitat:—*Staurogyne repens* is a Brazilian Amazon species, occurring in humid areas under the forest canopy.

Phenology:—It was collected with flowers between August and October.

Taxonomic notes:—*Staurogyne repens* is characterized by its creeping branched habit, with floriferous erect branches, leaves ovate-lanceolate, sparsely hairy to glabrescent, the long terminal and axillary spikes and the infundibular corolla with scattered simple trichomes externally. It resembles *Staurogyne spraguei* and *S. miqueliana*, both also Amazon species, but it differs from *S. spraguei* especially by the habit densely (not sparsely) branched, the spikes 1.2−7.3 cm long (not up to 2.3 cm long) and the corolla pilose (not glabrous), and from *S. miqueliana* by the glabrescent (not hairy) leaves, the petal-like (not leafy-bracteate) inflorescence and the corolla 4.8−7.8 mm long (not 3.8−5.1 mm). Based on the analysis of the several herbaria collections studied, materials of *S. repens* are scarce and the last collection was recorded in 1907, which indicates that its natural occurrence is very rare or even that the species could be extinct. However, due to its preferred habitat by wet environments, it has been largely cultivated as an aquarium or ponds borders plant, requiring special methods for submerged cultivation (http://www.tropica.com/en/plants/plant-articles/staurogyne-repens.aspx).

20. *Staurogyne riedeliana* (Nees) Kuntze (1891: 497). *Ebermaiera riedeliana* Nees von Esenbeck (1847: 18). Lectotype (designated by Braz & Monteiro 2011b: 176):—BRAZIL. Rio de Janeiro, without date, *L. Riedel 47* (lectotype: LE!).(Fig. 19)

Herb 30−50 cm tall, sparsely branched, densely covered with simple trichomes. *Petiole* 7−12 mm long; blade elliptic to ovate-lanceolate, 8−12.1 × 2.7−4.9 cm, apex acute, base acute to slightly cuneate, adaxially sparsely simple pilose, sometimes restricted to the veins, abaxially restricted to the veins. *Inflorescence* in dense, terminal and axillary, bracteate spike, terminal ones 3−3.3 cm long, sessile, axillary ones subcapitate,1−1.7 cm long, peduncle 0.2−0.7 cm long; flowers opposite; rachis with dense simple and glandular trichomes; bracts and bracteoles green, sparsely simple and glandular pilose, bract elliptic to slightly obovate, 9.5−10.1 × 3.5−5 mm, 3 acrodromous veins, bracteoles lanceolate, 6.5−7.2 × 0.8−1.1 mm. *Flowers* sessile; calyx green, pubescent with scattered simple and glandular trichomes, non-ciliate, posterior segment 2−2.3 × 8−8.8 mm, 3-nerved, lateral pair of segments 6−7.2 × 0.5−0.7 mm, anterior pair of segments 7−8.2 × 0.9−1.2 mm; corolla white to slightly lilac, with vinaceous markings at limb and throat, 11.5−12.1 mm long, basal tube 3.0−3.5 mm long, anterior lobe 3−4 mm long, externally with sparse simple trichomes, rarely glandular, internally glabrescent; posterior stamens 3.1−3.5 mm long, anterior stamens 3.5−3.9 mm long, staminode 0.9−1 mm long; ovules 15−16 per locule, posterior lobe of the stigma divided to concave. *Capsule* ca. 8.0 × 3.3 mm, sparsely pilose with glandular trichomes.

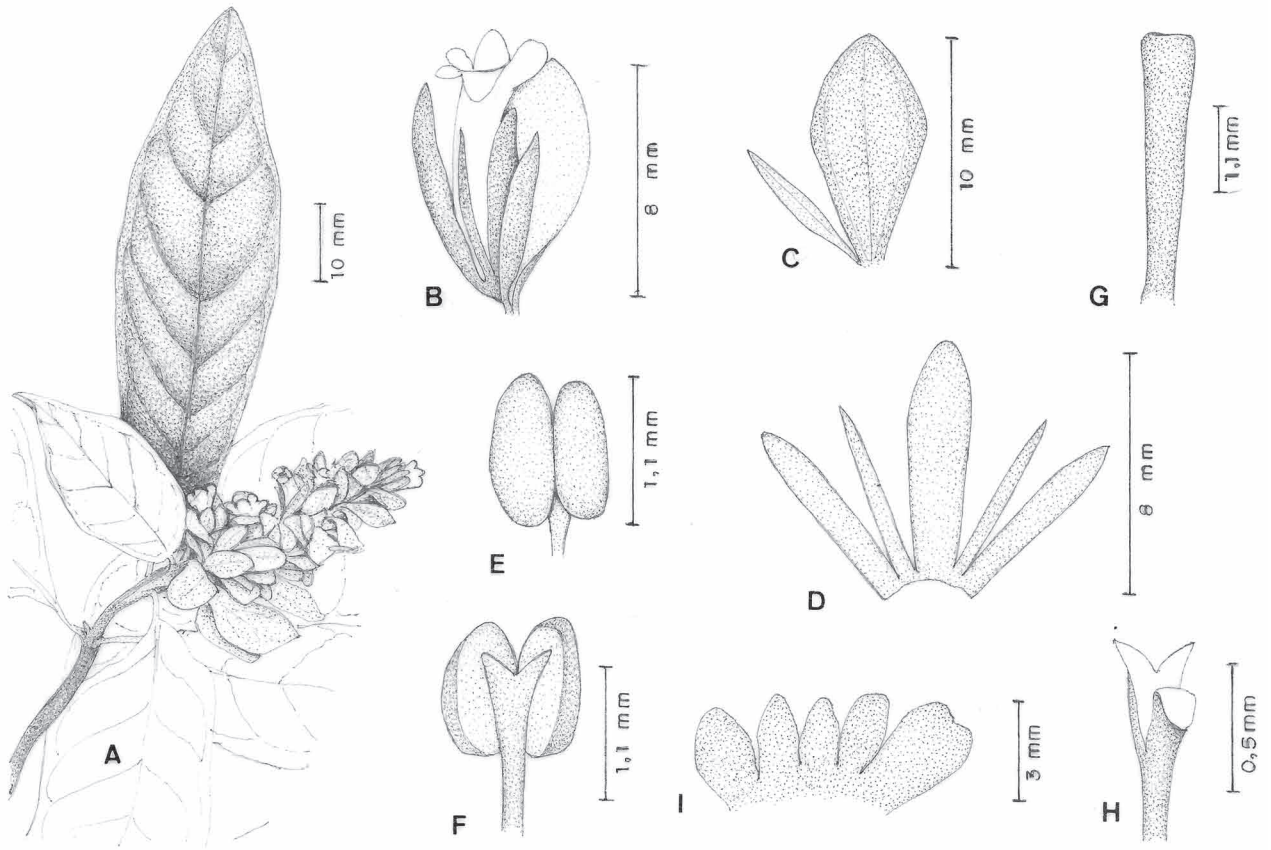

FIGURE 19. *Staurogyne riedeliana*. A. Flowering branch. B. Flower, bract and bracteoles. C. Bract and bracteole. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in dorsal view. I. Corolla lobes (from *Andrade & Lopes* (BHCB 7784)).

Specimens examined:—BRAZIL. Bahia: 1822, *Riedel* (LE 01,6). Minas Gerais: Caratinga, Faz. Montes Claros, Matão, 19 April 1984, *Andrade & Lopes s.n.*(BHCB-7784), trilha M1, 6 November 1998, *Lombardi et al. 2368* (BHCB); Descoberto, Reserva Biológica Represa do Grama, 19 August 2000, *Meireles et al. s.n.*(CESJ-31443). Rio de Janeiro: Santa Maria Madalena, Ribeirão Vermelho, November 1935, *Lima 321* (RB); Itatiaia, 16 July 1902, *Dusén 682* (RB); Teresópolis, Serra dos Órgãos, Toca dos Caçadores, 7 August 1940, *Brade 16536* (RB).

Distribution and habitat:—Recent collections of *Staurogyne riedeliana* indicate its occurrence in southeastern Brazil, although it had been originally described based on aspecimen from Bahia, and its non-occurrence in this state nowadays may be related to deforestation in the Atlantic Forest and/or gaps on the knowledge of that region. The absence of any other *Staurogyne* species in the northeastern states suggests a more restricted distribution.

Phenology:—It was registered with flowers in the months of April and September.

Taxonomic notes:—*Staurogyne riedeliana* is characterized by the relatively large leaves, the bracteate terminal inflorescence, generally short, with green bracts. For the corolla shape and dimensions and shape of the leaf blade it is

close to *S. mandioccana*, which also occurs in Rio de Janeiro, but it differ from the latter, in general, by the pilose (not glabrous) leaves, inflorescences terminal (not axillary ones) 3−3.3 cm long (not 8−15 cm long), and the bracts green (not usually colored).

21. *Staurogyne rubescens* Braz & Monteiro (2005: 55). Type:—BRAZIL. Rio de Janeiro: Paraty, "subida para o Cuscuzeiro, 500 m., APA-Cairuçu", March 1995, *M.G. Bovini et al. 724* (holotype: RB!). (Fig. Braz & Monteiro 2005: 56) (Fig. 2E)

Herb 50−90 cm tall, rarely branched, sparsely pilose with simple trichomes, sometimes glandular. *Petiole* 6−20 mm long; blade elliptic, 3−10.3 × 1.1−3.2 cm, apex acute to slight-acuminate, base attenuated to acute, adaxially glabrous, rarely with simple trichomes in the mid vein, abaxially with simple and disc-shape trichomes restricted to the veins. *Inflorescence* in lax, terminal, bracteates raceme, 3.3−7.3 cm long, peduncle 2.1−2.9 cm long; flowers opposite; rachis, bract and bracteoles sparsely simple and glandular pilose; bract and bracteoles green, bract elliptic to lanceolate-elliptic, 0.8−15 × 2.5−6 mm, the smallest ones toward the apex, 1-nerved, bracteoles lanceolate, 4−12 × 0.8−2.1mm. *Pedicel* 4−9 mm long; calyx slightly pinkish to vinaceous, sparsely pilose with glandular trichomes, usually ciliate, posterior segment 12−27 × 2−3.5 mm, 3-nerved, lateral pair of segments 10−19 × 0.5−1.5 mm, anterior pair of segments 12−20 × 1.3−2 mm; corolla red to slightly pinkish, 2.9−3.4 cm long, basal tube 2.5−6 mm long, anterior lobe 2.7−5 long, externally with simple and glandular trichomes, usually dense, internally glabrous; posterior stamens 1.7−2.6cm long, anterior stamens 1.8−2.7 cm long, staminode 1.5−2.8 mm long; ovules 16−18 per locule, posterior lobe of the stigma divided to slightly concave. *Capsule* 14−16.5 × 3.5−4 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Rio de Janeiro: Parati, Praia Negra, Pico do Cairuçu, 25 March 1992, *Farney et al. 3123* (RB). São Paulo: Ubatuba, próximo à divisa com São Luiz do Paraitinga, 3 April 2002, *Braz et al.* 77 (HRCB), 3 April 2002, *Braz et al.* 78 (HRCB).

Distribution and habitat:—*Staurogyne rubescens* is endemic to the Atlantic rain forest in the Serra do Mar, only recorded from the southern portion of the State of Rio de Janeiro to the north of São Paulo State. It was found in well protected Conservation Units, in the APA Cairuçu, the Joatinga Ecological Station and the Serra do Mar State Park (Braz and Monteiro 2005), occurring in shady habitats between 500−1080 m elevation above sea level.

Phenology:—It was collected with flowers and fruits in March and April.

Taxonomic notes:—*Staurogyne rubescens* is recognized especially by the lax terminal raceme, with bracts and bracteoles green and flowers with green calyx and red pinkish corolla. *S. rubescens* and *S. itatiaiae* are the only Americans representatives of the genus with red flowers and tubular corolla. In addition to the distinctive occurrence areas, *S. rubescens* differs from *S. itatiaiae* by the inflorescence in lax raceme (not dense spikes) and the bracts and bracteoles leaf-like (not petal-like). *S. rubescens* also resembles *S. minarum*in the terminal lax raceme and the green bracts and bracteoles, but it is easily distinguished from the latter by the herbaceous (not shruby) habit and the red (not yellow to greenish yellow) corolla. Furthermore, both have limited and quite distinct areas of occurrence.

22. *Staurogyne spraguei* Wasshausen (1992: 149). *S. leptocaulis* Leonard (1958: 671), *non S. leptocaulis* Bremekamp (1957: 129). Type:—COLOMBIA. Meta, without date, *T.A. Sprague 27* (holotype: K, not found; isotype: US on-line image!).(Fig. 1B, 20)

Creeping herb, sparsely branched at base, fertile branches suberect, with scattered simple trichomes. *Leaves* sessile, or with a petiole up to 4 mm long; blade oblong-ovate to oblong-lanceolate, sometimes slightly ovate, 1.4−4.3 × 0.2−0.6 cm, apex acute, base obtuse to subtly cuneate, adaxially glabrous or with sparse simple trichomes, sometimes restricted to veins, abaxially with simple trichomes restricted to veins. *Inflorescence* in lax, terminal and axillary, bracteate spike, terminal ones 2−5 cm long, peduncle 0.3−2.1 cm, axillary ones up to 2.4 cm long, peduncle 0.3−1.1 cm; flowers opposite at base, alternate above; rachis, bracts and bracteoles sparsely simple pilose; bracts and bracteoles green, bract elliptic to lanceolate-ovate, 4.9−10.5 × 1.2−4 mm, 3 acrodromous veins, sometimes 3-nerved, bracteoles lanceolate, 3.5−6.5 × 0.5−0.9 mm. *Flowers* sessile; calyx green, sparsely pilose with simple trichomes, rarely glandular, non-ciliate, posterior segment 3.1−6.2 × 0.4−1 mm, 1−3-nerved, lateral pair of segments2.7−5.7 × 0.2−0.5 mm, anterior pair of segments 2.9−6.1 ×0.2−0.6 mm; corolla white, 3.9−9.9 mm long, basal tube 1.3−2.8 mm long, anterior lobe 1.5−2.5 mm compr., externally glabrescent, internally glabrous; posterior stamens 1.3−2.8 mm long, anterior stamens 1.4−2.7 mm long, staminode 0.3−1.1 mm long; ovules 18−20 (26−28) per locule, posterior lobe of the stigma slightly-concave to truncate. *Capsule* 3.5−3.6 × 1.3−1.4 mm, with sparse glandular trichomes at the apex.

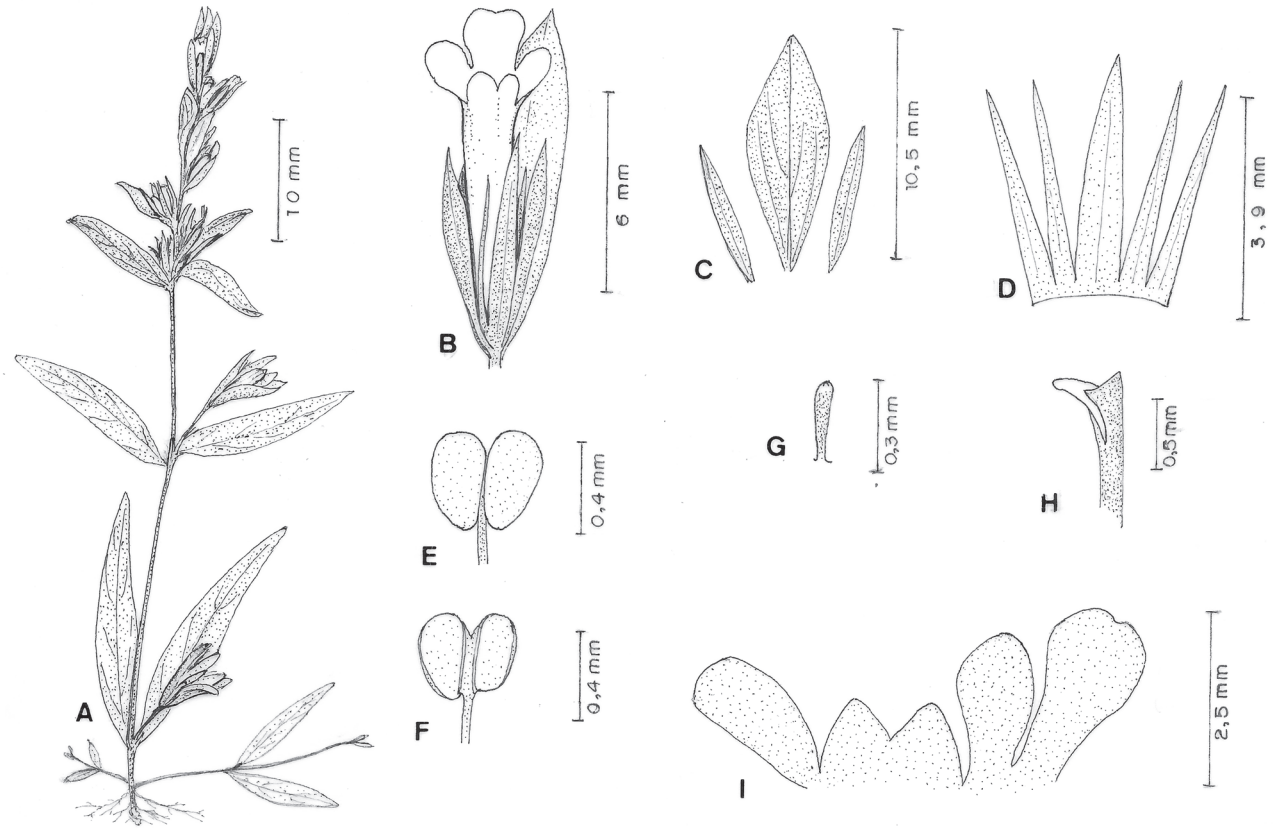

FIGURE 20. *Staurogyne spraguei*. A.Flowering plant. B. Flower, bract and bracteoles. C. Bract and bracteole. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes (A–C, G–H from *Jansen-Jacobs 2779*; D–F, I from *Delascio 17338*).

Specimens examined:—BOLIVIA. La Paz: Iturralde, 31 July 1998, *Wood & Wasshausen 13836* (K); Iturralde, Serrania Cunaca, 31 July 1998, *Wasshausen & Wood 2181* (K). COLOMBIA. Meta:Puerto Gaitán, *Alonso et al. 5760* (COL). GUYANA. Rupununi, 08 October 1992, *Jansen-Jacobs et al. 2779* (CAY, K, U). VENEZUELA. Apure:Los Cañitos, Sn. Juan de Payara-Cuneviche, 20 December 1985, *Stergios 8791* (VEN); Alto Apure, December 1977, *Ramia 6863* (VEN); 7 December 1971, *Ramia s.n.*(VEN-88200). Cojedes:El Esparrame, Est. Biol. Hato Piñero, 23 March 1997, *Delascio 17.338* (VEN). Guárico:Calabozo, December 1984, *Montes 923* (VEN); El Esparrame, Est. Biol. Hato Piñero, February 1971, *Aristeguieta 7724* (VEN); Charcote, P. N. Aguaro-Guariquito, 9º24'−9º32'N, 67º64'−67º68'W, December 1981, *Delascio et al. 11125* (VEN); 9º12'−9º16'N, 67º48'−67º60'W, December 1981, *Delascio et al. 11213* (VEN); Rio Cuao-Rio Orinoco, 19 November 1948, *Maguire & Politi 27401* (F, K, NY, RB).

Distribution and habitat:—*Staurogyne spraguei* has a relatively wide distribution, occurring in Colombia, locality of the type collection, and Bolivia and Venezuela, between 200−400 m above sea level (Wasshausen 1995), and is also now recorded for Guyana.

Phenology:—It was collected with flowers and fruits in November.

Taxonomic notes:—*Staurogyne spraguei* is characterized by the creeping habit, with delicate stems, the leaves oblong-ovate to oblong-lanceolate and the long terminal spikes and the axillary shorter, both pedunculated. Based on habit and form of the corolla, *S. spraguei* is near to *S. repens* and *S. miqueliana*, which also occur in nearby areas. *S. sparguei* differs from *S. miqueliana* especially by the stem sparsely (not densely) branched and the calyx no-ciliate (not ciliated), and from *S. repens* by the stem sparsely branched (not densely) and the leaves 1.4−4.3 mm long (not up to 1.9 cm long).

Staurogyne leptocaulis Leonard (1958: 671) is a later illegitimate homonym because of the existence of *Staurogyne leptocaulis* Bremekamp (1957: 129) for another Asian species.

Wasshausen (1992: 149) renamed the species as *S. spraguei* in honor of T. A. Sprague, the collector of type specimen.

23. *Staurogyne stolonifera* (Nees) Kuntze (1891: 497). *Ebermaiera stolonifera* Nees von Esenbeck (1847: 19). Lectotype (designated by Wasshausen 2006: 130):—BRAZIL. Pará: "in sylvis ad fl. Xingu (...) locis arenosis", *C.F.P. Martius* s.n. (lectotype: GZU-259748!). (Fig. 21)

Ebermaiera stolonifera var. *nana* Nees von Esenbeck (1847: 19), syn. nov. Type:—BRAZIL. Amazonas: "ad fluven Amazonun legit", *E.F. Poeppig 2554* (holotype: GZU!).

Staurogyne linearifolia Bremekamp (1938: 144). Type:—SURINAME. "fluv. Tapanahoni", August 1904, *G.M. Versteeg 739* (holotype: U!).

Creeping herb, sparsely branched, flowering shoots 10−20 cm tall, densely simple pilose, especially towards apex. *Leaves* sessile or petiole up to 5 mm long; blade linear to linear-lanceolate, 2.1−9 × 0.2−0.7 cm, apex acute, base acute to subobtuse, sparsely pilose with simple trichomes and generally glandular on both surfaces, dense at the veins, especially on the abaxial surface, rarely glabrescent. *Inflorescence* in dense, terminal and sometimes axillary, usually subcapitate bracteate spike, terminal ones sometimes up to 3.5 cm long, both sessile or peduncle up to 2.1 cm long; flowers opposite to subopposite toward the apex; rachis, bracts and bracteoles sparsely simple and glandular pilose; bracts and bracteoles green, bract lanceolate to lanceolate-elliptic, 7−15.7 × 1.5−3.8 mm, larger dimensions at base, 1−3-nerved, bracteoles linear to linear-lanceolate, 5.4−6 × 0.6−0.8 mm. *Flowers* sessile to subsessile; calyx green, pilose with sparse simple and glandular trichomes, non-ciliate, posterior segment 4.6−7.2 × 0.5-1 mm, 3-nerved, lateral pair of segments 3.7−6.1 × 0.2 mm, anterior pair of segments 3.8−6.5 × 0.2−0.4 mm; corolla white, 4.8−9.5 mm long, basal tube 1.4−2 mm long, anterior lobe 1.5−2.5 mm long, externally glabrous orwith simple trichomes, rarely glandular; posterior stamens 1.8−2.6 mm long, anterior stamens 1.6−2.6 mm long, staminode 0.7−1.3 mm long; ovules 18−26 per locule, posterior lobe of the stigma concave to slightly divided, rarely subtruncate. *Capsule* 5−5.7 × 2.1 mm, sparsely glandular pilose especially toward apex.

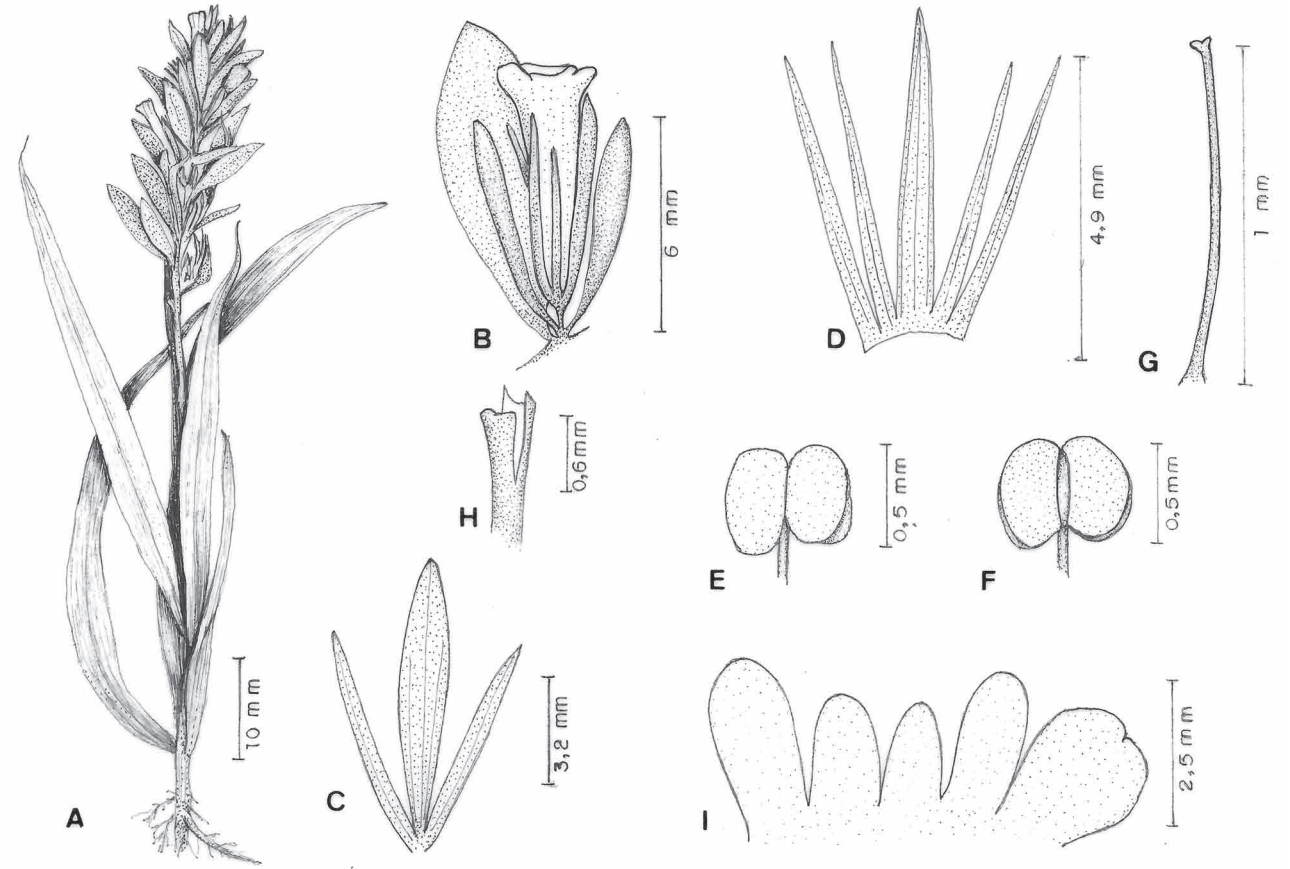

FIGURE 21. *Staurogyne stolonifera*. A.Flowering branch. B. Flower, bract and bracteoles. C. Bract and bracteole. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes. (A–B, G–H from *Irwin 17098*; C–F, I from *Santos & Souza 179*).

Specimens examined:—BRAZIL. Amazonas: São Paulo, 20 July 1971, *Prance et al. 14439* (K, R, U). Mato Grosso: Barra do Garças, Rio Corrente, 26 July 1977, *Hatschbach 40120* (MBM). Xavantina, Caveira de Índio, 14º44'S, 52º20'W, 21 July 1976, *Ratter & Fonseca 3308* (K, UB, UEC); Xavantina, Alto do Rio Araguaia, 13 June 1966, *Irwin et al. 17098* (IAN, UB); Xavantina, 12 June 1968, *Santos &Souza 1749* (K, P, R, RB), 13 June 1966, *Irwin et al. 17185* (UB, UEC). Pará: Itaituba, Serra do Cachimbo, 19 May 1983, *Silva 362* (K). Rondônia: Jeciparaná, 11 July 1979, *Monteiro & Guedes 2817* (K). GUIANA FRANCESA. Rupununi: Kuyuwini Landing, 2º05' N, 59º15'W, 8 October 1992, *Jansen-Jacobs et al. 2779* (CAY, P). GUYANA. Bartica: November 1888, *Jenman 4664* (K). SURINAME. Boven-Sipaliwini: 23 October 1935, *Rombouts 196* (U). Tanjimama: 16 November 1954, *Mennega 410* (U), 18 September 1963, *Irwin et al. 55848* (C, K, L, U), 22 August 1963, *Irwin et al. 55197* (U), 14 October 1910, *Hulk 335* (U),*Ferreira 357* (K).

Distribution and habitat:—*Staurogyne stolonifera* was described from the north of Brazil in the Amazon and is now registered in the central region of this country, as well as new records for Suriname and Guyana.

Phenology:—It was collected with flowers from June to November and with fruits in June and July.

Taxonomic notes:—*Staurogyne stolonifera* has reduced herbaceous habit, with erect stems and terminal elongate inflorescence, being especially characterized by the long leaves, linear to linear-lanceolate. *Staurogyne spraguei* is similar to *S. stolonifera* in linear-lanceolate leaves, infundibular corolla and similar distribution, but differs by the creeping (not erect) habit and the leaves up to 2 cm long (not 2.1−9 cm long). Analysis of herbaria material has shown no differences to support varieties under the species.

24. *Staurogyne sylvatica* Lindau ex Braz & Monteiro (2006: 584). Type:—BRAZIL. Rio de Janeiro: Parati, "Fazenda São Roque, ca. 600 m. Flor lilás com estrias arroxeadas. Arbusto 1m. Brácteas esverdeadas", 4 August 1988, *M.C. Marques 106* (holotype: RB!). (Fig. Braz & Monteiro 2006: 586)

Subshrub 0.2−1 m tall, sparsely branched, with scattered simple trichomes. *Petiole* 2.1−6.3 cm long; blade elliptic, ovate-elliptic to elliptic-lanceolate, 6.8−14.6 × 3.3−6.7 cm, apex acute to slightly-acuminate, base abruptly cuneate, adaxially glabrous, rarely simple trichomes on the midvein, abaxially restricted to the veins, usually with sparse disc-shape trichomes. *Inflorescence* in lax, terminal and axillary, bracteate raceme, terminal ones 4−7.3 cm long, axillary ones 1−3.5 cm long, on both peduncle 0.3−1.5 cm long; flowers opposite, sometimes subopposite; sparse simple and glandular trichomes on rachis, bracts and bracteoles; bracts and bracteoles yellow-whitish to light-greenish, bract elliptic to lanceolate-elliptic, 3.8−6.5(7) × 0.8−2.8 mm, 3 acrodromous veins, bracteoles linear-lanceolate, 3−6.2 × 0.5−1 mm. *Pedicel* 1.5−4 mm long; calyx whitish-green, sparsely pilose with scattered simple and glandular trichomes, non-ciliate, posterior segment 9−13.6 × 2.8−5.3 mm,(3−)5−7-nerved, lateral pair of segments 6−9.8 × 0.5−1 mm, anterior pair of segments 7.7−12.2 × 0.9−1.9 mm; corolla white to lilac, usually with vinaceous markings at limb and throat, 10−16.5 mm long, basal tube 2−4 mm long, anterior lobe 3.5−5.1 mm, externally with scattered simple and glandular trichomes, internally glabrous; posterior stamens 3.8−5.5 mm long, anterior stamens 3.8−6 mm long, staminode 0.9−2 mm long; ovules 13−20 per locule, posterior lobe of the stigma truncate to concave, rarely divided. *Capsule* 7−10 × 2−4 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Paraná: Guaratuba, Rio Itararé, 6 July 1958, *Hatschbach 4818* (MBM); Paranaguá, Mananciais da Serra, 20 August 1968, *Hatschbah 19621* (C, MBM); Sengés, Rio Itararé, 7 October 1971, *Hatschabch 27126* (MBM). Rio de Janeiro: Itatiaia, P.N. Itatiaia, 22 July 1958, *Monteiro s.n.* (RBR-1459); P.N. Itatiaia, *Monteiro* (RBR 1798); Parati, APA-Cairuçú, Corisquinho, 27 June 1995, *Bovini et al. 828* (RB); Fazenda São Roque, 4 August 1988, *Marques 106* (RB). Santa Catarina: Ilhota, Parque Botânico Morro do Baú, 1 October 1989, *Falkenberg 4838* (MBM). São Paulo: Biritiba Mirin, Estação Biológica de Boracéia, 23º38'−23º49'S, 45º52'−45º53'W, 27 November 1984, *Romaniuc Neto & Custódio Filho 246* (SP, HRCB); Cananéia, Parque Estadual da Ilha do Cardoso, 23 July 1984, *Kirizawa & Romaniuc-Neto 1283* (SP, SPF); Caraguatatuba, 28 July 1983, *Pirani & Yano 789* (SP, HRCB); Iguape, 6 September 1976, *Davis et al. D.60526* (SP); Iporanga, Fazenda Intervales, 23 May 1996, *Proença et al. 144* (SPF); Juquiá, 13 May1994, *Mello-Silva et al. 975* (SPF); Mogi da Cruzes, 28 July 1983, *Kirizawa et al. 1009* (SP, IBGE); Paranapiacaba, 18 August 1990, *Fierro 1629* (HRCB); Patrimônio, 24 June 1941, *Khulmann* s.n. (HB, MBM, K, SP 45738); Peruíbe, 26 April 1980, *Bevilaquia 8* (BOTU); Peruíbe, 29 October 1891, *Löfgren & Edwau 1617* (C); Peruíbe, 28 October 1892, *Edwau 1891* (C); Registro, 06 September 1976, *Davis et al. D.60526* (UEC); São Miguel Arcanjo, Parque Estadual Carlos Botelho, 29–31 October 1993, *Moraes & Capellari-Jr. 870* (ESA); Parque Estadual Carlos Botelho, 23 September 1992,*Sugiyama &Kirizawa 1026* (HBCB, SP); Sorocaba, Santos, 17 July 1901, *Moreira 475* (R); Tapiraí, rodovia 79, 11 May 1994, *Mello-Silva et al. 893* (HRCB, K, UEC); Ubatuba, 16 August 1975, *Morawetz 14-16875* (K); Ubatuba, Morro Corcovado, 23º27'−23º28'S, 45º11'W, 14 October 2000,

Dittrich 772 (HRCB); Picinguaba, 8 October 1988, *Cunha 110* (HRCB); Picinguaba, 13 April 1990,*Furlan et al.* 1304 (SP); Picinguaba, 25 August 1990, *Furlan et al.1217* (HRCB; SP). Without locality: Alto Serra, May 1942, *Landerman 2.022* (K). Without locality: "Chacara del Oro", April-November 1885, *Puiggari 3213* (P); April-November 1885, *Puiggari 3214* (P); *Roth 5775* (IPA).

Distribution and habitat:—*Staurogyne sylvatica* occurs in the south and southeastern Brazil, restricted to the Atlantic rainforest, at elevations above 500 m in the northern latitudes and in lower lands to the south, usually in humid habitat, inside or in the border of the forest.

Phenology:—It flowers and fruits during all the year, but especially between August and October.

Taxonomic notes:—*Staurogyne sylvatica* is recognized especially by the large leaves, the long-petiolate terminal and axillary inflorescences, the axillary ones usually shorter, with 3-nerved colored bracts, these much smaller than the flowers. *S. sylvatica* is similar to *S. mandioccana* and *S. eustachya* especially in regard to the flowers, and several distinctive features among them are discussed by Braz & Monteiro (2006).

25. *Staurogyne trinitensis* Leonard (1937: 401). Type:—TRINIDAD AND TOBAGO. Arima: "onthe road to Carone State, Arima, Trindad, April 5, 1866", unknown collector s.n. (holotype: NY 115009!; isotype: TRIN). (Fig. 22)

Staurogyne versteegii Bremekamp (1938: 144). Type:—SURINAME. August 1903, *G.M. Versteeg 109* (holotype: U!).

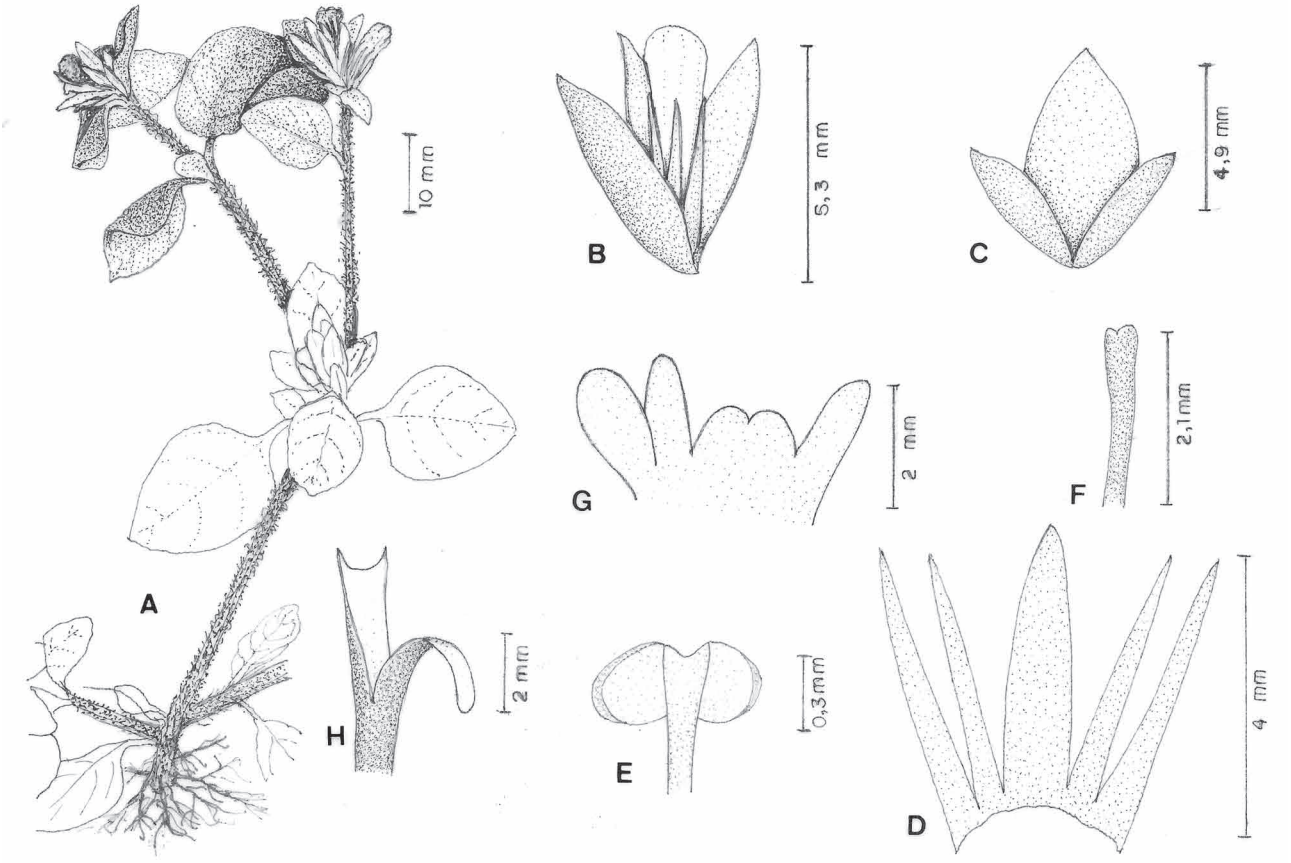

FIGURE 22. *Staurogyne trinitensis*. A.Flowering branch. B. Flower and bracteoles. C. Bract and bracteole. D. Calyx. E. Anther in dorsal view. F. Staminode. G. Corolla lobes. H. Stigma in lateral view. (from *Steyermark 88389*).

Creeping herb, branched, densely pilose with simple trichomes. *Petiole* 4−6 mm long; blade suborbicular to broad-ovate, 1.2−2.2 × 0.7−1.6 cm, apex acute to broad-acute, base ovate to abruptly cuneate, sparsely simple pilose on both surfaces. *Inflorescence* in dense, terminal, subcapitate, bracteate spike, 0.8−1.0 cm long, sessile; flowers opposite; rachis, bracts and bracteoles with sparse simple trichomes; bracts and bracteoles green, bract broad-elliptic to elliptic-ovate, 7−12 × 2.7−7 mm, slightly 1-nerved, bracteoles elliptic,4.3−5.7 × 1.2−1.3 mm. *Flowers* sessile; calyx green, sparsely simple pilose, rare glandular, non-ciliate, posterior segment 4−5.9 × 0.8−1 mm, 3-nerved, lateral pair of segments 3.4−5 × 0, 4−0.5 mm, anterior pair of segments 3.8−5 × 0.4−0.5 mm; corolla white, 6.3−7.2 mm long, basal tube 2−5 mm long, anterior lobe 1.7−2 mm long, externally with sparse glandular trichomes, internally glabrous;

posterior stamens 2.3−2.7 mm long, anterior stamens 2.4−3 mm long, staminode 0.3−0.4 mm long; ovules 24−25 per locule, posterior lobe of the stigma deeply concave. *Capsule* 4.7−4.8 × 1.8 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Mato Grosso: without locality, May 1911, *Hoehne & Mildbread 4225* (RB). GUYANA. Without locality, July 1824, *Poiteau s.n.* (K). TRINIDADAND TOBAGO. Trinidad: "1877-80", *Fendler 532* (BM, K). SURINAME. Tumuc-Humac: 27 July 1972, *Sastre 1472* (U); Tossokreek: without locality, 26 November 1950, *Florschütz & Florschütz 473* (U); August 1903, *Versteeg 109* (U). VENEZUELA. Miamo: Altiplanicie de Nuria, 12 January 1961, *Steyermark 88389* (VEN).

Distribution and habitat:—*Staurogyne trinitensis* has distribution restricted to northern South American, occurring in Brazil, Trinidad and Tobago, Suriname, the Guianas (Wasshausen1995) and Venezuela at elevations between 200-400m.

Phenology:—Flowering specimens were collected in January, April and August and fruiting ones in August.

Taxonomic notes:—*Staurogyne trinitensis* is a delicate plant, characterized by the creeping habit, the broad-ovate leaves and the terminal subcapitate inflorescence. Based on the habitb and the infundibular corolla it approaches *S. miqueliana*, but differs by the petiolate (not sessile) leaves, the terminal subcapitate (not axilary and terminal elongated) inflorescence, and the calyx ciliate (not no-ciliate).

26. *Staurogyne vauthierana* (Nees) Kuntze (1891: 497). *Ebermaiera vauthieriana* Nees von Esenbeck (1847a: 15). Type:—BRAZIL. Minas Gerais: Ouro Preto, 1833, *A.C. Vauthier 182* (holotype: W!; isotype: P!). (Fig. 2C, 23)

Staurogyne macrantha Lindau (1897: 643), *non S. macrantha* Clarke (1908: 642). Type:—BRAZIL. Minas Gerais: without date, *C.A.W. Schwacke 10495* (holotype: RB!).

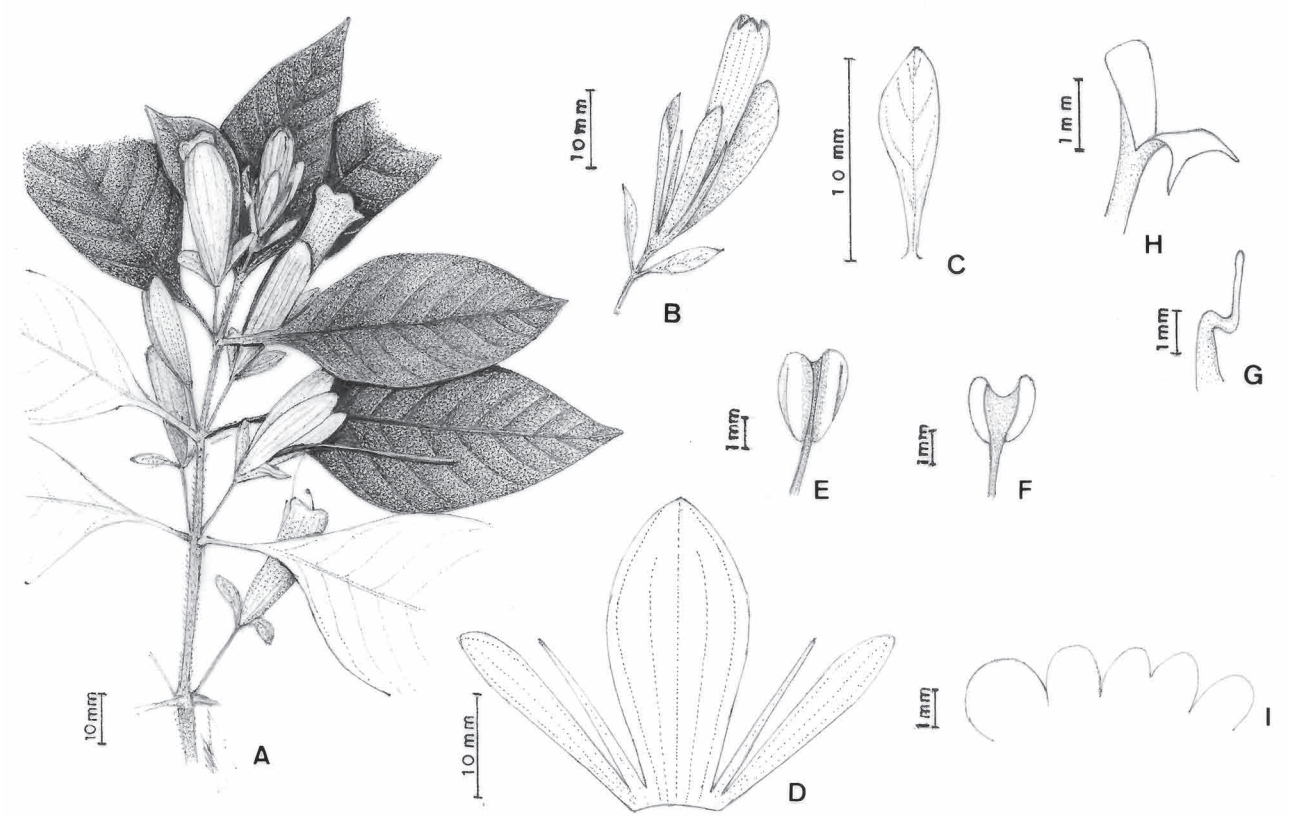

FIGURE 23. *Staurogyne vauthieriana*. A.Flowering branch. B. Flower and bracteoles. C. Bracteole. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes (A–B, D, G–I from *Souza & Argolo* (OUPR 7411);C, E–F from *J. C. Lombardi 2280*).

Subshrub ca. 50 cm tall, especially branched at the base, densely pilose with simple and glandular trichomes. *Petiole* 1.1−2.3 cm; blade elliptic to ovate-elliptic, 9−14.5 × 3.6−6 cm, apex slightly acuminate, base cuneate, with sparse glandular trichomes on both surfaces. *Inflorescence* in lax, leafy raceme; flowers opposite; bracteoles green, sometimes yellowish-green, elliptic to obovate-elliptic, 6.9−15.0 × 3−6 mm, sparsely pilose with glandular trichomes. *Pedicel* 1.2−1.7cm long; calyx yellow, sometimes greenish at apex, sparsely glandular pilose, non-ciliate, posterior segment

27−35× 8−15 mm, 3−7-nerved, lateral pair of segments 15 −22× 0.5−1.6 mm, anterior pair of segments 24−31× 3−6.1 mm; corolla yellow, greenish in the lobes, 3.2−4.4cm long, basal tube 3−4.5 mm long, anterior lobe 2.5−4.5 mm long, externally pubescent with dense simple and glandular trichomes, internally glabrous; posterior stamens 2.1−3.3 cm long, anterior stamens 2.3−3.5 cm long, staminode 3.5−6 mm long; ovules 24−26 per locule, posterior lobe of the stigma deep-concave to divided. *Capsule* 12.3−13× 2.9−3.1 mm, sparsely glandular pilose.

Specimens examined:—BRAZIL. Minas Gerais: Ouro Preto, Itacolomi, Taquaral, May 1892, *Magalhães 447* (OUPR), *Riedel s.n.*(LE-464); Parque Estadual do Itacolomi, 13 May 1998, *Lombardi 2280* (BHCB), Monte Itacolomi, *Riedel s.n.*(LE-5), Mata do Baú, 17 July 1997, *Souza & Argolo* (HRCB, OUPR 7411), 17 July 1997, *Souza & Argolo* (HRCB, OUPR 7412).

Distribution and habitat:—*Staurogyne vauthieriana* is only recorded in the State of Minas Gerais, in the municipality of Ouro Preto, on and around the *Serra do Itacolomy*, between 1100-1450 m elevation.

Phenology:—It was collected with flowers and fruits in May and July.

Taxonomic notes:—Although rarely collected, *Staurogyne vauthieriana* is a well-defined species based on the presence of glandular trichomes all over the plant, the elliptic leaves and the leafy inflorescence with showy flowers. *S. vauthieriana* resembles *S. warmingiana* in the indumentum and shape of the leaves and the form of the inflorescence, but it differs from the latter by the leaves 9−14.5 cm long (not 4.4−10 cm), the bracteoles 3−6 mm broad (not 1.3−3 mm broad) and the pedicel 3.4−11 mm long (not 12−17 mm), as well as in their distinct geographical distributions.

27. *Staurogyne veronicifolia* (Nees) Kuntze (1891: 497). *Ebermaiera veronicifolia* Nees von Esenbeck (1847: 18). Neotype (designated by Braz & Monteiro 2011b: 177):—BRAZIL. Espírito Santo: Alfredo Chaves, São Bento de Urânia, 8 October 1994, *G. Hatschbach 61140 & J.M. Silva* (neotype: MBM!). (Fig. 24)

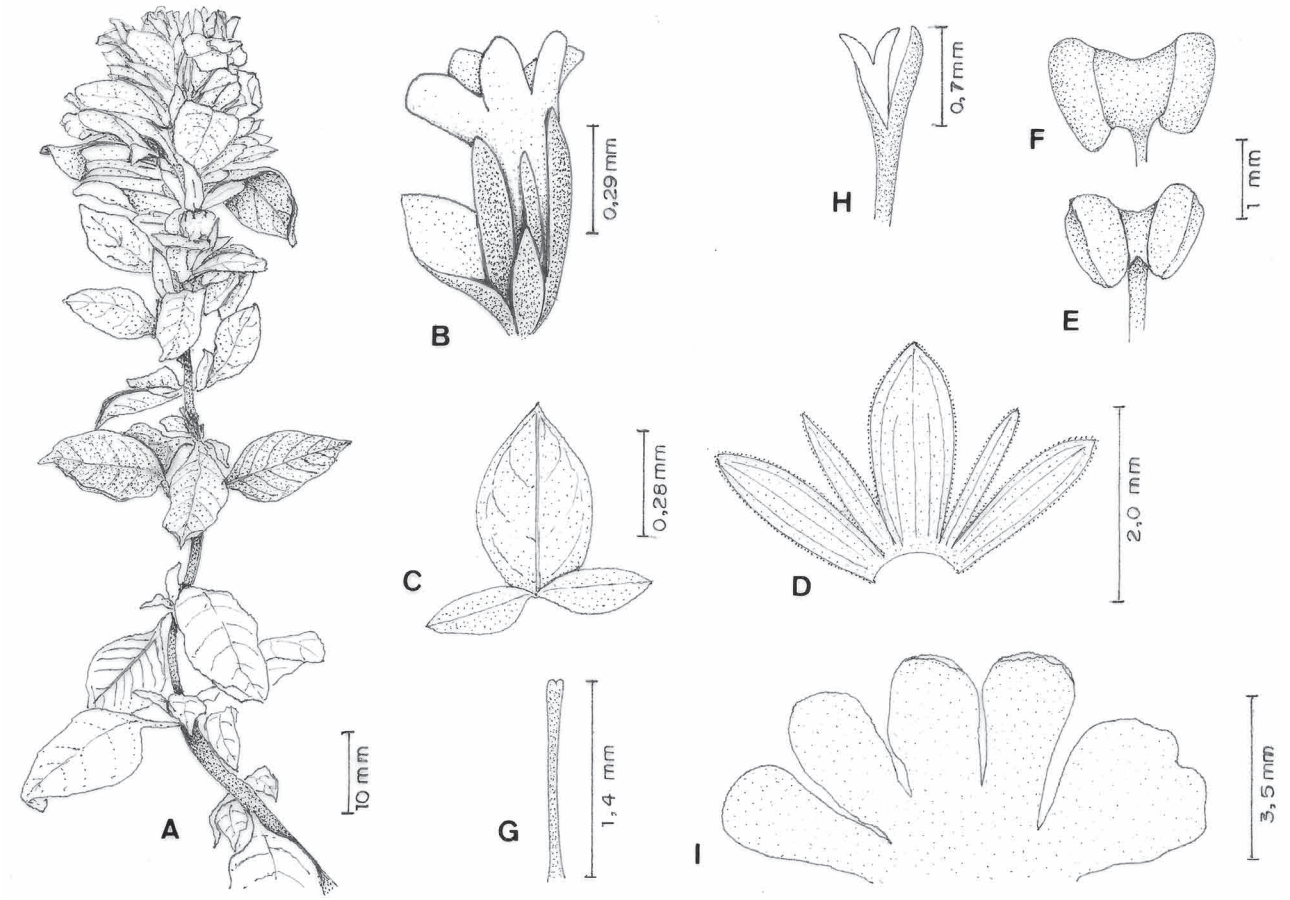

FIGURE 24. *Staurogyne veronicifolia*. A.Flowering branch. B. Flower, bracts and bracteoles. C. Bract and bracteoles. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes (A–B, E–G, I from *Hatschbach & Silva 61140*; C–D, H from *Brade 19428*).

Herb 10−90 cm tall, rarely branched, sparsely pilose with simple trichomes, dense toward the apex. *Petiole* 2−7 mm long; blade elliptic to ovate-elliptic, 1.7−4.1 × 0.5−1.7 cm, apex acute to slightly acuminate, base acute to cuneate,

rarely obtuse, adaxially usually glabrous, rarely with sparse simple trichomes, abaxially restricted to veins, sometimes with disc-shape trichomes. *Inflorescence* in dense, terminal, subcapitate, bracteate spike-like raceme, 1.4−2.6 cm long, peduncle undefined; flowers opposite, rarely subopposite; rachis sparsely simple pilose; bract and bracteoles green, with simple trichomes restricted to the veins, bract ovate-elliptic to ovate, 7.7−13.5 × 5.1−7.5 mm, 1(3)-nerved, bracteoles elliptic to elliptic-lanceolate, 2.5−6.8 × 0.8−2.8 mm. *Pedicel* 0.5−1.2 mm long; calyx greenish, glabrescent or simple trichomes restricted to the veins, ciliate, posterior segment 9.5−12 × 2−4.3 mm, 3-nerved, lateral pair of segments 7−10.1 × 0.9−1.6 mm, anterior pair of segments 7−11.1 ×1.3−2.5 mm; corolla white to light-green, 8−12.8 mm long, basal tube 1.8−2.5 mm long, anterior lobe 2.7−3.8 mm long, externally and internally sparsely simple and glandular pilose, rarely glabrescent or internally with dense pubescence; posterior stamens 1.5−4 mm long, anterior stamens 2.7−5.2 mm long, staminode 1−1.5 mm long; ovules 11−16 per locule, posterior lobe of the stigma slightly divided. *Capsule* not found.

Specimens examined:—BRAZIL. Espírito Santo: Cachoeira do Itapemirim, Vargem Alta, Morro de Sal, 2 August 1948, *Brade 19428* (RB); Castelo, Forno Grande, 12 August 1948, *Brade 19237* (RB, U).

Distribution and habitat:—*Staurogyne veronicifolia* is endemic to the State of Espírito Santo, in the Atlantic rainforest of Southeastern Brazil, usually occurring at high elevations.

Phenology:—It was collected with flowers in August and October and with immature fruits in October.

Taxonomic notes:—*Staurogyne veronicifolia* is characterized by the erect slender stem, rarely branched, the subcapitate terminal inflorescence, with green bracts, and the ciliate calyx. *Staurogyne veronicifolia* is close to *S. riedeliana* especially in the habit and leaf size, but differs by the terminal subcapitate (not elongated) inflorescence, the bracts 1-nerved (not usually 3-nerved) and just simple trichomes (not glandular) present in the calyx. Also with restricted occurrence in the State of Espírito Santo, *Staurogyne parva* differs from *S. veronicifolia* by the leaves elliptic-lanceolate (not elliptic to ovate-elliptic), 5.8−11.5 cm long and hairy (not 1.7−4.1 cm, with pilosity restricte to the veins), the terminal inflorescence elongated (not subcapitate) and the bracts, bracteoles and calyx with glandular trichomes (not eglandular).

28. *Staurogyne warmingiana* (Hiern) Leonard (1937: 402). *Ebermaiera warmingiana* Hiern (1877: 68). Type:—BRAZIL, Minas Gerais, *E. Warming 75* (holotype: K!; isotype: C!). (Fig. 25)

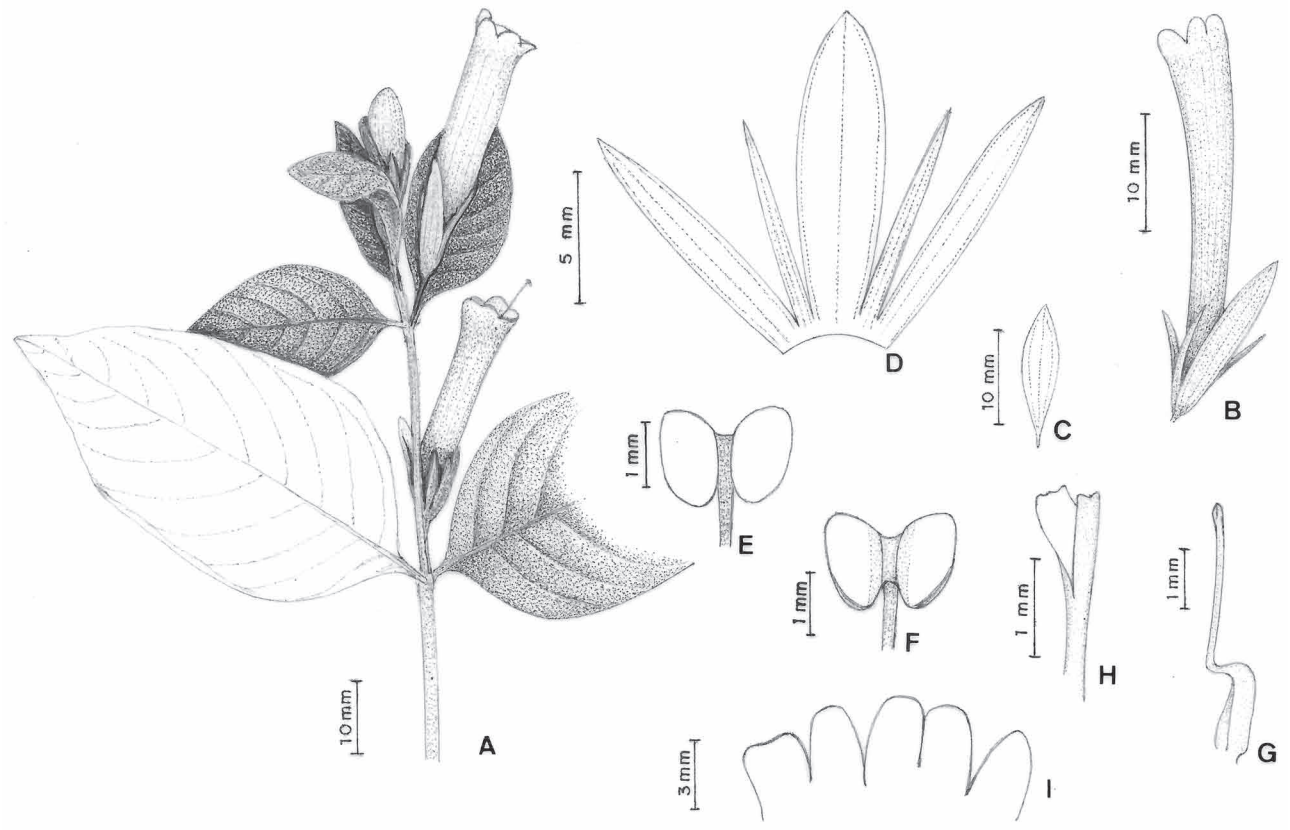

FIGURE 25. *Staurogyne warmingiana*. A.Flowering branch. B. Flower and bracteoles. C. Bracteole. D. Calyx. E. Anther in frontal view. F. Anther in dorsal view. G. Staminode. H. Stigma in lateral view. I. Corolla lobes (A, C–D, G, I from *J. A. Paula et al. 8971*; B, E–F, H from *Mello-Barreto 282*).

Subshrub ca. 1.5 m tall, rarely branched, sparsely pilose with glandular trichomes. *Petiole* 6−20 mm long; blade 4.4−10 × 2−4.3 cm, ovate to elliptic-ovate, apex acute, rarely slightly acuminate, base obtuse to abruptly cuneate, sparsely glandular pilose on both surface, abaxially dense in the veins. *Inflorescence* in lax, leafy raceme; flowers opposite; bracteoles yellow-green, obovate-elliptic, 4−8 ×1.3−3 mm, pilose with sparse glandular trichomes. *Pedicel* 3.4−11 mm long; calyx yellow, sparsely glandular pilose, non-ciliate, posterior segment 16−20 × 3−4.5 mm, 3-nerved, anterior pair of segments 10.2−12.4 × 0.5−1.3 mm, lateral pair of segments 13.4−15.3 × 1.2−2.1 mm; corolla yellow, 3.4−4.3 cm long, basal tube 2.3−3 mm long, anterior lobe 4.5−4.8 mm long, externally pilose with sparse glandular trichomes, internally glabrous; posterior stamens 2.6−3 cm long, anterior stamens 2.8−3.4 cm long, staminode 3−4.8 mm long; ovules ca. 28 per locule, posterior lobe of the stigma truncate to slightly divided. *Capsule* not found.

Specimens examined:—BRAZIL.Minas Gerais: Caeté, Serra da Piedade, 19º49’ S, 43º40’ W, 16 May 1987, *Paula et al.8971* (BHCB, SPF), 6 May 1934, *Mello-Barreto 282* (F, R).

Distribution and habitat:—*Staurogyne warmingiana* was only recorded at *Serra da Piedade*, in the central portion of the State of Minas Gerais, in elevation of above 900 m.

Phenology:—It was collected with flowers in May and its fruits are unknown.

Taxonomic notes:—*Staurogyne warmingiana* is characterized by the glandular trichomes on the whole plant and by the leafy inflorescence. Therefore, it is close to *S. vauthieriana*, which differs in having the leaves, bracteoles, pedicel and calyx much larger, as mentioned above, in addition to distintinc place of occurrence.

Excluded Species

Although described as a *Staurogyne* species, *S carvalhoi* Profice (2000: 203) presents numerous morphological characteristics that do not allow this classification, among many others (manuscipt in prep.): glandular hairs absent in the entire plant, the inflorescence with long floral peduncle, the calyx with equal segments, and the asymmetric gynoecium. It is recognized as a member of the Acanthaceae on the basis of the opposite leaves; flowers accompanied by bracts and bracteoles; zygomorphic, pentamerous and gamopetalous corolla; four didynamous epipetalous stamens; bicarpelar gynoecium; and capsular fruits.

Acknowledments

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