

## The genus *Cyphostemma* (Planch.) Alston (Vitaceae) in Angola

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**Summary:** An overview of the 22 taxa recorded in the genus *Cyphostemma* (Planch.) Alston (Vitaceae) in Angola is presented. An identification key to all taxa recorded is provided, together with a referenced list of taxa with synonymy, geographical distribution range, endemic status and the citation of type specimens that originated from the country. Distribution maps are also presented. A list of herbarium collections consulted is given in an appendix.

**Zusammenfassung:** Es wird eine Übersicht über die 22 aus Angola bekannten Taxa der Gattung *Cyphostemma* (Planch.) Alston (Vitaceae) gegeben. Der Beitrag besteht aus einem Schlüssel zu allen Taxa, sowie einer referenzierten Taxonliste mit Synonymen, geographischer Verbreitung (inkl. Verbreitungskarten), Angaben zum Endemiestatus und Zitaten der Typusbelege, soweit sie aus dem Land stammen. Ein Anhang listet die untersuchten Herbarbelege auf.

### Introduction

The family Vitaceae, which includes *Vitis vinifera* L., the source of table and wine grapes, consists of just over 700 species and 13 genera, making this a rather small family on global standards (Mabberley, 2008). Most species are woody vines with branched tendrils, but large, fat-stemmed species are also included in some genera. Flowers are rather small and insignificant, while the leaves are generally simple and deeply invaginated, or compound, and known for their striking autumn colours. The fruit of some representatives of the Vitaceae can be poisonous. The Vitaceae in An-

gola were treated for *Conspectus florae angolensis* (Exell & Mendonça, 1954) and more recently enumerated for *Plants of Angola* by Retief (2008). These treatments recognised five Vitaceae genera occurring naturally in the country [*Ampelocissus* Planch., *Cayratia* Juss., *Cissus* L., *Cyphostemma* (Planch.) Alston and *Rhoicissus* Planch.], while *Vitis vinifera* L. was recorded as having escaped from cultivation. The genus *Cyphostemma* (Planch.) Alston, previously included in *Cissus* L. as sect. *Cyphostemma* Planch. (Planchon, 1887), was elevated to the rank of genus by Alston (1931), a classification adopted by Descoings (1960). Descoings (1960) made several combinations in *Cyphostemma* that were invalid because the basionym was not clearly cited (ICBN Art. 33.2). Later, he published again the combinations (Descoings, 1967) in order to validate them, but meanwhile Wild & Drummond (1966) had already unintentionally validated some of the names, therefore some names in Descoings' second set of combinations are also not accepted (being superfluous names). *Cyphostemma* comprises c. 150 species (Mabberley, 2008) and is widely distributed throughout tropical Africa. In Angola it is represented by 22 species, of which nine are endemic. Representatives of *Cyphostemma* differ from species included in the related genus *Cissus*, through having constricted flower buds and a nectary disk of four glands, which are free from each other (Descoings, 1960). The majority of species are erect, prostrate or climbing perennial herbs or shrubs, with or without tendrils (Wild & Drummond, 1966). Several species of southern African *Cyphostemma* are thick-stemmed succulents or

have succulent leaves, giving them horticultural interest among collectors (Smith *et al.*, 1997; Figueiredo & Smith, 2009).

### Material and methods

The collections of *Cyphostemma* from Angola kept at the Herbaria of the Centro de Botânica (LISC) and University of Lisbon (LISU) in Lisbon, Portugal, and the National Herbarium of South Africa (PRE), in Pretoria, were examined. The Herbarium of the University of Coimbra (COI), Coimbra, Portugal, was contacted for permission to examine its specimens, but according to its curator it does not hold any collections of *Cyphostemma* from Angola. However, many specimens from COI are cited in the literature and types of Angolan *Cyphostemma* names from that herbarium are accessible in JSTOR (<http://plants.jstor.org>). These and other types were therefore examined on-line in JSTOR. The type material of names established in *Cyphostemma* for species that occur in Angola is indicated in the text, and for those specimens the herbarium barcode is given to facilitate searches using the JSTOR facility. Distribution maps were made using ArcGIS 9.3 from ESRI. Specimens cited in the literature that we did not examine were included in the maps using different symbols (open symbols). The full list of specimens used to prepare these maps is presented in Appendix 1.

### Results

Twenty-two taxa of *Cyphostemma* are currently known to occur in Angola, following the recent recording of *C. wittei* (Staner) Wild & R.B.Drumm. and *C. congestum* (Baker) Desc. ex Wild & R.B.Drumm. as part of the flora of the country (Sousa *et al.*, 2011). Two further possible records remain to be investigated when more material is available.

### List of taxa

H = Habit; D = Distribution by province (provinces: BO–Bengo, BE–Benguela, BI–Bié, CA–Cabinda, CC–Cuando-Cubango, CN–Cuanza Norte, CS–Cuanza Sul, CU–Cunene, HA–Huambo, HI–Huila, LA–Luanda, LN–Lunda Norte, LS–Lunda Sul, MA–Malange, MO–Moxico, NA–Namibe, UI–Uíge, ZA–Zaire).

1. *Cyphostemma adenocaulis* (Steud. ex A.Rich.) Desc. ex Wild & R.B.Drumm., *Fl. Zamb.* 2: 473 (1966) subsp. ***adenocaulis***. Retief in Figueiredo & Smith, *Plants of*

*Angola*: 169 (2008). Type from Ethiopia. *Cissus adenocaulis* Steud. ex A.Rich., *Tent. Fl. Abyss.* 1: 111 (1847). Exell & Mendonça, *C.F.A.* 2(1): 66 (1954).

*Cyphostemma adenocaulis* (Steud. ex A.Rich.) Desc., *Notul. Syst. (Paris)* 16: 120 (1960), comb. inval.

H: Climbing herb with tuberous rootstock. D: BE, BO, CA, CN, CS, HI, LA, MA, NA, ZA. (Figure 1.)

2. *Cyphostemma adenopodum* (Sprague) Desc., *Nat. Monspel., Sér. Bot.* 18: 218 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type from Uganda.

*Cissus adenopoda* Sprague, *Bull. Misc. Inf. Kew* 1906: 247 (1906). Exell & Mendonça, *C.F.A.* 2(1): 62 (1954).

*Cyphostemma adenopodum* (Sprague) Desc., *Notul. Syst. (Paris)* 16: 120 (1960), comb. inval.

H: Climbing herb to several metres long from a tuberous rootstock. D: CA. (Figure 1.)

3. *Cyphostemma chloroleucum* (Welw. ex Baker) Desc. ex Wild & R.B.Drumm., *Fl. Zamb.* 2,2: 466 (1966). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Figueiredo *et al.*, *Bothalia* 39(2): 201 (2009). Type: Angola, entre Lago Ivantala e Quilengues, *Welwitsch* 1453 (BM-BM000838246, LISU-LISU208728 & LISU208730 & LISU208729).

*Vitis chloroleuca* Welw. ex Baker in Oliver, *Fl. Trop. Afr.* 1: 406 (1868).

*Cissus chloroleuca* (Welw. ex Baker) Planch. in A. & C. De Candolle, *Mon. Phan.* 5(2): 592 (1887); Exell & Mendonça, *C.F.A.* 2(1): 60 (1954).

*Cyphostemma chloroleucum* (Welw. ex Baker) Desc., *Notul. Syst. (Paris)* 16: 120 (1960), comb. inval.

*Vitis andongensis* Welw. ex Baker in Oliver, *Fl. Trop. Afr.* 1: 406 (1868).

*Cyphostemma andongensis* (Welw. ex Baker) Desc., *Nat. Monspel., Sér. Bot.* 18: 218 (1967). Type: Angola, Pungo Andongo, Pedra de Cambondo, *Welwitsch* 1463 (B†?, BM-BM000838248 & BM000838247, COI-COI00005280, K, LISU-LISU208726 & LISU-208727).

*Cissus hypargyrea* Gilg in Warburg, *Kunene-Sambesi-Expedition*: 293 (1903).

*Cyphostemma hypargyreum* (Gilg) Desc., *Nat. Monspel., Sér. Bot.* 18: 222 (1967).

**Key to the species of *Cyphostemma* recorded for Angola**

1. Tendrils absent .....2
- Tendrils present.....13
2. Plants with perennial, often massively thickened, succulent stem and papery bark.....3
- Plants without a thickened, succulent stem and papery bark.....5
3. Stem squat, sub-spherical; leaflets sub-orbicular.....*C. uter*
- Stem elongated, branched; leaflets not as above .....4
4. Leaflets 5; leaf margins serrate .....*C. mendesii*
- Leaflets 3; leaf margins crenate .....*C. currorii*
5. Leaves simple, sessile or sub-sessile .....*C. wittei*
- Leaves compound, usually petiolate .....6
6. Leaves pinnate.....*C. violaceo-glandulosum*
- Leaves digitate .....7
7. Leaflets oblong-lanceolate to linear, glabrous, glabrescent or pubescent .....8
- Leaflets cordate-ovate, obovate-elliptical to oblanceolate, never glabrous.....11
8. Stipules large (up to 22 × 16 mm), cordate, amplexicaul .....*C. grandistipulatum*
- Stipules lanceolate-acuminate .....9
9. Stems and leaves glabrous, stipules usually 2 or more cm long; inflorescence 10–20 cm wide .....  
.....*C. junceum* subsp. *jatrophoides*
- Stems and leaves not glabrous, stipules up to 1.5 cm long; inflorescence up to 6 cm wide.....10
10. Distal leaves sessile; leaflets serrate-crenate, usually with glandular hairs on the nerves abaxially; inflorescence smaller than subtending leaf.....*C. stenolobum*
- Distal leaves petiolate; leaflets entire to serrate-dentate, sub-glabrous; inflorescence up to 5 cm wide .....*C. fugosioides*
11. Plant densely pilose-glandulose from the base.....*C. pruriens*
- Plant pubescent but never densely pilose-glandulose .....12
12. Leaves densely ferruginous-tomentose below; inflorescence branches glandular .....  
.....*C. chloroleucum*
- Leaves never densely ferruginous-tomentose below; inflorescence branches quite eglandular.....  
.....*C. luteum*
13. Leaves pedately arranged .....*C. adenocaulum*
- Leaves digitately arranged.....14
14. Leaves sessile or sub-sessile (petiole up to 0.5 cm long).....15
- Leaves distinctly petiolate.....17
15. Inflorescence branches, calyx and corolla glabrous or puberulous; leaflets ovate-elliptic, up to 5.5 × 2 cm .....*C. subciliatum*
- Inflorescence branches, calyx and corolla densely white pubescent; leaflets elliptic-lanceolate, up to 14 × 5 cm .....16
16. Leaflets glabrous, up to 10 × 3 cm, undulate to slightly serrate .....*C. huillense*
- Leaflets puberulous to pubescent, up to 14 × 5 cm, distinctly dentate to serrate ....*C. congestum*
17. Stem densely covered with glandular hairs to 5 mm long .....*C. pendulum*
- Stem not as above .....18
18. Leaflets broadly elliptic to sub-orbicular, apex rounded .....*C. ruacanense*
- Leaflets ovate, elliptic or lanceolate, apex acute to acuminate.....19
19. Leaflets 3 .....*C. adenopodum*
- Leaflets 5.....20
20. Inflorescence branches eglandular, densely white-pubescent.....*C. johannis*
- Inflorescence branches glandular, densely to sparsely pubescent.....21
21. Flower buds glandular; petioles to 15 cm long; leaves pubescent on nerves below; stipules quite large, suborbicular-acuminate, up to 25 × 20 mm.....*C. stipulaceum*
- Flower buds eglandular; petioles to 5 cm long; leaves densely pubescent to tomentose below; stipules inconspicuous .....*C. crassiusculum*

Type: Angola, Kubango, Kabindere, 1150 m, 1899/11/2, *Baum* 361 (B† holo-; BM, COI-COI00005281, G-G00023853, K, W-W19010006645 iso-).

*Cissus decurrens* Gilg & M.Brandt, *Bot. Jahrb. Syst.* 46: 452, 504 (1911). Type: Angola, Chibemba (Gambos), *Newton* 230 (B†? holo-).

H: Herb up to 60 cm high. D: BE, CN, CS, CU, HI, MA. (Figure 2.)

4. *Cyphostemma congestum* (Baker) Desc. ex Wild & R.B.Drumm., *Fl. Zamb.* 2(2): 473 (1966). Sousa *et al.*, *Bothalia* 41(2): 260 (2011). Type from Nyasaland.

*Vitis congesta* Baker in Oliver, *Fl. Trop. Afr.* 1: 412 (1868).

*Cyphostemma congestum* (Baker) Desc., *Notul. Syst. (Paris)* 16: 120 (1960), comb. inval.

H: Climbing herb with tuberous root. D: CU. (Figure 2.)

5. *Cyphostemma crassiusculum* (Baker) Desc., *Nat. Monspel., Sér. Bot.* 18: 220 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Loanda, entre Penedo e Conceição, *Welwitsch* 1495 (BM-BM000838266, COI-COI00005288, K, LISU-LISU208737 & LISU208738).

*Vitis crassiuscula* Baker in Oliver, *Fl. Trop. Afr.* 1: 406 (1868).

*Cissus crassiuscula* (Baker) Planch., *Monogr. Phan.* 5: 608 (1887). Exell & Mendonça, *C.F.A.* 2(1): 68 (1954).

*Cyphostemma crassiusculum* (Baker) Desc., *Notul. Syst. (Paris)* 16: 120 (1960), comb. inval.

*Cissus loandensis* Gilg & M.Brandt, *Bot. Jahrb. Syst.* 46: 537 (1912).

*Cyphostemma loandense* (Gilg & M.Brandt) Desc., *Nat. Monspel., Sér. Bot.* 18: 224 (1967). Type: Angola, Luanda, *Gossweiler* 294 (B†? lecto-designated by Exell & Mendonça (1954: 68).

H: Climber. D: BE, BO, CN, LA, MA, NA. Endemic. (Figure 3.)

6. *Cyphostemma currorii* (Hook.f.) Desc., *Nat. Monspel., Sér. Bot.* 18: 220 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Moçâmedes, Baía dos Elefantes, *Curror* s.n. (B†? iso-, K holo-).

*Cissus currorii* Hook.f., *Niger Fl.*: 265 (1849). Exell & Mendonça, *C.F.A.* 2(1): 70 (1954).

*Vitis currorii* (Hook.f.) Baker in Oliver, *Fl. Trop. Afr.* 1: 401 (1868).

*Cyphostemma currorii* (Hook.f.) Desc., *Notul. Syst. (Paris)* 16: 121 (1960), comb. inval.

*Cissus macropus* Welw., *J. Linn. Soc., Bot.* 8: 77 (1864).

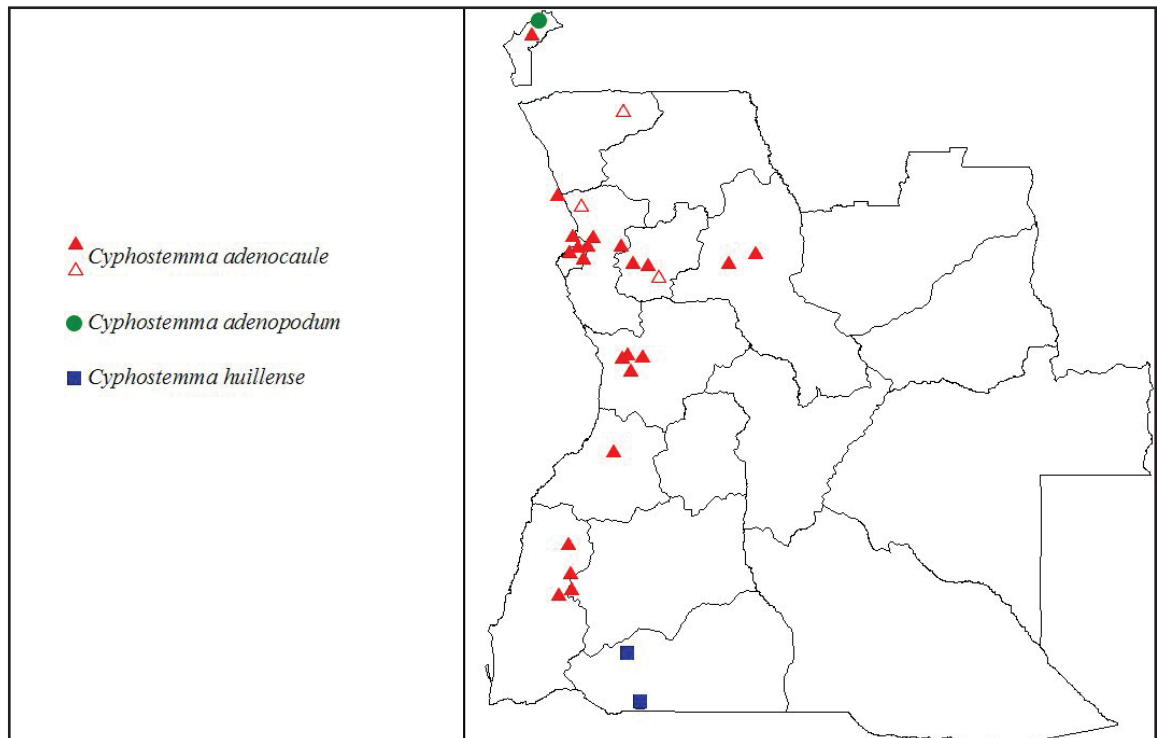
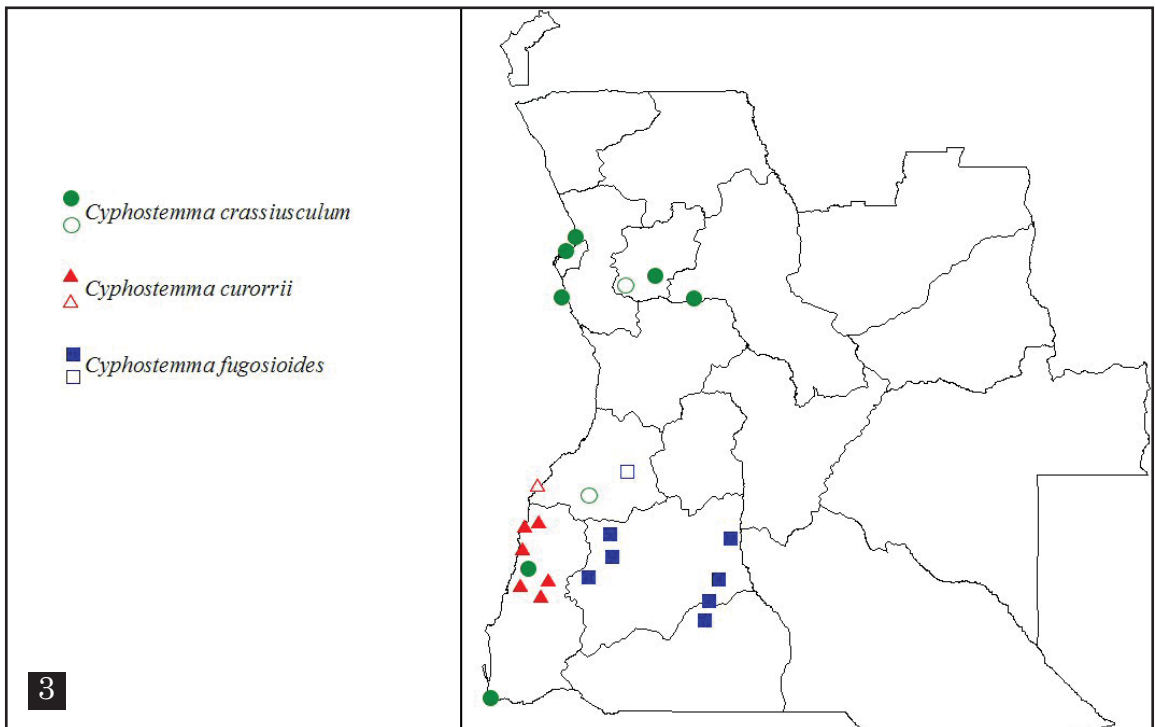
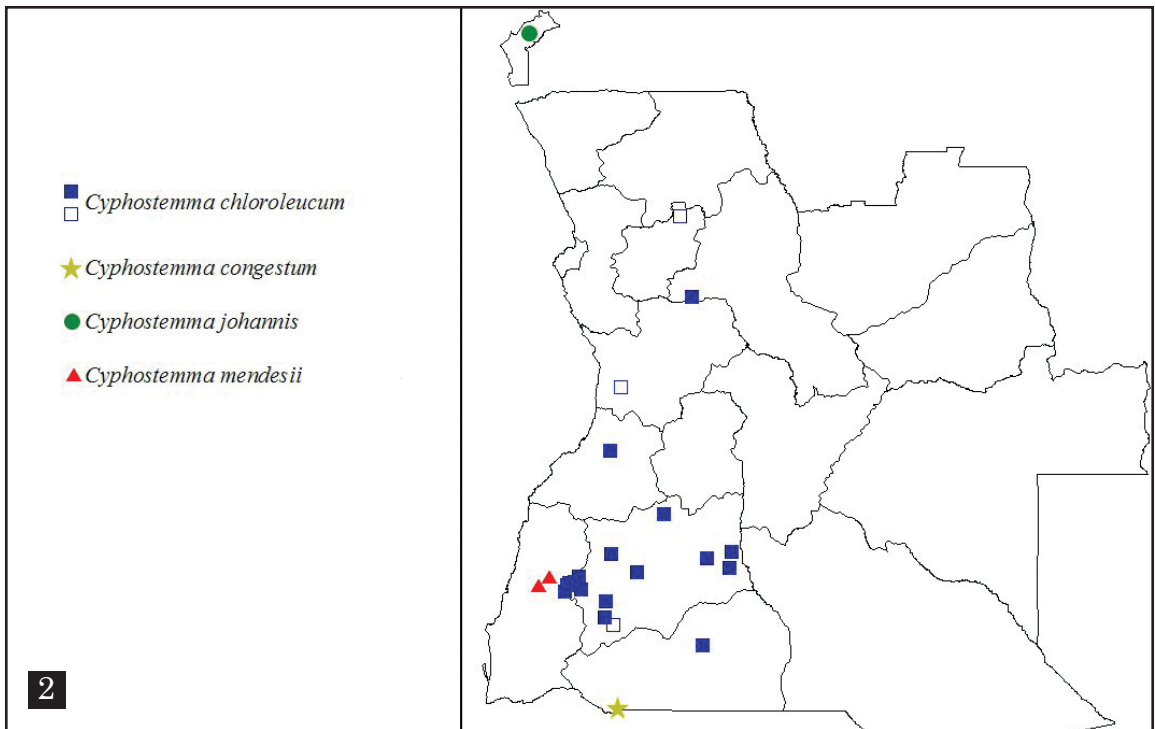


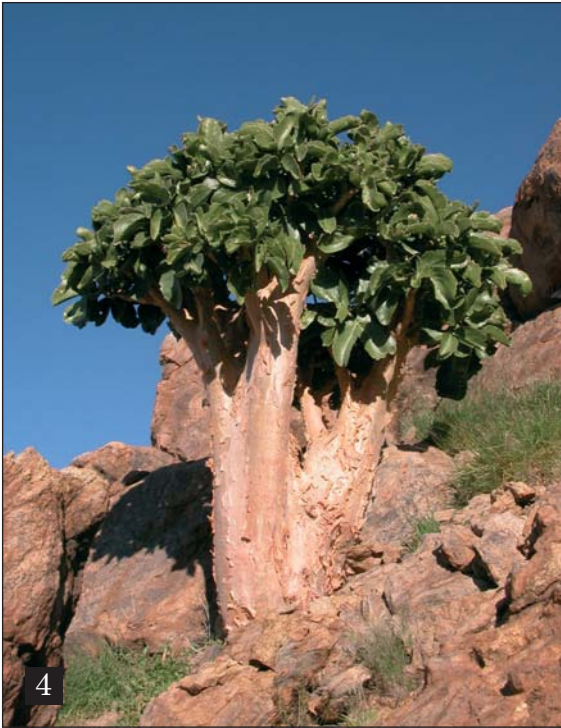
Figure 1. Geographical distribution map of *C. adenocaulum* (Steud. ex A.Rich.) Desc. ex Wild & R.B.Drumm., *C. adenopodum* (Sprague) Desc. and *C. huillense* (Exell & Mendonça) Desc. in Angola.



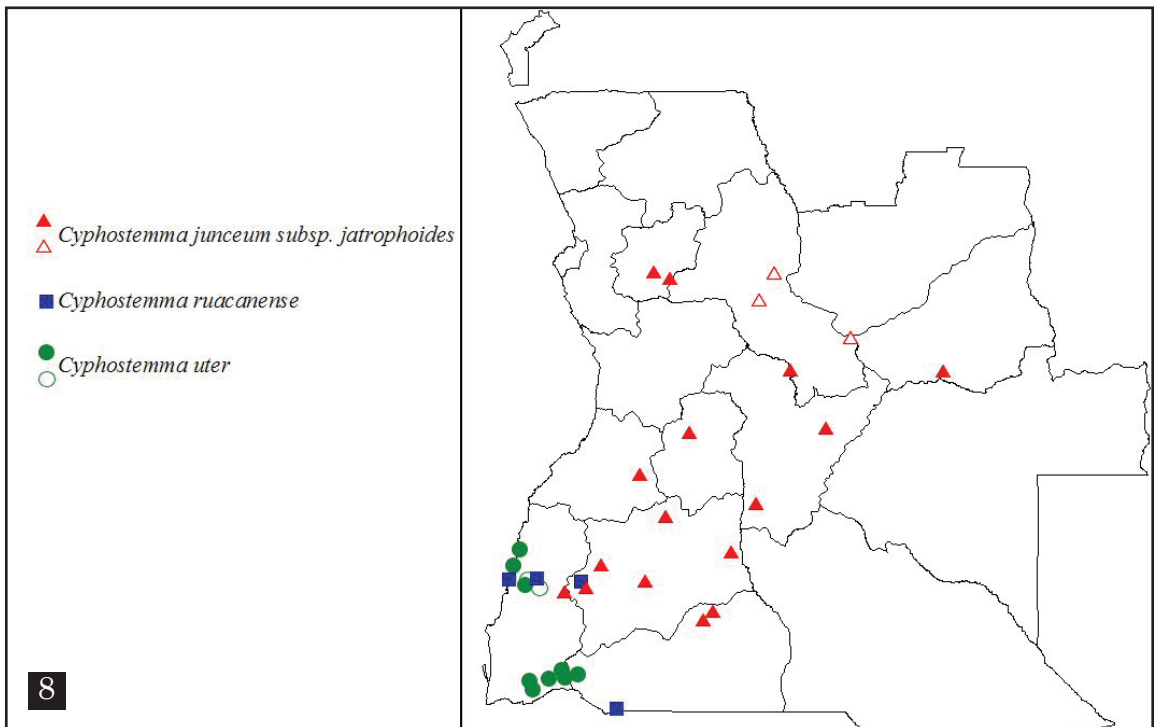
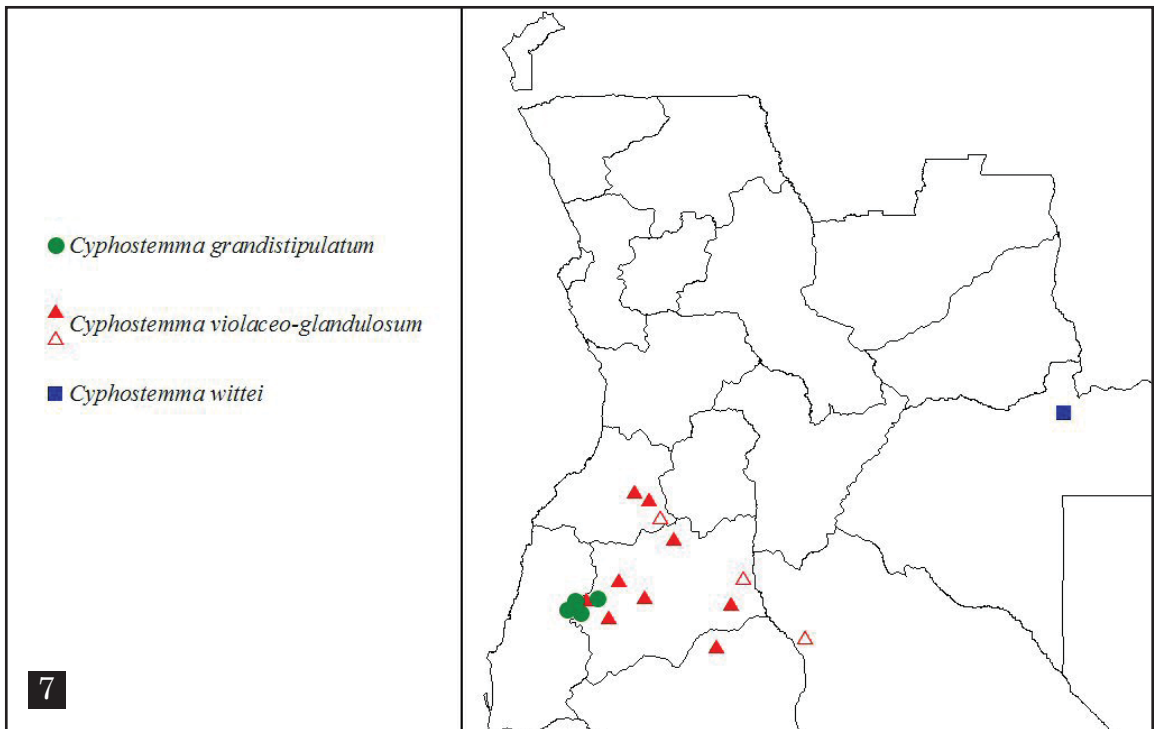
**Figure 2.** Geographical distribution map of *C. chloroleucum* (Welw. ex Baker) Desc. ex Wild & R.B.Drumm., *C. congestum* (Baker) Desc. ex Wild & R.B.Drumm., *C. johannis* (Exell & Mendonça) Desc. and *C. mendesii* F.Sousa in Angola. **Figure 3.** Geographical distribution map of *C. crassiusculum* (Baker) Desc., *C. currorii* (Hook.f.) Desc. and *C. fugosoides* (Gilg) Desc. ex Wild & R.B.Drumm. in Angola.



- Vitis macropus* (Welw.) Baker in Oliver, *Fl. Trop. Afr.* 1: 405 (1868).
- Cyphostemma macropus* (Welw.) Desc., *Notul. Syst. (Paris)* 16: 122 (1960), comb. inval.  
*Cyphostemma macropus* (Welw.) Desc., *Nat. Monspel., Sér. Bot.* 18: 224 (1967). Type: Angola, Moçâmedes, *Welwitsch* 1446 (BM, LISU-LISU208739 & LISU208740 & LISU208741).  
 H: Pachycaul trees to 6 m tall, along desert coastline. D: BE, NA. (Figures 3–6.)
7. *Cyphostemma fugosoides* (Gilg) Desc. ex Wild & R.B. Drumm., *Fl. Zamb.* 2(2): 469 (1966). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Figueiredo *et al.*, *Bothalia* 39(2): 201 (2009). Type: Angola, Chitanda, 1150 m, 1899/9/27, *Baum* 174 (B† holo-; BM, COI-COI00005289, G-G00023854, K, M-M0109127, W-W19010009447 iso-).  
*Cissus fugosoides* Gilg in Warburg, *Kunene-Sambesi-Expedition*: 294 (1903); Exell & Mendonça, *C.F.A.* 2(1): 57 (1954).  
*Cyphostemma fugosoides* (Gilg) Desc., *Notul. Syst. (Paris)* 16: 121 (1960), comb. inval.  
 H: Herb up to 50 cm tall, with a tuberous rootstock. D: BE, CU, HI. (Figure 3.)
8. *Cyphostemma grandistipulatum* (Gilg & M.Brandt) Desc., *Nat. Monspel., Sér. Bot.* 18: 222 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Huíla, *Antunes* 110 (B†? lecto- designated by Exell & Mendonça (1954: 56)).  
*Cissus grandistipulata* Gilg & M.Brandt, *Bot. Jahrb. Syst.* 46: 491 (1912). Exell & Mendonça, *C.F.A.* 2(1): 56 (1954).  
*Cyphostemma grandistipulatum* (Gilg & M.Brandt) Desc., *Notul. Syst. (Paris)* 16: 121 (1960), comb. inval.  
 H: Succulent? herb up to 90 cm high. D: HI. (Figure 7.)
9. *Cyphostemma huillense* (Exell & Mendonça) Desc., *Nat. Monspel., Sér. Bot.* 18: 222 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Huíla, Morros de Cualeque [Calueque], 1000–1100 m, 1937, *Exell & Mendonça* 2708 (BM holo-; COI-COI00005292 & COI00005291, LISC-LISC001323, iso-).  
*Cissus huillensis* Exell & Mendonça, *Bol. Soc. Brot.* 26: 229 (1952). Exell & Mendonça, *C.F.A.* 2(1): 62 (1954).  
 H: Climber. D: CU. Endemic. (Figure 1.)
10. *Cyphostemma johannis* (Exell & Mendonça) Desc., *Nat. Monspel., Sér. Bot.* 18: 222 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Cabinda, Maiombe, Buco Zau, 1916/10, *Gossweiler* 7238 (BM-BM000838236 p.p. holo-; LISC-LISC001325 & LISC001324, LISU p.p. iso-).  
*Cissus johannis* Exell & Mendonça, *Bol. Soc. Brot.* 26: 231 (1952). Exell & Mendonça, *C.F.A.* 2(1): 64 (1954).  
*Cyphostemma johannis* (Exell & Mendonça) Desc., *Notul. Syst. (Paris)* 16: 122 (1960), comb.inval.  
 H: Climber. D: CA. Endemic. (Figure 2.)
11. *Cyphostemma junceum* (Webb) Desc. ex Wild & R.B. Drumm., *Fl. Zamb.* 2(2): 465 (1966) subsp. *jatrophoides* (Welw. ex Baker) Verdc., *Fl. Trop. E. Africa Vitac.*: 62 (1993). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Ambaca, entre os Rios Lutete e Zamba, *Welwitsch* 1474 (B†?, BM-BM000838275, COI-COI00005293, LISU-LISU208718 & LISU208719 & LISU208720 & LISU208721).  
*Vitis jatrophoides* Welw. ex Baker in Oliver, *Fl. Trop. Afr.* 1: 400 (1868) *pro parte excl. spec Barter*.  
*Cissus jatrophoides* (Welw. ex Baker) Planch. in A. & C. De Candolle, *Mon. Phan.* 5(2): 579 (1887); Exell & Mendonça, *C.F.A.* 2(1): 57 (1954).  
*Cyphostemma jatrophoides* (Welw. ex Baker) Desc., *Notul. Syst. (Paris)* 16: 122 (1960), comb. inval.  
*Cyphostemma jatrophoides* (Welw. ex Baker) Desc., *Nat. Monspel., Sér. Bot.* 18: 226 (1967).  
*Cissus chlorantha* Gilg in Warburg, *Kunene-Sambesi-Expedition*: 295 (1903). Type: Angola, Kubango, Chirumbu, 1200 m, 1899/10/14, *Baum* 278 (B† holo-; G-G00023856, W-W19010009245 iso-).  
 H: Herb up to 1.3 m high, with a tuberous rootstock. D: BE, BI, CN, CU, HA, HI, LS. (Figure 8.)  
 Note: *Welwitsch* 1474 (K) is *Cissus petiolata* Hook.f.
12. *Cyphostemma luteum* (Exell & Mendonça) Desc., *Nat. Monspel., Sér. Bot.* 18: 224 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Bié, Rio Cubango, Vila da Ponte, *Gossweiler* 2355 (BM-BM000838219 holo-, LISC-LISC001326 iso-).  
*Cissus lutea* Exell & Mendonça, *Bol. Soc. Brot.* 26: 228 (1952). Exell & Mendonça, *C.F.A.* 2(1): 58 (1954).  
*Cyphostemma luteum* (Exell & Mendonça) Desc., *Notul. Syst. (Paris)* 16: 122 (1960), comb. inval.  
 H: Herb with multi-headed rootstock. D: HI. Endemic. (Figure 9.)

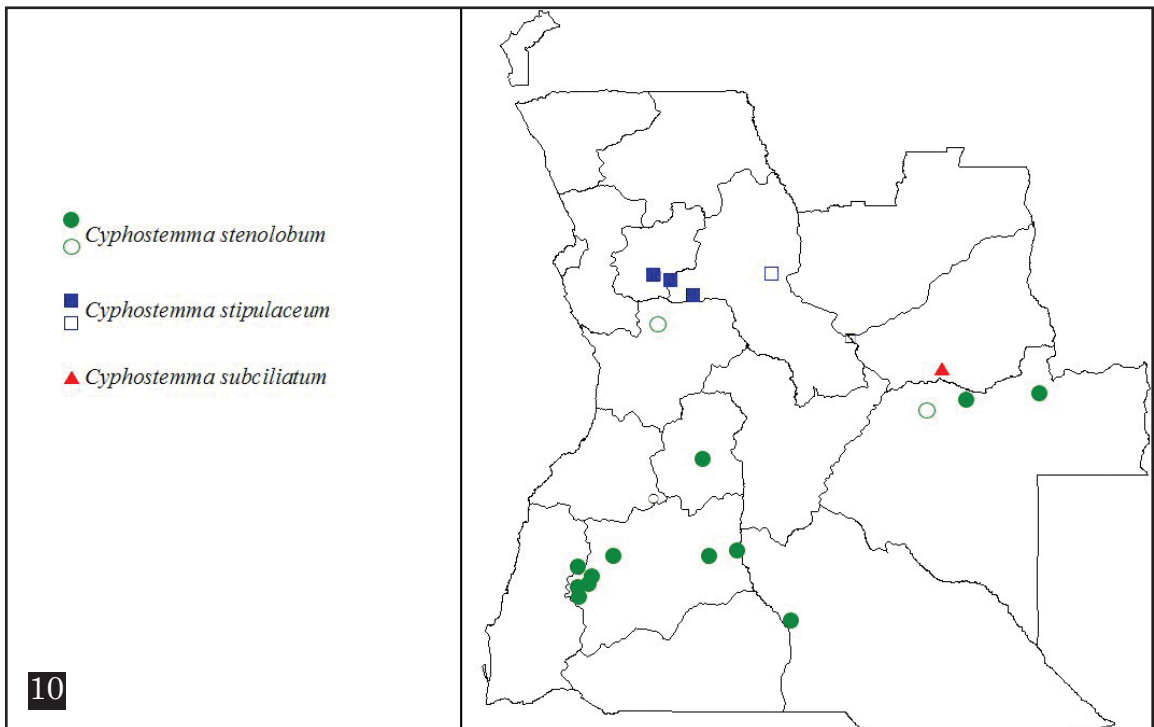
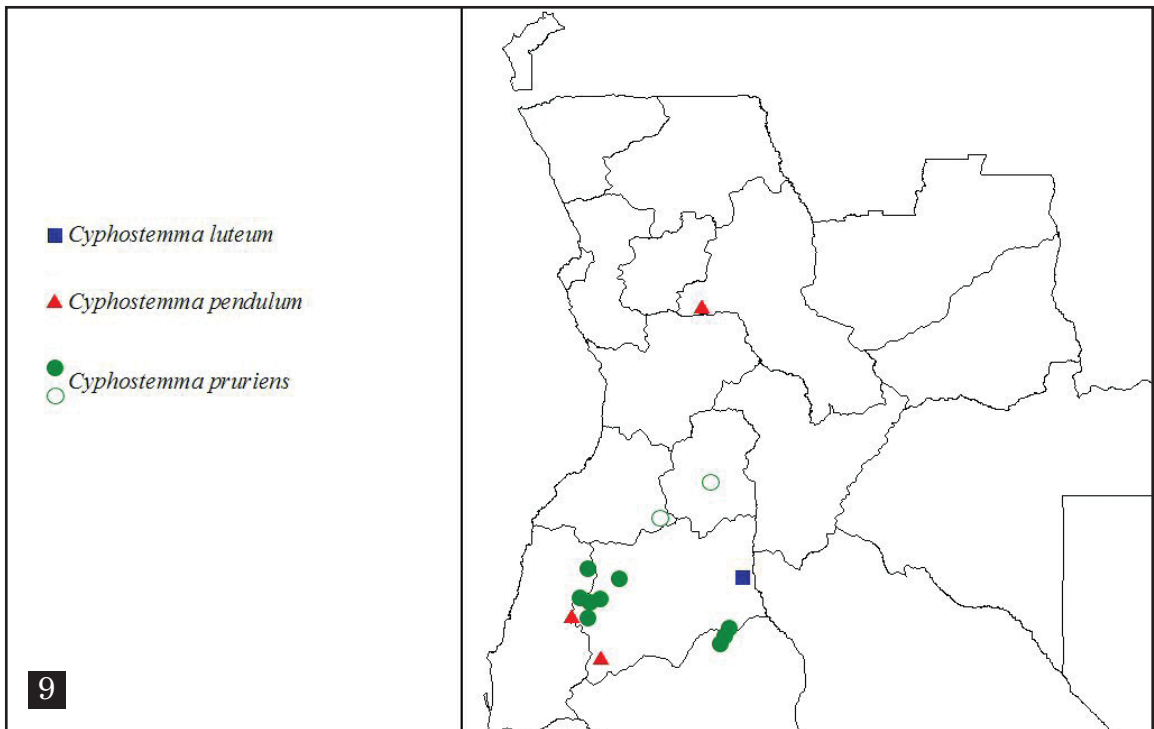


**Figure 4.** *C. currorii* in leaf. Photo taken in Namibia on the Groot Spitzkoppe on 4 May 2005 by Tim Harvey. **Figure 5.** *C. currorii* in the dry season. Photo taken in Namibia at Baobab Bend, approximately 40 km south of Opuwo on the C43, on 24 July 2007 by Tim Harvey. **Figure 6.** Close-up of the bark of *C. currorii*. Photo taken in Namibia at Baobab Bend, approximately 40 km south of Opuwo on the C43, on 10 May 2005 by Tim Harvey.



**Figure 7.** Geographical distribution map of *C. grandistipulatum* (Gilg & M.Brandt) Desc., *C. violaceo-glandulosum* (Gilg) Desc. and *C. wittei* (Staner) Wild & R.B.Drumm. in Angola. **Figure 8.** Geographical distribution map of *C. junceum* (Webb) Desc. ex Wild & R.B. Drumm. subsp. *jatrophioides* (Welw. ex Baker) Verdc., *C. ruacanense* (Exell & Mendonça) Desc. and *C. uter* (Exell & Mendonça) Desc. in Angola.





**Figure 9.** Geographical distribution map of *C. luteum* (Exell & Mendonça) Desc., *C. pendulum* (Welw. ex Baker) Desc. and *C. pruriens* (Welw. ex Baker) Desc. in Angola. **Figure 10.** Geographical distribution map of *C. stenolobum* (Welw. ex Baker) Desc. ex Wild & R.B.Drumm., *C. stipulaceum* (Baker) Desc. and *C. subciliatum* (Baker) Desc. ex Wild & R.B.Drumm. in Angola.

13. *Cyphostemma mendesii* F.Sousa, *Phytotaxa* 7: 36 (2010). Type: Angola, Moçâmedes, Dois Irmãos, ca. Pedra da Providência, 21 December 1955, Mendes 1145 (holo- & iso- LISC).  
H: Rhizomatous herb with succulent stems. D: NA. Endemic. (Figure 2.)
14. *Cyphostemma pendulum* (Welw. ex Baker) Desc., *Nat. Monspel., Sér. Bot.* 18: 226 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Pungo Andongo, Presídio, *Welwitsch* 1472 (BM-BM000838242, COI-COI00005296, K, LISU-LISU208731 & LISU208734 & LISU208733 & LISU208732).  
*Vitis pendula* Welw. ex Baker in Oliver, *Fl. Trop. Afr.* 1: 407 (1868).  
*Cissus pendula* (Welw. ex Baker) Planch. *Monogr. Phan.* 5: 594 (1887). Exell & Mendonça, *C.F.A.* 2(1): 62 (1954).  
*Cyphostemma pendulum* (Welw. ex Baker) Desc., *Notul. Syst. (Paris)* 16: 123 (1960), comb. inval.  
H: Climbing herb to 90 cm long. D: HI, MA, NA. Endemic. (Figure 9.)
15. *Cyphostemma pruriens* (Welw. ex Baker) Desc., *Nat. Monspel., Sér. Bot.* 18: 226 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Huíla, pr. Lopolo, *Welwitsch* 1454 (BM-BM000838250, LISU-LISU208717 & LISU208716).  
*Vitis pruriens* Welw. ex Baker in Oliver, *Fl. Trop. Afr.* 1: 408 (1868).  
*Cissus pruriens* (Welw. ex Baker) Planch., *Monogr. Phan.* 5: 595 (1887). Exell & Mendonça, *C.F.A.* 2(1): 57 (1954).  
*Cyphostemma pruriens* (Welw. ex Baker) Desc., *Notul. Syst. (Paris)* 16: 123 (1960), comb. inval.  
H: Erect or climbing herb up to 90 cm long. D: BE, CU, HA, HI, NA. Endemic. (Figure 9.)
16. *Cyphostemma ruacanense* (Exell & Mendonça) Desc., *Nat. Monspel., Sér. Bot.* 18: 227 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Huíla, Ruacanã, Rio Cunene, 1000 m, 9 June 1937, *Exell & Mendonça* 2769 (BM-BM000838245 holo-; COI-COI00005297, LISC-LISC001329 & LISC001328, iso-).  
*Cissus ruacanensis* Exell & Mendonça, *Bol. Soc. Brot.* 26: 229 (1952). Exell & Mendonça, *C.F.A.* 2(1): 60 (1954).  
*Cyphostemma ruacanense* (Exell & Mendonça) Desc., *Notul. Syst. (Paris)* 16: 124 (1960), comb. inval.  
H: Climber. D: CU, NA. (Figure 8.)
17. *Cyphostemma stenolobum* (Welw. ex Baker) Desc. ex Wild & R.B.Drumm., *Fl. Zamb.* 2(2): 471 (1966). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, entre Lago Ivantala e Quilengues, *Welwitsch* 1449 (BM-BM000838265, COI-COI00005299, K, LISU-LISU208722 & LISU208724 & LISU208723 & LISU208725).  
*Vitis stenoloba* Welw. ex Baker in Oliver, *Fl. Trop. Afr.* 1: 408 (1868) *pro parte excl. Welwitsch* 1451.  
*Cissus stenoloba* (Welw. ex Baker) Planch. in A. & C. De Candolle, *Mon. Phan.* 5(2): 578 (1887); Exell & Mendonça, *C.F.A.* 2(1): 58 (1954).  
*Cyphostemma stenolobum* (Welw. ex Baker) Desc., *Notul. Syst. (Paris)* 16: 124 (1960), comb. inval.  
H: Herb up to 1 m tall, from a narrowly elongated, tuberous rootstock. D: BE, CC, CS, HA, HI, MA, MO. (Figure 10.)
18. *Cyphostemma stipulaceum* (Baker) Desc., *Nat. Monspel., Sér. Bot.* 18: 228 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Cuanza Norte, Cazengo, R. Luinha, *Welwitsch* 1490 (B†?, BM-BM000838244, COI-COI00005300, LISU-LISU208735 & LISU208736).  
*Vitis stipulacea* Baker in Oliver, *Fl. Trop. Afr.* 1: 408 (1868).  
*Cissus stipulacea* (Baker) Planch., *Monogr. Phan.* 5: 597 (1887). Exell & Mendonça, *C.F.A.* 2(1): 64 (1954).  
*Cyphostemma stipulaceum* (Baker) Desc., *Notul. Syst. (Paris)* 16: 125 (1960), comb. inval.  
H: Climber. D: CN, MA. Endemic. (Figure 10.)
19. *Cyphostemma subciliatum* (Baker) Desc. ex Wild & R.B.Drumm., *Fl. Zamb.* 2: 474, t. 97a (1966). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type from Mozambique.  
*Vitis subciliata* Baker in Oliver, *Fl. Trop. Afr.* 1: 409 (1868).  
*Cissus subciliata* (Baker) Planch. in A. & C. De Candolle, *Monogr. Phan.* 5(2): 594 (1887).  
*Cyphostemma subciliatum* (Baker) Desc., *Notul. Syst. (Paris)* 16: 125 (1960), comb. inval.  
*Cissus marionae* Exell & Mendonça, *Bol. Soc. Brot.* ser. 2, 26: 230 (1952). Exell & Mendonça, *C.F.A.* 2(1): 62 (1954).  
*Cyphostemma marionae* (Exell & Mendonça) Desc., *Nat. Monspel., Sér. Bot.* 18: 224 (1967). Type from Zambia.  
H: Climbing herb with a tuberous, napiform root. D: LS. (Figure 10.)
20. *Cyphostemma uter* (Exell & Mendonça) Desc., *Nat. Monspel., Sér. Bot.* 18: 229 (1967). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Moçâmedes,





**Figure 11.** *C. uter* in leaf in the rainy season. Photo taken approximately 15 km east of the port city of Namibe in southern Angola on 14 January 2009 by Ian Oliver. **Figure 12.** *C. uter* in the dry season. Photo taken along the road from Leba Pass *en route* to Namibe in southern Angola on 6 August 2010 by Gideon F. Smith.

Providência, 24 October 1937, *Abreu* 51 (BM-BM000838241 iso-; COI-COI00005303 holo-). *Cissus uter* Exell & Mendonça, *Bol. Soc. Brot.*, ser. 2, 26: 231–232 (1952). Exell & Mendonça, *C.F.A.* 2(1): 70 (1954). *Cyphostemma uter* (Exell & Mendonça) Desc., *Notul. Syst. (Paris)* 16: 125 (1960), comb. inval. H: Deciduous, caudiciform succulent to 1.5 m tall, in desert coastline. D: CU, NA. (Figures 8, 11–12.)

**21. *Cyphostemma violaceo-glandulosum*** (Gilg) Desc., *Nat. Monspel., Sér. Bot.* 18: 230 (1967). Figueiredo *et al.*, *Bothalia* 39(2): 201 (2009). Retief in Figueiredo & Smith, *Plants of Angola*: 169 (2008). Type: Angola, Kubango, Chirumbu, 1899/10/11, *Baum* 270 (B†, lecto-designated by Exell & Mendonça (1954: 56); BM, COI-COI00005305, G-G00023926, K, M-M0109115, S-S-G-1413 isolecto-). *Cissus violaceo-glandulosa* Gilg in Warburg, *Kunene-Sambesi-Expedition*: 294 (1903). Exell & Mendonça, *C.F.A.* 2(1): 56 (1954). *Cyphostemma violaceo-glandulosum* (Gilg) Desc., *Notul. Syst. (Paris)* 16: 125 (1960), comb. inval. H: Prostrate herb from a fleshy, woody, multi-headed rootstock. D: BE, CC, CU, HI. Endemic. (Figure 7.)

**22. *Cyphostemma wittei*** (Staner) Wild & R.B.Drumm., *Kirkia* 2: 141 (1961). Sousa *et al.*, *Bothalia* 41(2): 260 (2011). Type from Congo (Katanga). *Cissus wittei* Staner, *Contr. Fl. Katanga*, Suppl. 4: 49 (1932). H: Prostrate or scrambling herb from a thick fusiform woody tap-root. D: MO. (Figure 7.)

#### Insufficiently known taxa

*Cyphostemma* sp. aff. *vogelii*. Referred to as *Cissus* sp. aff. *vogelii* by Exell & Mendonça (1954: 66).

*Cyphostemma* sp. aff. *fugosioides*. A climber up to 3.5 m high, with tendrils, 5-foliolate leaves with narrow leaflets.

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#### Appendix 1. List of specimens used to prepare the maps

*C. adenocaula* subsp. *adenocaula*: *Albano Rocha* 52 (LISC!); *Albano Rocha* 64 (LISC!); *Anchieta* 44 (B COI LISU!); *Araújo* 64 (LISC!); *Barbosa* & *Correia* 9121 (LISC!, PRE!); *Beatriz* 38 (COI); *Büttner* 99 (B); *Cameira* 324 (LISC!); *Exell & Mendonça* 3105 (BM COI LISC!); *Exell & Mendonça* 3191 (BM COI); *M.E.F.A.* 726 (LISC!); *Mendes* 499 (LISC!); *Mendes* 933 (LISC!); *Mendes*



1155 (LISC!); *Mendes* 1238 (LISC!); *Monteiro* s.n. (K); *Monteiro, Santos & Murta* 122 (LISC!); *Monteiro, Santos & Murta* 166 (LISC!); *Pearson* 2345 (B K); *Pearson* 2749 (K); *Raimundo, Matos & Figueira* 209 (LISC!); *Santos* 1377 (LISC!, PRE!); *Teixeira* 3689 (LISC!); *Teixeira et al.* 10298 (LISC!); *Teixeira et al.* 11133 (LISC!); *Teixeira et al.* 11498 (LISC!); *Welwitsch* 1452 (BM LISU!); *Welwitsch* 1479 (BM LISU!); *Welwitsch* 1479b (BM LISU!); *Welwitsch* 1492 (BM LISU!); *Welwitsch* 1494 (BM LISU!); *Welwitsch* 1493 (BM COI K LISU!).

*C. adenopodium*: *Gossweiler* 7690 (COI K LISC! LISU!); *Gossweiler* 8208 (COI LISU!).

*C. chloroleucum*: *Anchieta* 67 (COI LISU!); *Anchieta* 86 (COI LISU!); *Baum* 361 (B† BM COI G K W); *Borges* 318 (LISC!); *Borges* 318a (PRE!); *Gossweiler* 2217 (BM COI LISC!); *Gossweiler* 3649 (BM COI LISC!); *Gossweiler* 3650 (COI LISC!); *Gossweiler* 8768 (BM); *Gossweiler* 9247 (BM COI K); *Henriques* 792 (LISC! LISU!); *Mendes* 197 (LISC!); *Mendes* 766 (LISC!); *Mendes* 880 (LISC!); *Mendes* 980 (LISC!); *Mendes* 1129 (LISC!); *Menezes* 1277 (LISC!); *Menezes* 1373 (LISC!); *Menezes* 2408 (LISC!); *Menezes* 3299 (LISC!); *Menezes* 3531 (LISC!, PRE!); *Newton* 230 (B†?); *Santos* 53 (LISC!); *Santos* 79 (LISC!); *Teixeira* 1468 (LISC!); *Teixeira* 1822 (LISC!); *Welwitsch* 1453 (BM LISU!); *Welwitsch* 1463 (B†? BM COI K LISU!).

*C. congestum*: *Kotze* 57 (PRE!); *Rycroft* 2423 (PRE!).

*C. crassiusculum*: *Carrisso & Sousa* 334 (BM COI LISC!); *Gossweiler* 294 (B†?); *Gossweiler* 294c (BM); *Gossweiler* 1510 (BM COI); *Gossweiler* 5172 (LISC! LISU!); *Gossweiler* 5278 (BM LISC! LISU!); *Gossweiler* 8276 (BM K P); *Henriques* 65 (LISC!); *Humbert* 16134 (P); *Monteiro, Santos & Murta* 121 (LISC!, PRE!); *Thompson* 20 (PRE!); *Welwitsch* 1469 (BM LISU!); *Welwitsch* 1492b (B BM COI K LISU!); *Welwitsch* 1495 (BM COI K LISU!).

*C. currorii*: *Curror* s.n. (B†? K); *Mendes* 138 (LISC!); *Mendes* 424 (LISC!); *Mendes* 1224 (LISC!); *Mendes* 1733 (LISC!); *Mendes* 8262? (LISC!); *Mendonça* 4530 (LISC!); *Menezes* 316 (LISC!); *Menezes, Henriques & Brites* 2892 (LISC!); *Welwitsch* 1446 (BM LISU!).

*C. fugosoides*: *Antunes vel Dekindt* 587 (B LISC!); *Baum* 174 (B†? BM COI G K M W); *Faulkner* 68

(BM K PRE); *Gossweiler* 1971 (BM); *Gossweiler* 2196 (BM COI LISC!); *Mendes* 362 (LISC!); *Mendes* 730 (LISC!); *Mendes* 753 (LISC!); *Menezes* 1238 (LISC!); *Menezes* 1254 (LISC!); *Menezes* 4262 (LISC!).

*C. grandistipulatum*: *Antunes* 110 (B†?); *Bester* 8990 (PRE!); *Fritzsche* 220 (B); *Mendonça* 4617 (LISC!); *Ramalho* s.n. (B); *Teixeira e Andrade* 5133 (LISC!); *Welwitsch* 1451 (BM LISU!).

*C. huillense*: *Exell & Mendonça* 2708 (BM COI LISC!); *Torre* 8747 (LISC!).

*C. johannis*: *Gossweiler* 7238 (BMpp LISC! LISUpp!); M.E.F.A. 457 (LISC!); M.E.F.A. 676 (LISC!); *Monteiro & Murta* 243 (PRE!).

*C. junceum* subsp. *jatrophoides*: *Anchieta* 47 (LISU!); *Barbosa* 11164 (LISC!); *Baum* 278 (B†? G W); *Bester* 9237 (PRE!); *Gossweiler* 2094 (BM); *Mendes* 769 (LISC!); *Mendes* 1073 (LISC!); *Mendonça* 4597 (LISC!); *Menezes* 2170 (LISC!); *Menezes* 4274 (LISC!); *Menezes, Barroso & Sousa* 4514 (LISC!); *Monteiro e Murta* 1957 (LISC!); *Nolde* 81 (B); *Silva* 228 (LISC!); *Teixeira* 1666 (LISC!); *Teixeira & Andrade* 6657 (LISC!); *Teixeira et al.* 10793 (LISC!); *Wellman* 1546 (B); *Welwitsch* 1474 (B†? BM COI LISU!); *Young* 1006 (BM COI LISC); *Young* 1090 (BM); *Young* 1281 (BM COI LISC!).

*C. luteum*: *Gossweiler* 2355 (BM LISC!); *Mendes* 1898 (LISC!).

*C. mendesii*: *Mendes* 1145 (LISC!); *Mendes* 1164 (LISC!).

*C. pendulum*: *Exell & Mendonça* 167 (BM COI LISC!); *Exell & Mendonça* 180 (BM COI); *Mendes* 1001 (LISC!); *Menezes* 3657 (LISC!); *Welwitsch* 1472 (BM COI K LISU!).

*C. pruriens*: *Castro* 8 (COI); *Hundt* 688 (B, BM, COI); *Huntley, Roberts & Ward* 88 (PRE!); *Mendes* 604 (LISC!); *Mendes* 1012 (LISC!); *Mendes* 1099 (LISC!); *Menezes, Barroso & Sousa* 4426 (LISC!); *Menezes, Barroso & Sousa* 4511 (LISC!); *Menezes, Barroso & Sousa* 4629 (LISC!); *Teixeira* 1667 (LISC!); *Torre* 8405 (LISC!); *Welwitsch* 1454 (BM LISU!).

*C. ruacanense*: *Bester* 9218 (PRE!); *Exell & Mendonça* 2769 (BM COI LISC!); *Menezes, Henriques & Brites* 2815 (PRE!); *Menezes, Henriques & Brites* 2943 (PRE!); *Rycroft* 2423 (PRE!).

*C. sp. aff. fugosoides*: Menezes 3527 (PRE!).

*C. sp. aff. vogelii*: Welwitsch 1482 (BM LISU!).

*C. stenolobum*: Barros Machado ANG.I.55-288 (LISC!); Barros Machado ANG.I.55-357 (LISC!); Bester 9340 (PRE!); Couto 37 (LISC!); Dekindt 67 (B); Gossweiler 2240 (BM COI LISC!); Gossweiler 2905 (BM COI LISC!); Hundt 367 (B); Jessen 420 (B); Mendes 606 (LISC!); Mendes 1041 (LISC!); Mendes 1126 (LISC!); Mendes 1868 (LISC!); Mendes 2230 (LISC!); Menezes 1584 (LISC!); Teixeira & Figueira 6658 (LISC!); Torre 8606 (LISC!); Torre 8613 (LISC!); Wellman 1775 (K); Welwitsch 1449 (BM COI K LISU!); Young 938 (BM COI LISC); Young 1349 (BM).

*C. stipulaceum*: Exell & Mendonça 278 (COI); Gossweiler 594 (BM K); Gossweiler 6363 (COI LISU!); Gossweiler 10318 (BM COI LISC!); Nolde 523 (B BM); Welwitsch 1475 (BM LISU!); Welwitsch 1490 (B†? BM COI LISU!); Welwitsch 1471 (BM LISU!).

*C. subciliatum*: Exell & Mendonça 1407 (COI).

*C. uter*: Abreu 51 (BM COI); Bester 9116 (PRE!); Exell & Mendonça 2182 (BM COI LISC!); Gomes e Sousa s.n. (COI); Mendes 136 (LISC!); Mendes 136a (LISC!); Mendes 145 (LISC!); Mendes 170 (LISC!); Mendes 1309 (LISC!); Menezes, Barroso & Sousa 4828 (LISC!); Menezes & Henriques 216 (LISC! LISU!); Pearson 2256 (K); Pimentel Teixeira s.n. (BM K); Teixeira 1716 (LISC!); Teixeira et al. 12699 (LISC!).

*C. violaceo-glandulosum*: Anchieta 77 (LISU!); Baum 270 (B†? BM COI G K M S); Baum 270a (B); Carrisso & Mendonça 579 (BM COI); Couto 282 (LISC!); Faulkner 66 (BM K PRE!); Gossweiler 2100 (BM); Henriques 816 (LISC!); Henriques 817 (LISU!); Hundt 195 (B); Mendes 607 (LISC!); Mendes 1113 (LISC!); Mendes 1114 (LISC!); Menezes 1248 (LISC!); Menezes 4259 (LISC!); Teixeira 1525 (LISC!); Teixeira & Andrade 5024 (LISC!); Teixeira & Figueira 4910 (LISC!).

*C. wittei*: Barros Machado ANG.XII.54-51 (LISC!).