GARCIA DE ORTA

SÉRIE DE

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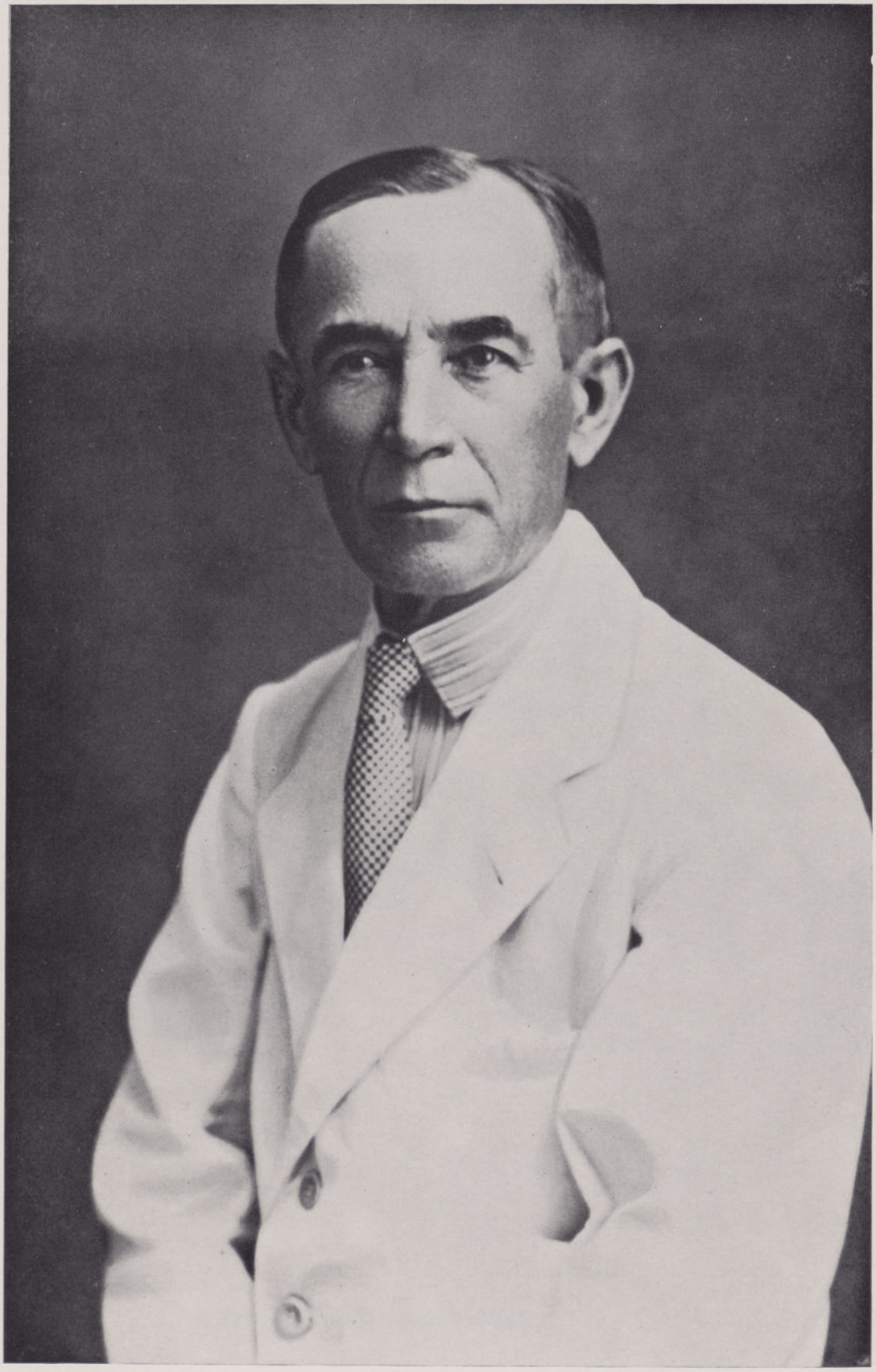


John Gammeiter

JOHN GOSSWEILER (*)

In 1972 was celebrated the centenary of the death of Friedrich Welwitsch: 1973 was the centenary of the birth of John Gossweiler. The beginning of Gossweiler's life coincided in time so closely with the end of Welwitsch's life and was so curiously destined to continue in Angola the botanical story of the latter that we cannot fail to trace with interest the thread of fate that seems to link them, a thread which is not entirely coincidence for the Welwitsch story influenced Gossweiler more than a little.

The contract published here (PL. I-VII) *by kind permission of Sr.ª Marthe Gossweiler has a few points of interest. The salary paid to him of £ 200 per annum rising by annual increments of £ 10 to £ 250 per annum was about the normal rate at that time, neither particularly generous nor mean. He was also to be allowed a lodging allowance in Luanda of £ 20 per annum if no official lodging could be found for him. This is approximately the same as the salary offered to Welwitsch (£ 20 a month) about fifty years earlier. British money had scarcely changed in value during that period and the salary offered to Gossweiler was about equivalent to what the British Museum and Kew were paying to botanists at that time. It is interesting to note that when Welwitsch came to London with his collections he was paid £ 2 a day which was then a handsome salary (for a botanist!).*

The second point to note is that the contract states categorically «All the collections made by John Gossweiler during the term this contract is in force will be the absolute property of the Portuguese Government». Here we can surely see an echo of the famous law-suit over Welwitsch's collections, well within living memory at that time, and an obvious intention of avoiding any repetition of such a situation. If not there is no particular reason for the inclusion of this clause for, while Welwitsch was sent to Angola to investigate (among other things) the wild and cultivated plants of the province and to amass objects to form the foundation for a collection (or herbarium as we should say now), collecting was in no way part of Gossweiler's official duties. He was «to direct a Botanical, horticultural and experimental Garden and to lend his botanic and agricultural services». He was to be «unable to occupy himself with private work of any kind without superior leave». We may, however, reasonably consider that the Portuguese Government expected that Gossweiler would make collections. Officially they did not forbid this except in so far as it might be considered as «private work»; but equally they did not encourage it.

I have myself twice written appreciations of John Gossweiler in Proc. Linn. Soc., London, **1950-51**, *part 3, December 1952, and in a short preface to his own work «Nomes indígenas de*

(*) Received the 20-IV-1972.

Plantas de Angola», in Agron. Angol. *7, 1953, published after his death. The first of these contains a fairly complete account of his life and work and I wish only to add a few more details of historical interest.*

In his relations with the Portuguese Government, Gossweiler was always meticulously careful to avoid the entanglements in which Welwitsch constantly found himself embroiled. Their careers were extraordinarily parallel. Gossweiler, the Swiss, and Welwitsch, the Austrian, both left their own countries to work for Portugal and became to all intents and purposes expatriates. Both went to England and made close scientific contacts there. Both were in their ways obstinate men but whereas Welwitsch allowed his obstinacy and pride (together with faults of negligence) to destroy the confidence of the Government for which he was working, Gossweiler was always exceptionally careful to obey official instructions. He would never go anywhere or do anything until, as he used to say, «they put it in the papers». He wanted to see his permit in the official gazette.

It is perhaps of some importance to clear up one point, as I may be one of the last persons living still able to do so. Gossweiler was occasionally criticized for selling his collections to the British Museum and this requires explanation because to deny it categorically would be untrue. While working for the Portuguese Government he sold nothing to the British Museum; but during seven years, 1919-26, he left government service and worked privately for Companhia do Fomento Geral de Angola and it was during that period that he sold some collections to the British Museum as he was entitled to do. He re-entered the service of the Angolan Government in 1927.

In one way he might be accused of breaking his contract but it is comparatively unimportant. He gave (not sold) an almost complete set of his duplicates to the British Museum. These by the terms of his contract could be said to belong to Portugal and whether he received permission to send the very early consignments to London is doubtful, though not impossible. He may have argued, and rightly so, that the identification of these plants was essential for his work and he certainly made no financial profit from this. The reason he sent his plants to the British Museum was of course the old connection between that institution and Angola through Welwitsch. Later his distribution of duplicates to various herbaria was put on an official basis.

Gossweiler's plants continued to arrive at the British Museum and about 1925 Dr. A. B. Rendle, the Keeper of Botany, decided to publish a list of them in the Journal of Botany, *of which he was the editor. I was told to start on this work. I was completely inexperienced and received almost no help or instruction. Some of the work proves to be reasonably good: some of it was inevitably bad. In this respect, however, it differed very little from other work done on the flora of tropical Africa 45 years ago. Usually by modern standards and with often ten times more material available the work of that period turns out to be about half good and half bad. There was no chance to specialize on certain groups: I had to go on from one family to the next doing the best I could.*

Meanwhile Gossweiler's specimens were also accumulating at Coimbra and it was almost impossible to name them there. Professor Carrisso and Dr. F. A. Mendonça told me afterwards how they hailed with delight the appearance of the first Gossweiler lists which enabled them to name some of them. Shortly after this (1932) I went to Portugal on the way to S. Tomé and was received by Carrisso with great friendliness. As he knew no English he had taken the precaution of bringing an interpreter with him but was naturally relieved to find that I could talk French.

We had brief talks about a possible future co-operation and after my return from Africa he invited my wife and myself to Coimbra to work at the S. Tomé collections and to make plans for Angola. John Gossweiler was invited at the same time (grumbling considerably at the cold!) and between us (Mendonça playing an important part) we planned the Conspectus Florae Angolensis *on the initiative of Professor Carrisso and under his able direction. Later we all went together on the 1937 mission to Angola which has been fully described elsewhere.*

Mendonça, Gossweiler and my wife and I travelled thousands of miles together both in Africa and in Portugal and became life-long friends.

There is no doubt that Gossweiler modelled his collecting and his notes on those of Welwitsch so that the continuity is remarkable. It cannot be said that he was as good a botanist as Welwitsch; it is doubtful for example whether if Gossweiler had been the first to discover Welwitschia *he would have recognized it at once as a botanical marvel, as Welwitsch did. But his knowledge of botany was by no means negligible and he had built up a good botanical library in Luanda. His African collections have scarcely been surpassed: everywhere he went in Angola he was greeted by people who loved him and I always remember how the great German botanist Professor Mildbraed said to me «er kennt wie niemand dieses Land».*

A. W. EXELL

(Church Gates, Blockley,
Glos., England)

1

CONSULADO DE PORTUGAL
EM
LONDRES.

Serie

No

Joaquim Bataglia Reis
Consul Geral de Portugal
em Londres, como repre-
sentante do Ministro e Se-
cretario de Estado dos Negocios
da Marinha e Ultramar de
Sua Magestade Fidelissima
El Rei de Portugal, d'uma
parte, e John Grossweiler
de vinte cinco annos de idade,
solteiro, no presente mora-
dor em Londres, 19 Queen Street
Edgware Road, da outra, cele-
braram contracto pela fórma
e com as condições em se-
guida descriptas:

1. John Grossweiler obriga-se
a ir servir na provincia de
Benguela por espaço de cinco

Joaquim Bataglia Reis
Consul General for Portugal
in London as representative
of the Minister and Se-
cretary of State for Affairs
of the Marine and Colonies
of His Most Faithful
Majesty the King of Portugal
of one part, and John
Grossweiler of twenty five
years of age, unmarried,
now residing in London,
19 Queen Street, Edgware
Road, of the other, contract
for the purposes and under
the conditions hereunder
described

1 John Grossweiler agrees to
go and serve in the province

2

annos, contados da data da sua chegada a Loanda, e fim de dirigir ali um Jardim Botanico e experimental, digo Botanico, horticola e experimental e prestar os serviços botanicos e agricolas para que a habilitam os seus estudos especiaes e pratica no real jardim de Kew, ficando sob as ordens do governador geral da provincia ou de funccionario que este designar.

2 John Gossweiler obriga-se a dedicar todo o seu tempo ao serviço do Governo portuguez para os fins expostos n'este Contracto, não podendo por isso occupar-se com trabalhos particulares de nenhuma sorte, sem licença superior.

3 Todas as collecções feitas

of Angola for a term of five years from the date of his arrival in Loanda, there to direct a Botanical, horticultural and experimental gardens and to send his botanic and agricultural services, for which his special studies and practice at the Royal Gardens of Kew render him available and he will be under the authority of the General Governor of the province or any such official as the latter may appoint.

2. John Gossweiler agrees to dedicate all his time to the service of the Portuguese Government for the purpose set forth in this Contract, being therefore unable to occupy himself with private work of any kind

por John Grossweiler, durante o tempo em que durar este Contracto, serão absoluta propriedade do Governo portuguez.

4º O Governo portuguez abonará-lhe huma passagem de primeira classe até Loanda, sendo-lhe paga pelo Consul de Portugal em Londres a parte d'essa passagem de Londres a Lisboa, e a outra parte de Lisboa a Loanda sendo-lhe paga no Ministerio da Marinha e Ultramar, em Lisboa.

5 Poderá na sua viagem de Londres a Loanda demorar-se em Lisboa até quinze dias, segundo as ordens que receber do Ministerio da Marinha e Ultramar, sendo-lhe, durante este tempo, abonada metade do seu vencimento.

without superior leave

3. All the collections made by John Grossweiler during the term this Contract is in force will be the absolute property of the Portuguese Government.

4th The Portuguese Government will allow him a first class passage as far as Loanda, the part from London to Lisbon to be paid to him by the Portuguese Consul General in London, and the part from Lisbon to Loanda at the Department of the Marine and Colonies in Lisbon.

5th He (John Grossweiler) may on his voyage from London to Loanda remain in Lisbon for as long as fifteen days according to the orders he shall receive from the

6 Na provincia de Angola venceria duzentas libras ester linas por anno, que serão successivamente augmentadas com mais dez libras, depois de cada anno de serviço, mas podendo porem o vencimento do seu vencimento exceder duzentas e cincoenta libras esterlinas.

7. Receberá mais por anno vinte libras sterlinas de ajuda de custo, no caso de não poder ser-lhe fornecido alojamento conveniente.

8. No fim do prazo de cinco annos, se o contracto não fôr prorogado, terá direito a passagem de primeira classe de regresso para a Europa.

9 No fim dos primeiros dois annos terá direito

Minister of Marine and Colonies, being paid during such term one half of his salary.

6 His salary in the province of Angola will be two hundred pounds sterling per annum to be increased with ten pounds more every year after each year of his services, but his salary shall not exceed two hundred and fifty pounds

7. Should it not be practicable to afford him a convenient lodging he will receive twenty pounds extra per annum.

8. At the end of the term of five years, should the contract not be extended, he shall be entitled to a first class passage ticket to return to Europe.

9. At the end of the first two years he will be entitled

5

CONSULADO DE PORTUGAL
EM
LONDRES.

Serie

No

ao gosar uma licença de[illegible] a [illegible] [illegible] heave
seis mezes, sendo-lhe abo- of absence and to a first class
nada essa licença passagem passage ticket, his salary being
de primeira classe, a mes- paid to them all the same.
mo tendo-se-lhe o seu vencimento. The same thing will be under-
Do mesmo modo se pro- stood if before the end of
cederá se antes determinado that term the Board should
aquelle prazo, a Junta de were of opinion that he
Saude fôr de parecer que should come to Europe,
o deve vir á Europa, não po- but he shall not be en-
dendo portanto gosar de nova titled to a new permission
licença nas condições d'esta under the terms of this
clausula serão prorogadas clause except on the
da Junta de Saude opinion of the Board of
10. Se, tendo recolhido com Health.
licença á Europa, não vol- 10. If, in the event of having
-tar a Strigola no termo da come to Europe with a
licença, ou se abandonar license he should not
o serviço antes do praso return to Strigola within

6

fixado neste contracto, ficaria elle considerado como rescindido para todos os effeitos.

11 John Grossweiler compromette-se a partir de Londres para Lisboa não mais tarde que uma semana depois da data da assignatura deste Contracto a não ser por doença ou caso de força-maior devidamente comprovando

E havendo sido lido em portuguez e inglez este Contracto o Jayme Batalha Reis e John Grossweiler ambos o assignaram em duplicado

E eu Henry Volt Walters o escrevi

Consulado Geral de Portugal em Londres aos vinte e tres dias de

the term stated in the license or if he should abandon this latter before the term fixed in the Contract, the latter will be cancelled to all effects and purposes.

11. John Grossweiler agrees to leave London not later than one week after the date of signature of this Contract unless through illness or case of force majeure duly proved.

And this Contract having been read in Portuguese and English to Jayme Batalha Reis and John Grossweiler they both signed the same in duplicate.

And I Henry Volt Walters wrote it.

Consulate General for Portugal in London this twenty third day of

7

Maio de mil oitocentos noventa e nove-

May, one thousand eight hundred and ninety nine.

Jayme Batalha Reis

John. Grosweiler.

Da esquerda para a direita: A. W. Exell, Mildred Exell e J. Gossweiler, no herbário do Instituto Botânico da Faculdade de Ciências da Universidade de Coimbra, nos princípios de 1934

Da esquerda para a direita: Mildred Exell, J. Gossweiler, F. A. Mendonça, A. W. Exell e L. W. Carrisso, no herbário do Instituto Botânico da Faculdade de Ciências da Universidade de Coimbra, nos princípios de 1934, três anos antes da partida para Angola, onde realizaram a campanha de que resultaram as colecções *Carrisso & Sousa, Exell & Mendonça* e *Gossweiler,* subordinadas as duas primeiras ao título *«Iter Angolanum 1937»*

Additions to the vascular flora of the Cape Verde islands

PER SUNDING

Botanical Garden, University of Oslo

(Received the 25-VI-1973)

Referem-se para o arquipélago de Cabo Verde 217 taxa de plantas vasculares, sendo 8 deles novidades para o arquipélago, a saber: *Apium graveolens, Beta patellaris, Boussingaultia cordifolia, Cuscuta approximata, Cyperus longus, Hyptis pectinata, Oenothera rosea* e *Plantago lagopus*. Indicam-se, para cada uma das ilhas, as adições registadas para as respectivas floras. Realça-se o interesse das colheitas de *Cuscuta approximata, Limonium jovi-barba* e *Sideroxylon marmulano*. Propõem-se as seguintes combinações novas ou nomes novos (basiónimos entre parênteses): *Erysimum caboverdeanum (Matthiola caboverdeana), Desmodium tortuosum* var. *ospriostreblum (D. ospriostreblum), Lotus coronillaefolius* var. *argenteus (L. bollei* var. *argenteus), Kickxia brunneri* var. *glaberrima (Linaria brunneri* var. *glaberrima), Kickxia dichondraefolia (Linaria dichondraefolia)* e *Kickxia webbiana (Linaria webbiana)*.

217 taxa of vascular plants are reported from the archipelago of the Cape Verde islands. Of these, 8 are new to the archipelago, viz. *Apium graveolens, Beta patellaris, Boussingaultia cordifolia, Cuscuta approximata, Cyperus longus, Hyptis pectinata, Oenothera rosea,* and *Plantago lagopus*. Several additions are reported to the floras of the single islands. Interesting findings of *Cuscuta approximata, Limonium jovi-barba,* and *Sideroxylon marmulano* are discussed. The following new combinations or new names are proposed (basionyms given in parentheses): *Erysimum caboverdeanum (Matthiola caboverdeana), Desmodium tortuosum* var. *ospriostreblum (D. ospriostreblum), Lotus coronillaefolius* var. *argenteus (L. bollei* var. *argenteus), Kickxia brunneri* var. *glaberrima (Linaria brunneri* var. *glaberrima), Kickxia dichondraefolia (Linaria dichondraefolia)* and *Kickxia webbiana (Linaria webbiana)*.

The archipelago of the Cape Verde islands (ilhas de Cabo Verde) has been visited far less by botanists than the other archipelagos of Macaronesia (the Canary islands, Madeira, and the Azores). The reasons for this are both the practical difficulties in carrying out such work in the islands and the generally poor vascular flora of the archipelago which has not been as temptating to botanists as that of, for instance, the Canaries. A team of botanists in Oslo is actively working on the flora and vegetation of the Canary islands and in that connection has felt the urgent need for plant material — herbarium specimens as well as living plant material — from the Cape Verde archipelago, for comparison with the same taxa or closely related vicariant taxa from the Canaries. The author, therefore, undertook a «rush expedition» to the Cape Verde islands at the end of 1972 to make such a reference collection, primarily of Macaronesian species and endemic taxa related to those of the other Macaronesian archipelagos. During one month in October-November five islands were visited, viz. Santo Antão (5 days),

S. Vicente (14 days), Sal (7 days), Santiago (2 days), and Fogo (3 days). The author's travelling routes in the separate islands are shown in the accompanying map (MAP I).

430 numbers of herbarium collections of vascular plants were made, besides seeds (115 numbers), cuttings, and living plants, the latter being cultivated in the Botanical Garden, University of Oslo. Together with the exhaustive Canary Islands collection kept in Oslo, this material will form a basis for further work on the taxonomy of Macaronesian genera. At the same time, however, several records new to the Cape Verde islands appeared during the preparation of the collections, and a fairly large amount of distribution data was added to our knowledge of the flora of the archipelago. Also, several nomenclatural changes proved to be necessary. The present survey therefore has been prepared to present such information as might also be of general and immediate interest.

In the following list, several of the species said to be common in the island group are missing. Apart from the fact that my collections were done selectively, with the Macaronesian taxa in the focus of interest, this must be ascribed to the fact that the islands had then been suffering a serious drought for a long time, which had done great damage to agriculture as well as to the natural vegetation.

The main source of knowledge of the Cape Verde islands' vascular flora is Auguste Chevalier's monumental flora (1935). Since the appearance of that work, minor additions to the knowledge of the flora have been made primarily by Chevalier (1946), Pettersson (1960), Barbosa (1961), Soares (1961), Malato-Beliz (1970, 1971), and Sventenius (1971). A recently published check-list (Sunding, 1973) gives an enumeration of all species of vascular plants known from the archipelago. For a more thorough survey of literature with relevance to the botany of the Cape Verde islands, see Sunding (1972).

In the herbarium collections brought home, the 217 different taxa that are given in the following list could be identified. Besides the localities of the single collections, the collecting dates and collection numbers are given below. The sequence of treatment follows that of Engler's Syllabus, the latest edition (Melchior, 1964); an alphabetical index to genera and families is besides given at the end of this paper. Nomenclature follows Sunding (1973).

The herbarium material is kept in the Herbarium of the Botanical Museum, University of Oslo (O).

Thanks are due to the Norwegian Research Council for Science and the Humanities for financial support that made the field work in the Cape Verde islands possible. I am also greatly indebted to Eng.° J. Balato-Beliz, Elvas, Portugal, for valuable help with practical problems that arose in connection with the performance of the work in the islands.

PTERIDOPHYTA

EQUISETACEAE

Equisetum ramosissimum Desf., Fl. Atl. 2: 398 (1799).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-x-1972. 2676.

S. VICENTE: Monte Verde, NW slope, 540 m. 7-xi-1972. 2891.

SINOPTERIDACEAE

Cheilanthes catanensis (Cos.) Fuchs, Brit. Fern. Gaz. 9: 45 (1961).

Acrostichum catanense Cos., Atti Acad. Gioen. 2: 217 (1827).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1800 m. 31-x-1972. 2783b.

Cheilanthes marantae (L.) Domin, Bibl. Bot. 20: 133, adnot. 1 (1915).

Acrostichum marantae L., Sp. Pl.: 1071 (1753).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1200 m. 24-x-1972. 2688.

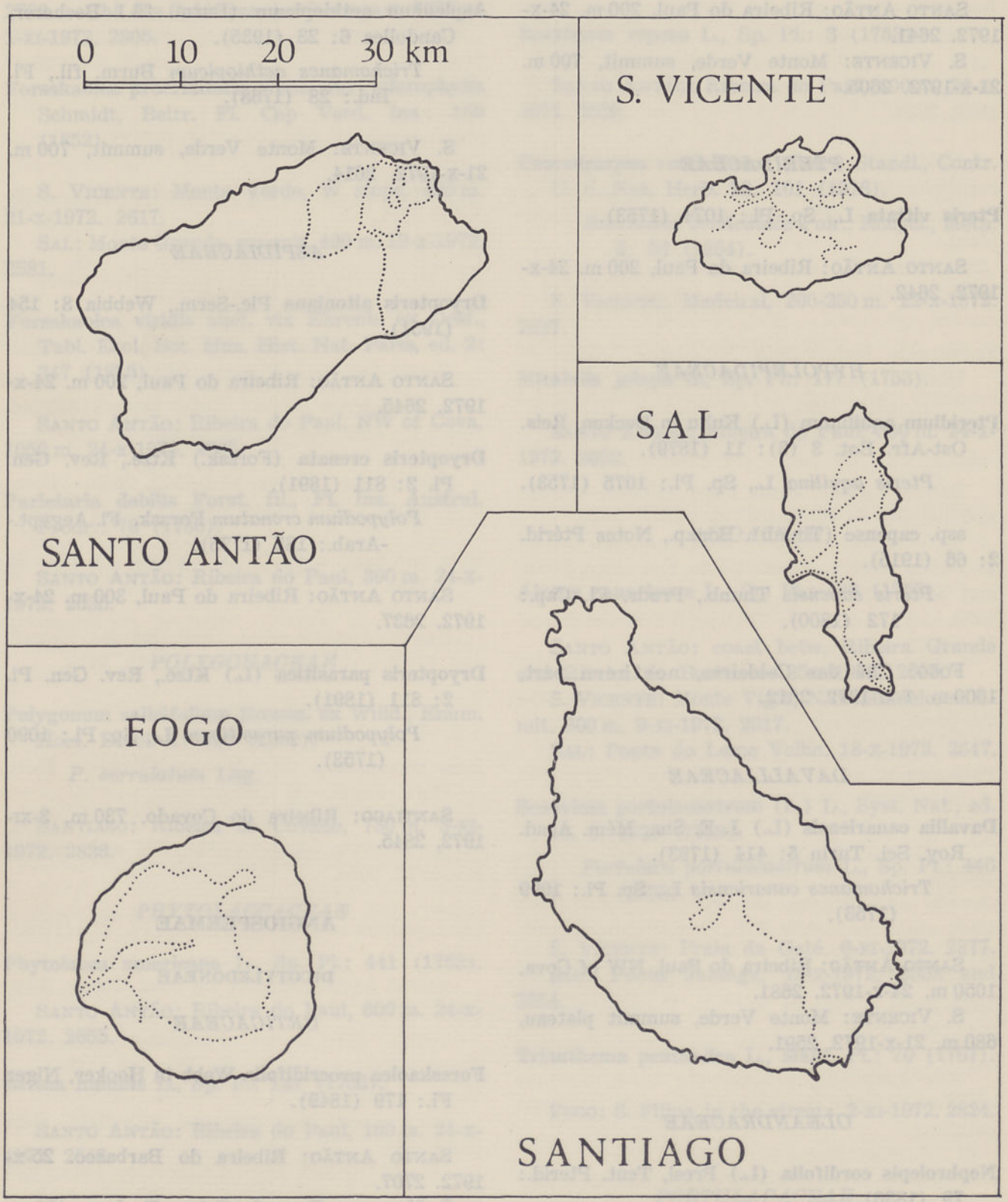
FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1800 m. 31-x-1972. 2783a.

ADIANTACEAE

Adiantum capillus-veneris L., Sp. Pl.: 1096 (1753).

S. VICENTE: Monte Verde, NW slope, 540 m. 21-x-1972. 2613.

MAP I



Sketch map of five of the Cap Verde islands, with the author's travelling routes October-November 1972 marked

Adiantum caudatum L., Mant. Pl.: 308 (1771).

SANTO ANTÃO: Ribeira do Paul, 200 m. 24-X-1972. 2641.

S. VICENTE: Monte Verde, summit, 700 m. 21-X-1972. 2605.

PTERIDACEAE

Pteris vittata L., Sp. Pl.: 1074 (1753).

SANTO ANTÃO: Ribeira do Paul, 200 m. 24-X-1972. 2642.

HYPOLEPIDACEAE

Pteridium aquilinum (L.) Kuhn in Decken, Reis. Ost-Afr. Bot. 3 (3): 11 (1879).

Pteris aquilina L., Sp. Pl.: 1075 (1753).

ssp. **capense** (Thunb). Bonap., Notes Ptérid. 2: 66 (1915).

Pteris capensis Thunb., Prodr. Fl. Cap.: 172 (1800).

FOGO: Chã das Caldeiras, northern part, 1600 m. 1-XI-1972. 2812.

DAVALLIACEAE

Davallia canariensis (L.) J. E. Sm., Mém. Acad. Roy. Sci. Turin 5: 414 (1793).

Trichomanes canariensis L., Sp. Pl.: 1099 (1753).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-X-1972. 2681.

S. VICENTE: Monte Verde, summit plateau, 680 m. 21-X-1972. 2591.

OLEANDRACEAE

Nephrolepis cordifolia (L.) Presl, Tent. Pterid.: 79 (1836).

Polypodium cordifolium L., Sp. Pl.: 1089 (1753).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-X-1972. 2667.

ASPLENIACEAE

Asplenium aethiopicum (Burm. fil.) Becherer, Candollea 6: 23 (1935).

Trichomanes aethiopicum Burm. fil., Fl. Ind.: 28 (1768).

S. VICENTE: Monte Verde, summit, 700 m. 21-X-1972. 2614.

ASPIDIACEAE

Dryopteris aitoniana Pic.-Serm., Webbia 8: 154 (1951).

SANTO ANTÃO: Ribeira do Paul, 200 m. 24-X-1972. 2645.

Dryopteris crenata (Forssk.) Ktze., Rev. Gen. Pl. 2: 811 (1891).

Polypodium crenatum Forssk., Fl. Aegypt.-Arab.: 185 (1775).

SANTO ANTÃO: Ribeira do Paul, 300 m. 24-X-1972. 2637.

Dryopteris parasitica (L.) Ktze., Rev. Gen. Pl. 2: 811 (1891).

Polypodium parasiticum L., Sp. Pl.: 1090 (1753).

SANTIAGO: Ribeira do Covado, 730 m, 3-XI-1972, 2845.

ANGIOSPERMAE

DICOTYLEDONEAE

URTICACEAE

Forsskaolea procridifolia Webb in Hooker, Niger Fl.: 179 (1849).

SANTO ANTÃO: Ribeira do Barbasco. 25-X-1972. 2707.

S. VICENTE: Tope da Caixa, E slope, 400 m. 29-X-1972. 2747. — Tope Susana, NE slope, 300 m. 6-XI-1972. 2876. — Monte Verde, NW slope, 540 m. 7-XI-1972. 2888.

SANTIAGO: Pico da Antónia, 900 m. 3-XI-1972. 2861.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1900 m. 31-x-1972. 2789. — Chã das Caldeiras, northern part, 1650 m. 1-XI-1972. 2805.

Forsskaolea procridifolia Webb, var. **microphylla** Schmidt, Beitr. Fl. Cap Verd. Ins.: 169 (1852).

S. VICENTE: Monte Verde, W slope, 450 m. 21-x-1972. 2617.
SAL: Monte Grande, summit, 400 m. 19-x-1972. 2581.

Forsskaolea viridis auct. vix Ehrenb. ex Desf., Tabl. Ecol. Bot. Mus. Hist. Nat. Paris, ed. 2: 347 (1815).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-x-1972. 2665.

Parietaria debilis Forst. fil., Fl. Ins. Austral. Prodr.: 73 (1786).

SANTO ANTÃO: Ribeira do Paul, 300 m. 24-x-1972. 2635.

POLYGONACEAE

Polygonum salicifolium Brouss. ex Willd., Enum. Hort. Berol. 1: 428 (1809).

P. serrulatum Lag.

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2836.

PHYTOLACCACEAE

Phytolacca americana L., Sp. Pl.: 441 (1753).

SANTO ANTÃO: Ribeira do Paul, 600 m. 24-x-1972. 2655.

Rivina humilis L., Sp. P.: 121 (1753).

SANTO ANTÃO: Ribeira do Paul, 100 m. 24-x-1972. 2643.

NYCTAGINACEAE

Boerhavia diffusa L., Sp. Pl.: 3 (1753).

S. VICENTE: Madeiral, 200-250 m. 22-x-1972. 2632.

SAL: Ribeira de Joaquim Petinha. 11-XI-1972. 2944.

Boerhavia repens L., Sp. Pl.: 3 (1753).

SANTO ANTÃO: Ribeira do Paul, 100 m. 24-x-1972. 2639.

Commicarpus verticillatus (Poir.) Standl., Contr. U. S. Nat. Herb. 18: 101 (1916).

Boerhavia verticillata Poir., Encycl., Méth. 5: 56 (1804).

S. VICENTE: Madeiral, 200-250 m. 22-x-1972. 2627.

Mirabilis jalapa L., Sp. Pl.: 177 (1753).

SANTO ANTÃO: Ribeira do Paul, 500 m. 24-x-1972. 2652.

AIZOACEAE

Aizoon canariense L., Sp. Pl.: 488 (1753).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2697.
S. VICENTE: Monte Vigia, N of Mindelo, summit, 300 m. 9-XI-1972. 2917.
SAL: Ponta do Leme Velho. 18-x-1972. 2547.

Sesuvium portulacastrum (L.) L., Syst. Nat., ed. 10, 2: 1058 (1759).

Portulaca portulacastrum L., Sp. Pl.: 446 (1753).

S. VICENTE: Praia da Gaté. 6-XI-1972. 2877.
SAL: Ponta Jalunga. 18-x-1972. 2552 and 2554.

Trianthema pentandra L., Mant. Pl.: 70 (1767).

FOGO: S. Filipe, in the streets. 2-XI-1972. 2824.

PORTULACACEAE

Portulaca oleracea L., Sp. Pl.: 445 (1753).

S. VICENTE: Monte Verde, summit, 600 m. 21-x-1972. 2598.

BASELLACEAE

Boussingaultia cordifolia Ten., Ann. Sci. Nat., ser. 3, **19**: 355 (1853).

SANTO ANTÃO: Ribeira do Paul, 500 m. 24-x-1972. 2658.

New (?) to the Cape Verde islands. *Basella cordifolia* of Chevalier (1935), which is a synonym to *Basella alba*, may, however, be the same plant.

CARYOPHYLLACEAE

Paronychia illecebroides (Chr. Sm.) Webb in Hooker, Niger Fl.: 106 (1849).

Herniaria illecebroides Chr. Sm. in Tuck., Voy. Congo: 250 (1818).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2698.

S. VICENTE: Monte Verde, summit, 690 m. 21-x-1972. 2595. — Monte Verde, NW slope, 540 m and 560 m. 21-x-1972 and 7-xi-1972. 2610 and 2896. — Tope da Caixa, E slope, 500 m and 400 m. 29-x-1972. 2748 and 2749.

FOGO: Chã das Caldeiras, W of the volcano, 1600 m. 1-xi-1972. 2796 and 2800. — Chã das Caldeiras, northern part, 1650 m. 1-xi-1972. 2806.

Polycarpaea gayi Webb in Hooker, Niger Fl.: 104 (1849).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1000 m. 24-x-1972. 2673. — Coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2703. — Lombo Cebida Vila, S of Ribeira Grande, 920 m. 26-x-1972. 2731.

SANTIAGO: Ribeira do Covado, 740 m. 3-xi-1972. 2848. — Pico da Antónia, E slope, 1050 m. 3-xi-1972. 2862.

Any distinction between the three varieties of Webb (1849) was not done in the material collected.

Polycarpaea nivea (Ait.) Webb in Hooker, Niger Fl.: 104 (1849).

Achyranthes nivea Ait., Hort. Kew. **1**: 286 (1789).

SAL: Ponta Jalunga. 18-x-1972. 2548. — Costa da Fragata, NE of Santa Maria. 11-xi-1972. 2931.

Sclerocephalus arabicus Boiss., Diagn. Pl. Nov. Orient., ser. 1, **3**: 12 (1843).

S. VICENTE: Tope Susana, 200 m. 6-xi-1972. 2885.

SAL: Terra Boa. 19-x-1972. 2951.

Silene gallica L., Sp. Pl.: 417 (1753).

SANTIAGO: Ribeira do Covado, 750 m. 3-xi-1972. 2851.

CHENOPODIACEAE

Arthrocnemum glaucum (Del.) Ung.-Sternb., Atti Congr. Int. Bot. Firenze: 283 (1876).

Salicornia glauca Del., Descr. Egypte, Hist. Nat. **2**: 49 (1813).

SAL: Ponta Jalunga. 18-x-1972. 2550. — Costa da Fragata, NE of Santa Maria. 11-xi-1972. 2922.

Beta patellaris Moq. in DC., Prodr. **13** (2): 57 (1849).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2704.

New to the Cape Verde islands.

Beta procumbens Chr. Sm. ex Hornem., Hort. Hafn. Suppl.: 31 (1819).

S. VICENTE: Monte Verde, NE wall, 200 m. 8-xi-1972. 2908.

Chenopodium ambrosioides L., Sp. Pl.: 219 (1753).

SANTO ANTÃO: Ribeira do Paul, 100 m. 24-x-1972. 2650.

Chenopodium murale L., Sp. Pl.: 219 (1753).

SAL: Lajedo dos Espargos. 17-x-1972. (Not collected.)

Suaeda vermiculata Forssk. ex J. F. Gmel., Syst. Nat., ed. 13, 2 (1): 503 (1791).

SAL: Praia de António de Sousa. 18-x-1972. 2544. — Costa da Fragata, NE of Santa Maria. 11-xi-1972. 2923.

Traganum moquini Webb ex Moq. in DC., Prodr. **13** (2): 171 (1849).

SAL: Costa da Fragata, NE of Santa Maria. 11-XI-1972. 2925.

AMARANTHACEAE

Achyranthes aspera L., Sp. Pl.: 204 (1753), var. **sicula** L., l.c.

FOGO: norther part of the caldera rim of Chã das Caldeiras, near Fernão Gomes, 1550 m. 1-XI-1972. 2816.

Aerva persica (Burm. fil.) Merrill, Philip. Journ. Sci. **19**: 348 (1921).

Iresine persica Burm. fil., Fl. Ind.: 212 (1768).

SAL: Lajedo dos Espargos. 17-X-1972. 2531. — W of Rocha de Poi. 19-X-1972. 2579. — Ponta de Joaquim Petinha. 11-XI-1972. 2935.

Alternanthera peploides (Humb. & Bonpl. ex Roem. & Schult.) Urban, Feddes Repert. **15**: 168 (1918).

Illecebrum peploides Humb. & Bonpl. ex Roem. & Schult., Syst. Veg. **5**: 517 (1819).

SANTO ANTÃO: Ribeira do Barbasco. 25-X-1972. 2710.

SAL: Lajedo dos Espargos. 17-X-1972. 2530.

Amaranthus graecizans L., Sp. Pl.: 990 (1753).

SANTO ANTÃO: Ribeira do Paul, 400 m. 24-X-1972. 2653.

Amaranthus spinosus L., Sp. Pl.: 991 (1753).

SANTIAGO: Ribeira do Covado, 800 m. 3-XI-1972. 2852.

Philoxerus vermicularis (L.) Beauv. Fl. Oware Bénin, **2**: 65, pl. 98 (1818).

Gomphrena vermicularis L., Sp. Pl.: 224 (1753).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-X-1972. 2705.

PAPAVERACEAE

Argemone mexicana L., Sp. Pl.: 508 (1753).

SANTIAGO: Ribeira do Covado, 600 m. 3-XI-1972. 2833.

CAPPARIDACEAE

Cleome viscosa L., Sp. Pl.: 672 (1753).

SAL: Lajedo dos Espargos. 17-X-1972. 2535. — Betw. Montanha do Curral and Monte Rocha de Salina. 17-X-1972. 2540. — Near the salines of Santa Maria. 11-XI-1972. 2926.

Gynandropsis gynandra (L.) Briq., Ann. Conserv. Jard. Bot. Genève, **17**: 382 (1914).

Cleome gynandra L., Sp. Pl.: 671 (1753).

SANTO ANTÃO: Ribeira do Paul, 100 m. 24-X-1972. 2640.

CRUCIFERAE

Erysimum caboverdeanum (Chev.) Sunding, comb. nov.

Matthiola caboverdeana Chevalier, Bull. Mus. Nat. Hist. Natur. Paris, 2e sér., **7**: 139 (1935).
Cheiranthus caboverdeanus (Chev.) R. Fernandes, Garcia de Orta, **7**: 755 (1959).

Chevalier's *Matthiola caboverdeana* (Chevalier, 1935) was shown by Rosette Fernandes (1959) to be a *Cheiranthus*, related to the taxa of *Cheiranthus* in other Macaronesian archipelagos (the Canary islands and Madeira) and especially to *C. scoparius* of the Canaries. In a recent study of the Macaronesian members of *Cheiranthus*, Mendoza Heuer (1972) transferred the species of the Canary islands and Madeira to *Erysimum*, whereas the single Cape Verde representative of the genus was not mentioned.

Lobularia intermedia Webb & Berth., Phytogr. Canar. **1**: 92 (1837), ssp. **spathulata** (Schmidt) B. Petters., Comm. Biol. Soc. Scient. Fenn. **22** (9): 20 (1960).

Koniga spathulata Schmidt, Beitr. Fl. Cap Verd. Ins.: 266 (1852).

SANTO ANTÃO: Ribeira do Paul, 500 m. 24-X-1972. 2661.

S. VICENTE: Monte Verde, summit, 700 m. 21-X-1972. 2602. — Monte Verde, NW slope, 580 m. 7-XI-1972. 2898.

SANTIAGO: Pico da Antónia, E slope, 1000 m. 3-XI-1972. 2856.

Lobularia maritima (L.) Desv., Journ. Bot. Appl. 3: 162 (1814).

Clypeola maritima L., Sp. Pl.: 652 (1753).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 920 m. 24-X-1972. 2666.

Sinapidendron glaucum Schmidt, Beitr. Fl. Cap Verd. Ins.: 267 (1852).

SAL: Monte Rocha de Salina, 200 m. 17-X-1972. 2536. — W of Cagarral. 19-X-1972. 2569. — Monte Grande, W slope, 300 m. 19-X-1972. 2574.

Sinapidendron gracile Webb in Hooker, Niger Fl.: 99 (1849).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-X-1972. 2675. — Monte Joana, 500 m. 25-X-1972. 2716.

Sinapidendron hirtum Chev., Bull. Mus. Nat. Hist. Natur. Paris, 2e sér., 7: 141 (1935).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1500 m and 1850 m. 31-X-1972. 2779 and 2787. — Chã das Caldeiras, W of the volcano, 1650 m and 1740 m. 1-XI-1972. 2793 and 2797.

Sinapidendron vogelii Webb in Hooker, Niger Fl.: 100 (1849).

SANTO ANTÃO: N of Lombo das Pedras, 1100 m. 26-X-1972. 2723.

S. VICENTE: Tope da Caixa, E slope, 300 m. 29-X-1972. 2743. — Tope Susana, NE slope, 300 m. 6-XI-1972. 2874.

RESEDACEAE

Caylusea canescens (L.) St.-Hil., 2. Mém. Resed.: 29 (1837).

Reseda canescens L., Syst. Veg., ed. 12: 33 (1767).

SAL: Monte Rocha de Salina, 200 m. 17-X-1972. 2537.

SANTIAGO: Lem Vieira, 700 m. 3-XI-1972. 2865.

CRASSULACEAE

Aeonium gorgoneum Schmidt, Beitr. Fl. Cap Verd. Ins.: 258 (1852).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1000 m. 24-X-1972. 2677. — Lombo Cebide Vila, S of Ribeira Grande, 900 m. 26-X-1972. Living plant collection, cult. Bot. Gard. Oslo, under akv. no. 72-1870.

S. VICENTE: Monte Verde, N slope, 600 m. 21-X-1972. 2621. — Monte Verde, NW slope, 500 m. 21-X-1972. Living plant collection, cult. Bot. Gard. Oslo, under akv. no. 72-1868. — Monte Verde, NE wall, 360 m. 8-XI-1972. Living plant collection, cult. Bot. Gard. Oslo, under akv. no. 72-1869.

Bryophyllum pinnatum (Lam.) Oken, Allg. Naturgesch. 3 (3): 1966 (1841).

Cotyledon pinnata Lam., Encycl. Méth. 2: 141 (1786).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-X-1972. (Not collected.)

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. (Not collected.)

Umbilicus schmidtii Bolle, Bonplandia, 7: 245 (1859).

SANTIAGO: Pico da Antónia, E slope, 940 m. 3-XI-1972. Living plant collection, cult. Bot. Gard. Oslo, under akv. no. 72-1862.

MIMOSACEAE

Acacia farnesiana (L.) Willd., Sp. Pl., ed. 4, 4: 1083 (1806).

Mimosa farnesiana L., Sp. Pl.: 521 (1753).

S. VICENTE: Ribeira Julião, 3 km S of Mindelo. 29-X-1972. 2758.

Acacia nilotica (L.) Willd. ex Del., Fl. Aegypt. Illustr.: 79 (1813).

Mimosa nilotica L., Sp. Pl.: 521 (1753).

ssp. **indica** (Benth.) Brenan, Kew Bull. 1957: 84 (1959).

Acacia arabica (Lam.) Willd. var. *indica* Benth., Hooker Journ. Bot. 1: 500 (1842).

SAL: Ribeira da Beirona. 18-X-1972. 2558.

Desmanthus virgatus (L.) Willd., Sp. Pl., ed. 4, 4: 1047 (1806).

Mimosa virgata L., Sp. Pl.: 519 (1753).

S. VICENTE: Monte Verde, N slope, 600 m. 21-x-1972. 2592.
SANTIAGO: Caiada, W of S. Domingos, 500 m. 3-xi-1972. 2869.

Leucaena glauca (L.) Benth., Hooker Journ. Bot. 4: 416 (1842).

Mimosa glauca L., Sp. Pl.: 520 (1753).

S. VICENTE: Monte Verde, W slope, 450 m. 21-x-1972. 2616. — Monte Verde, NE wall, 160 m. 8-xi-1972. 2903.

Prosopis juliflora (Sw.) DC., Prodr. 2: 447 (1825).

Mimosa juliflora Sw., Nov. Gen. Sp. Pl. Prodr. Veg. Ind. Occ.: 85 (1788).

SAL: Ribeira de Palha Verde. 18-x-1972. 2556.

CAESALPINIACEAE

Caesalpinia pulcherrima (L.) Sw., Obs. Bot.: 166 (1791).

Poinciana pulcherrima L., Sp. Pl.: 380 (1753).

S. VICENTE: Monte Verde, NE wall, lower part, 120 m; escaped from cultivation. 8-xi-1972. 2902.

Cassia bicapsularis L., Sp. Pl.: 376 (1753).

S. VICENTE: Monte Verde, N slope, 550 m. 21-x-1972. 2606.
SANTIAGO: Monte Campanário, 950 m. 3-xi-1972. 2864.

Cassia italica (Mill.) Lam. ex F. W. Andr., Fl. Pl. A.-E. Sud. 2: 117 (1952).

Senna italica Mill., Gard. Dict., ed. 8: n. 2 (1768).
Cassia obovata Coll.

SAL: Ribeira da Beirona. 18-x-1972. 2557. — W of Rocha de Poi. 19-x-1972. 2577. — Ponta de Joaquim Petinha. 11-xi-1972. 2937.

Tamarindus indica L., Sp. Pl.: 34 (1753).

SAL: Ribeira de Palha Verde. 18-x-1972. 2555.

PAPILIONACEAE

Abrus precatorius L., Syst. Nat., ed. 12, 2: 472 (1767).

SANTO ANTÃO: Ribeira do Barbasco. 25-x-1972. Seed collection, cult. Bot. Gard. Oslo, under akv. no. 73-1606.

Crotalaria goreensis Guill. & Perr., Fl. Senegamb. Tent. 1: 165 (1832).

SANTIAGO: Ribeira do Pico da Antónia, 550 m. 3-xi-1972. 2828.

Crotalaria retusa L., Sp. Pl.: 715 (1753).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 900 m. 26-x-1972. 2734.
SANTIAGO: Ribeira do Covado, 650 m. 3-xi-1972. 2837.

Desmodium tortuosum (Sw.) DC., Prodr. 2: 332 (1825).

Hedysarum tortuosum Sw., Nov. Gen. Sp. Pl. Prodr. Veg. Ind. Occ.: 107 (1788).

var. **ospriostreblum** (Steud. ex A. Rich.) Sunding, comb. nov.

D. ospriostreblum Steud. ex A. Rich., Voy. Abyss. 4: 204 (1847).
D. abyssinicum Hutch. & Dalz. var. *ospriostreblum* (Steud. ex A. Rich.) Chev., Rev. Bot. Appl. 15: 977 (1935).

SANTIAGO: Ribeira do Pico da Antónia, 500 m. 3-xi-1972. 2826.
FOGO: Chã das Caldeiras, northern part, 1600 m. 1-xi-1972. 2807.

Indigofera parviflora Heyne ex Wight & Arn., Prodr. Fl. Ind. Or.: 201 (1834).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1100 m. 31-x-1972. 2774.

Indigofera tinctoria L., Sp. Pl.: 751 (1753).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 800 m. 26-x-1972. 2742.
FOGO: 2 km NW of S. Filipe. 31-x-1972. 2760.

Lotus brunneri Webb in Hooker, Niger Fl.: 119 (1849).

S. VICENTE: Tope da Caixa, E slope, 350 m. 29-x-1972. 2754.
SAL: Ribeira de Joaquim Petinha. 11-xi-1972. 2946. — Lajedo dos Espargos. 17-x-1972. 2626.

Lotus coronillaefolius Webb in Hooker, Niger Fl.: 119 (1849).

Syn.: *L. bollei* Christ, Bot. Jahrb. 9: 123 (1888).

S. VICENTE: Tope da Caixa, E slope, 500 m. 29-x-1972. 2756.—Monte Verde, NW slope, 550 m. 7-xi-1972. 2887.

Lotus coronillaefolius Webb, var. **argenteus** (Chev.) Sunding, comb. nov.

L. bollei Christ var. *argentea* [sic] Chevalier, Rev. Bot. Appl. **15**: 965 (1935).

S. VICENTE: Monte Verde, NW slope, 500 m. 21-x-1972. 2585.

Lotus jacobaeus L., Sp. Pl.: 1091 (1753).

SAL: betw. Monte Grande and Montanha da Glória. 19-x-1972. 2570.
FOGO: N of Monte Contador, 900 m. 31-x-1972. 2762. — Chã das Caldeiras, W of the volcano, 1650 m. 1-xi-1972. 2802.

Lotus jacobaeus L., var. **villosus** Chev., Rev. Bot. Appl. **15**: 968 (1935).

FOGO: Chã das Caldeiras, northern part, 1600 m. 1-xi-1972. 2811.

Lotus oliveirae Chev., Rev. Bot. Appl. **15**: 966 (1935).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-x-1972. 2670.

Rhynchosia memnonia (Del.) DC., Prodr. 2: 386 (1825).

Dolichos memnonia Del., Fl. Egypte: 254 (1813).

SAL: Ribeira de Joaquim Petinha. 11-xi-1972. 2943.

Teline stenopetala (Webb & Berth.) Webb & Berth., Phytogr. Canar. 2: 39 (1842).

Genista stenopetala Webb & Berth., loc. cit., t. 45 (1836).
Cytisus stenopetalus (Webb & Berth.) Christ.

SANTO ANTÃO: Cova, 1200 m. 24-x-1972. 2689.

Tephrosia uniflora Pers., Syn. Pl. 2: 329 (1807).

SAL: Ribeira de Joaquim Petinha. 11-xi-1972. 2938.

OXALIDACEAE

Oxalis corniculata L., Sp. Pl.: 435 (1753), var. **villosa** Schmidt, Beitr. Fl. Cap Verd. Ins.: 315 (1852).

SANTIAGO: Ribeira do Covado, 800 m. 3-xi-1972. 2850.

ZYGOPHYLLACEAE

Fagonia albiflora Chev., Rev. Bot. Appl. **15**: 961 (1935).

SAL: Monte Rocha de Salina, 250 m. 17-x-1972. 2538. — W of Rocha de Poi. 19-x-1972. 2580. — Baía de Joaquim Petinha. 11-xi-1972. 2942.

Fagonia cretica L., Sp. Pl.: 386 (1753).

S. VICENTE: Monte Verde, NE wall, 200 m. 8-xi-1972. 2905.

Fagonia latifolia Del., Fl. Egypte: 230 (1813).

SAL: Lajedo dos Espargos. 17-x-1972. 2528.

Zygophyllum fontanesii Webb & Berth., Phytogr. Canar. 1: 17 (1836).

S. VICENTE: Baía das Gatas. 8-xi-1972. 2900 and 2901.

Zygophyllum simplex L., Mant. Pl.: 68 (1767).

S. VICENTE: Praia da Galé. 6-xi-1972. 2870.
SAL: Monte Rocha de Salina, 200 m. 17-x-1972. 2539.

Zygophyllum waterlotii Maire, Bull. Soc. Hist. Nat. Afr. N. 28: 348 (1937).

SAL: Lajedo dos Espargos. 17-x-1972. 2533. — Ribeira de Madama. 18-x-1972. 2560. — Costa da Fragata, NE of Santa Maria. 11-XI-1972. 2920, 2921, and 2924. — Baía da Murdeira. 12-XI-1972. 2948.

EUPHORBIACEAE

Andrachne telephioides L., Sp. Pl.: 1014 (1753).

S. VICENTE: Tope Susana, NE slope, 240 m. 6-XI-1972. 2882. — Monte Vigia, N of Mindelo, summit, 300 m. 9-XI-1972. 2916.
SAL: Ribeira de Joaquim Petinha. 11-XI-1972. 2939.

Euphorbia chamaesyce L., Sp. Pl.: 455 (1753).

SANTO ANTÃO: Ribeira do Paul, 250 m. 24-x-1972. 2695.

Euphorbia granulata Forssk., Fl. Aegypt.-Arab.: 94 (1775).

SAL: Ribeira de Joaquim Petinha. 11-XI-1972. 2941.

Euphorbia heterophylla L., Sp. Pl.: 453 (1753).

SANTO ANTÃO: Ribeira do Paul, 250 m. 24-x-1972. 2636.

Euphorbia hirta L., Sp. Pl.: 454 (1753).

SANTO ANTÃO: Ribeira do Paul, 300 m. 24-x-1972. 2638.
FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1100 m. 31-x-1972. 2769.

Euphorbia tuckeyana Steud., Nomencl. Bot., ed. 2, 1: 615 (1840).

S. VICENTE: Monte Verde, N slope, 600 m. 21-x-1972. 2620. — Madeiral, 200-250 m. 22-x-1972. 2631. — Tope de Caixa, near the summit, 530 m. 29-x-1972. 2757. — Assomada da Baleia, SE of Monte Verde, 400 m. 7-XI-1972. Living plant collections, cult. Bot. Gard. Oslo, under akv. no. 72-1865, 72-1866, and 72-1867.

SAL: Monte Grande, W slope, 300 m. 19-x-1972. 2573. — Monte Grande, E slope, 300 m. 19-x-1972. Living plant collection, cult. Bot. Gard. Oslo, under akv. no. 72-1863.
FOGO: northern part of the ring mountains around Chã das Caldeiras, near Fernão Gomes, 1800 m. 1-XI-1972. 2820.

Jatropha curcas L., Sp. Pl.: 1006 (1753).

S. VICENTE: Madeiral, 250 m. 22-x-1972. Seed collection, cult. Bot. Gard. Oslo, under akv. no. 73-1607.

Jatropha gossypifolia L., Sp. Pl.: 1006 (1753).

S. VICENTE: Mato Inglês, betw. Mindelo and Monte Verde. 21-x-1972. 2622.

RUTACEAE

Ruta chalepensis L., Mant. Pl.: 69 (1767).

Santo ANTÃO: Lombo das Pedras, 1400 m. 26-x-1972. 2720.

POLYGALACEAE

Polygala erioptera DC., Prodr. 1: 326 (1824).

SAL: Ribeira de Joaquim Petinha. 11-XI-1972. 2945.

RHAMNACEAE

Ziziphus mauritianus Lam., Encycl. Méth. 3: 319 (1789).

S. VICENTE: Ribeira Julião, 3 km S of Mindelo. 29-x-1972. (Not collected).
SAL: Lajedo dos Espargos. 17-x-1972. 2523.
SANTIAGO: Ribeira do Covado, 600 m. 3-XI-1972. 2830.

TILIACEAE

Corchorus depressus (L.) Stocks, Proc. Linn. Soc. 1: 367 (1848).

Antichorus depressus L., Mant. Pl.: 64 (1767).

SAL: Ribeira de Madama. 18-x-1972. 2562. — Terra Boa. 19-x-1972. 2578. — Near the salines of Santa Maria. 11-xi-1972. 2930.

Triumfetta pentandra A. Rich. in Guill. & Perr., Fl. Seneg. **1**: 93 (1831).

SANTO ANTÃO: Ribeira do Paul, 380 m. 24-x-1972. 2651.

MALVACEAE

Abutilon pannosum (Forst. fil.) Schlecht., Bot. Zeit. **9**: 828 (1851).

Sida pannosa Forst. fil., Comm. Soc. Goett. 1787: 60 (1787).

SAL: Lajedo dos Espargos. 17-x-1972. 2524.

Gossypium hirsutum L., Sp. Pl., ed. 2: 975 (1763), var. **punctatum** (Schumach. & Thonn.) H. S. & S., Evol. Gossyp.: 40 (1947).

G. punctatum Schumach. & Thonn., Beskr. Guin. Pl.: 311 (1827).

FOGO: Chã das Caldeiras, northern part, 1600 m. 1-xi-1972. 2809.

Malvastrum coromandelianum (L.) Garcke, Bonplandia, **5**: 295 (1857).

Malva coromandeliana L., Sp. Pl.: 687 (1753).

SANTIAGO: Ribeira do Pico da Antónia, 550 m. 3-xi-1972. 2827.

Malvastrum spicatum (L.) A. Gray, Mem. Amer. Acad., n.s., 4: 22 (1849).

Malva spicata L., Sp. Pl.: 967 (1753).

S. VICENTE: Monte Verde, summit, 600 m. 21-x-1972. 2597.

SANTIAGO: Caiada, W of S. Domingos, 600 m. 3-xi-1972. 2867.

Sida urens L., Syst. Nat., ed. 10: 1145 (1759).

SANTO ANTÃO: Ribeira do Paul, 100 m. 24-x-1972. 2644.

S. VICENTE: Monte Verde, N slope, 600 m. 21-x-1972. 2593.

STERCULIACEAE

Melhania ovata (Cav.) Spreng., Syst. Veg. **3**: 32 (1826).

Brotera ovata Cav., Icon. Descr. Pl. **5**: 20 (1799).

SAL: Ribeira de Joaquim Petinha. 11-xi-1972. 2947.

FOGO: N of Monte Contador, 900 m. 31-x-1972. 2763.

CISTACEAE

Helianthemum gorgoneum Webb in Hooker, Niger Fl.: 102 (1849).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1200 m. 31-x-1972. 2767. — Chã das Caldeiras, northern part, 1600 m. 1-xi-1972. 2808.

TAMARICACEAE

Tamarix canariensis Willd., Abh. Phys. Kl. Kön. Preuss. Akad. Wiss. **1812-1813**: 79 (1816).

S. VICENTE: sand dune area 1 km S of Praia da Galé. 6-xi-1972. 2884.

SAL: Lajedo dos Espargos. 17-x-1972. 2532. — Ponta Jalunga. 18-x-1972. 2553. — Ribeira de Madama. 18-x-1972. 2559.

FRANKENIACEAE

Frankenia ericifolia Chr. Sm. ex DC., Prodr. **1**: 350 (1824).

S. VICENTE: Praia da Galé. 6-xi-1972. 2872. — Baía das Gatas. 8-xi-1972. 2904.

SAL: Lajedo dos Espargos. 17-x-1972. 2525. — Monte Rocha de Salina, 200 m. 17-x-1972. 2541. Ponta do Linguincho. 19-x-1972. 2572. — 3 km N of Santa Maria. 11-xi-1972. 2932. — Ribeira de Fontona, near the sea. 11-xi-1972. 2934 — Baía da Murdeira. 12-xi-1972. 2949.

Frankenia latifolia (Webb & Berth.) Chev., Rev. Bot. Appl. **15**: 940 (1935).

F. ericifolia Chr. Sm. ex DC. var. *latifolia* Webb & Berth., Phytogr. Canar. **1**: 132 (1837).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2699.

CUCURBITACEAE

Citrullus colocynthis (L.) Schrad., Linnaea, **12**: 414 (1838).

Cucumis colocynthis L., Sp. Pl.: 1011 (1753).

SAL: Monte Rocha de Salina, 200 m. 17-x-1972. Seed collection, cult. Bot. Gard. Oslo, under akv. no. 73-1608. — Ribeira de Sene. 12-XI-1972. 2950.

Momordica charantia L., Sp. Pl.: 1009 (1753).

SANTIAGO: Ribeira do Pico da Antónia, 550 m. 3-XI-1972. 2831.

ONAGRACEAE

Epilobium parviflorum Schreb., Spicil. Fl. Lips.: 146 (1771).

SANTO ANTÃO: Ribeira do Paul, 500 m. 24-x-1972. 2660.

Oenothera rosea L'Hér. ex Ait., Hort. Kew. **2**: 3 (1789).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1000 m. 24-x-1972. 2671.

New to the Cape Verde islands.

UMBELLIFERAE

Apium graveolens L., Sp. Pl.: 264 (1753).

S. VICENTE: Monte Verde, NW slope, 540 m, by a spring. 7-XI-1972. 2892.

New to the Cape Verde islands.

Foeniculum vulgare Mill., Gard. Dict., ed. 8 (1768), ssp. **piperitum** (Ucria) Cout., Fl. Port.: 450 (1913).

Anethum piperitum Ucria in Roem., Arch. Bot. **1** (1): 68 (1796).

S. VICENTE: Monte Verde, Pte. Ladeira, 500 m. 7-XI-1972. 2895.

SANTIAGO: Ribeira do Covado, 710 m. 3-XI-1972. 2835.

Melanoselinum insulare (Parl. ex Webb) Chev., Bull. Mus. Nat. Hist. Natur. Paris, 2e sér., **7**: 144 (1935).

Tetrapleura insularis Parl. ex Webb in Hooker, Niger Fl.: 131 (1849).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-x-1972. 2669. — Lombo Cebide Vila, S of Ribeira Grande, 920 m. 26-x-1972. 2733.

S. VICENTE: Monte Verde, summit, 700 m. 21-x-1972. 2601.

Melanoselinum tenuissimum Chev., Bull. Mus. Nat. Hist. Natur. Paris, 2e sér., **7**: 144 (1935).

FOGO: northern part of the mountain ring around Chã das Caldeiras, near Fernão Gomes, 1600 m. 1-XI-1972. 2810.

Petroselinum crispum (Mill.) A. W. Hill, Hand-List Herb. Pl. Kew, ed. 3: 122 (1925).

Apium crispum Mill., Gard. Dict., ed. 8 (1768).

S. VICENTE: Monte Verde, summit, 700 m. 21-x-1972. 2604.

PRIMULACEAE

Samolus valerandi L., Sp. Pl.: 171 (1753).

S. VICENTE: Monte Verde, NW slope, 540 m. 21-x-1972. 2611.

PLUMBAGINACEAE

Limonium braunii (Bolle) Chev., Rev. Bot. Appl. **15**: 928 (1935).

Statice braunii Bolle, App. Ind. Sem. Hort. Berol. 1861: 4 (1861).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2696.

Limonium brunneri (Webb) Ktze., Rev. Gen. Pl. 2: 395 (1891).

Statice brunneri Webb in Hooker, Niger Fl.: 170 (1849).

SAL: Ponta do Leme Velho. 18-x-1972. 2549. — Ponta Jalunga. 18-x-1972. 2551.

Limonium jovi-barba (Webb) Ktze., Rev. Gen. Pl. 2: 395 (1891).

Statice jovi-barba Webb in Hooker, Niger Fl.: 170 (1849).

S. VICENTE: Monte Verde, NW slope, 540 m. 21-x-1972. 2609.

Monte Verde, NE wall, 200 m. 8-XI-1972. (Not collected.)

Chevalier (1935, p. 928): «Monte Verde ... (Vogel, Schmidt, Bolle). N'a pas été revu.»

SAPOTACEAE

Sideroxylon marmulano Chr. Sm. in Tuckey, Voy. Congo: 252 (1818).

S. VICENTE: Monte Verde, NW slope, 560 m. 7-XI-1972. 2894.

Chevalier (1935, p. 925): «Monte Verde, un seul pied observé par Bolle, aujourd'hui disparu.»

APOCYNACEAE

Catharanthus roseus (L.) G. Don, Gen. Syst. 4: 95 (1838).

Vinca rosea L., Sp. Pl.: 305 (1753).

SANTO ANTÃO: Ribeira do Paul, 200 m. 24-x-1972. 2646.

ASCLEPIADACEAE

Calotropis procera (Ait.) Ait., Hort. Kew., ed. 2, 2: 78 (1811).

Asclepias procera Ait., Hort. Kew., ed. 1, 1: 305 (1789).

S. VICENTE: sand dune area 1 km S of Praia da Galé. 6-XI-1972. 2886.

SAL: Lajedo dos Espargos. 17-x-1972, 2534. — Ribeira de Sene. 12-XI-1972. Seed collection, cult. Bot. Gard. Oslo, under akv. no. 73-1609.

Periploca chevalieri Browicz, Arbor. Kórnick. Roczn. 11: 38 (1966).

SANTO ANTÃO: Lombo das Pedras, W slope, 1300 m. 26-x-1972. 2726.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1350 m. 31-x-1972. 2764. — Chã das Caldeiras, W of the volcano, 1750 m. 1-XI-1972. Seed collection, cult. Bot. Gard. Oslo, under akv. no. 73-1610. — Chã das Caldeiras, northern part, 1600 m. 1-XI-1972. Seed collection, cult. Bot. Gard. Oslo, under akv. no. 73-1611.

Sarcostemma daltonii Dcne. ex Webb in Hooker, Niger Fl.: 149 (1849).

SANTO ANTÃO: vila da Ribeira Grande, cliffs towards the sea. 25-x-1972. (Not collected.)

S. VICENTE: Monte Verde, W slope, 450 m. 21-x-1972. 2619. — Monte Verde, NE wall, 250 m. 8-XI-1972. Living plant collection, cult. Bot. Gard. Oslo, under akv. no. 72-1861. — Madeiral, 200-250 m. 22-x-1972. 2630.

RUBIACEAE

Borreria verticillata (L.) G. F. W. Mey., Prim. Fl. Esseq.: 83 (1818).

Spermacoce verticillata L., Sp. Pl.: 102 (1753).

SANTIAGO: Praia, at the air port. 30-x-1972. 2759.

FOGO: 2 m NW of S. Filipe, 400 m. 31-x-1972. 2772.

CONVOLVULACEAE

Cuscuta approximata Bab., Ann. Mag. Nat. Hist. 13: 253 (1844).

Syn.? *C. notochlaenae* Chev., Rev. Bot. Appl. 15: 921 (1935).

FOGO: northern part of the caldera rim surrounding the Chã das Caldeiras, near Fernão Gomes, 1800 m; parasiting on *Euphorbia tuckeyana* Steud. 1-XI-1972. 2821.

New to the Cape Verde islands (common in, among others, North Africa, the Canary islands, and Madeira).

NOTE. — The only earlier *Cuscuta* collection from the Cape Verde islands appears to be the one of Chevalier, made in Fogo in 1934, which became the basis of his description of an endemic species, *C. notochlaenae* (Chevalier, *op. cit.*). Following the description, however, Chevalier writes that the type specimen had been lost («Nous avons perdu le spécimen typifiant cette espèce»). The Paris Herbarium (P) where Chevalier's Cape Verde islands collections are kept, has stated (letter of 16 February, 1973) that no specimen of *Cuscuta notochlaenae* could be traced in the herbarium. On the Chevalier specimen of *Notochlaena lanuginosa (Cheilanthes catanensis)* from the *Cuscuta* locality (Chev., no. 45 158) I have not been able to find any *Cuscuta*.

As Chevalier in his description of *C. notochlaenae* gives few of the important taxonomic characters of the genus, it is difficult to tell from the description alone where the relationship of that species actually lies. Probably the taxon will have to be placed, as a nomen dubium, in the *C. approximata* — *C. planiflora* group (Yuncker, 1932). In the present *Cuscuta* collection, however, the petals are not denticulate in the tips, contrary to what is told to be the case in *C. notochlaenae*.

Ipomoea cairica (L.) Sw., Hort. Brit., ed. 1: 287 (1827).

Convolvulus cairicus L., Syst. Nat., ed. 10: 922 (1759).

SANTO ANTÃO: Monte Joana, 600 m. 25-X-1972. 2711.

BORAGINACEAE

Echium hypertropicum Webb in Hooker, Niger Fl.: 155 (1849).

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2846. — Pico da Antónia, E slope, 920 m and 1000 m. 3-XI-1972. 2858 and 2859. — Lem Vieira, 750 m. 3-XI-1972. 2863.

Echium stenosiphon Webb in Hooker, Niger Fl.: 155 (1849), ssp. **stenosiphon**.

SANTO ANTÃO: Ribeira do Abebada. 25-X-1972. 2708.

S. VICENTE: Monte Verde, NW slope, 500 m and 580 m. 21-X-1972 and 7-XI-1972. 2587 and 2889. — Monte Verde, summit, 680 m. 21-X-1972. 2612. — Monte Verde, NE wall, 300 m. 8-XI-1972. 2913. — Madeiral, 200-250 m. 22-X-1972. 2624. — Tope Susana, NE slope, 380 m. 6-XI-1972. 2879.

Echium stenosiphon Webb, ssp. **lindbergii** (Petters.) Bramw., Lagascalia, 2: 97 (1972).

E. lindbergii Pettersson, Comm. Biol. Soc. Sc. Fenn. 22 (9): 36 (1960).

SANTO ANTÃO: Ribeira do Paul, 840 m. 24-X-1972. 2654. — Ribeira do Paul, NW of Cova, 950 m, 1050 m, and 1150 m. 24-X-1972. 2663, 2672, and 2691. — N of Lombo das Pedras, 1000 m. 26-X-1972. 2719. — Lombo Cebide Vila, S of Ribeira Grande, 920 m. 26-X-1972. 2730.

Echium vulcanorum Chev., Rev. Bot. Appl. **15**: 915 (1935).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1850 m. 31-X-1972. 2785.

Heliotropium bacciferum Forssk., Fl. Aegypt.-Arab.: 38 (1775).

S. VICENTE: Tope Susana, 200 m. 6-XI-1972. 2883. — Monte Verde, NE wall, 350 m. 8-XI-1972. 2914.

SAL: Ribeira de Madama. 18-X-1972. 2563. — Monte Grande, W slope, 100 m. 19-X-1972. 2571.

Heliotropium curassavicum L., Sp. Pl.: 130 (1753).

S. VICENTE: Praia da Galé. 6-XI-1972. 2871.

SAL: Praia de António de Sousa. — 18-X-1972. 2545.

Heliotropium erosum Lehm., Neue Schr. Naturf. Ges. Halle, 3 (2): 15 (1817).

SAL: Lajedo dos Espargos. 17-X-1972. 2529. — Near the salines of Santa Maria. 11-XI-1972. 2927 and 2928.

FOGO: N of Monte Contador, 1000 m. 31-X-1972. 2765.

Trichodesma africanum (L.) Lehm., Pl. Asperif.: 195 (1818).

Borago africana L., Sp. Pl.: 138 (1753).

S. VICENTE: Tope da Caixa, E slope, 350 m. 29-X-1972. 2745.
SANTIAGO: Caiada, W of S. Domingos, 500 m. 3-XI-1972. 2866.

VERBENACEAE

Lantana camara L., Sp. Pl.: 627 (1753).

S. VICENTE: Monte Verde, 600 m. 21-X-1972. Seed collection, cult. Bot. Gard. Oslo, under akv. no. 73-1612.
SANTIAGO: Ribeira do Covado, 600 m. 3-XI-1972. 2832.

Verbena officinalis L., Sp. Pl.: 20 (1753).

SANTIAGO: Ribeira do Covado, 740 m. 3-XI-1972. 2849.

LABIATAE

Ajuga iva (L.) Schreb., Pl. Vertic. Unilab. Gen. Sp.: 25 (1774).

Teucrium iva L., Sp. Pl.: 563 (1753).

var. **pseudiva** (Rob. & Cast.) Benth. in DC., Prodr. **12**: 600 (1848).

A. pseudiva Rob. & Cast. in DC., Fl. Fr. **5**: 395 (1805).

SANTO ANTÃO: Lombo das Pedras, W slope, 1200 m. 26-X-1972. 2725.
S. VICENTE: Madeiral, 200-250 m. 22-X-1972. 2626.

Hyptis pectinata (L.) Poit., Ann. Mus. Paris, **7**: 474 (1806).

Nepeta pectinata L., Syst. Nat., ed. 10: 1096 (1759).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 700 m. 26-X-1972. 2741.
SANTIAGO: Ribeira do Pico da Antónia, 500 m. 3-XI-1972. 2825.

New to the Cape Verde islands. American species, widespread as a weed in tropical Africa.

Lavandula dentata L., Sp. Pl.: 800 (1753), var. **candicans** Batt. in Batt. & Trabut, Fl. Alg.: 666 (1890).

SANTO ANTÃO: Cova, 1150 m. 24-X-1972. 2686.

Lavandula rotundifolia Benth., Lab. Gen. Sp.: 150 (1833).

SANTO ANTÃO: Cova, 1200 m. 24-X-1972. 2687. — Lombo das Pedras, 1400 m. 26-X-1972. 2729.
S. VICENTE: Monte Verde, W slope, 450 m. 21-X-1972. 2586. — Monte Verde, NE wall, 380 m. 8-XI-1972. 2912. — Tope da Caixa, E slope, 500 m. 29-X-1972. 2753.
FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1700 m. 31-X-1972. 2782. — Chã das Caldeiras, W of the volcano, 1740 m. 1-XI-1972. 2801.

Lavandula stricta Del., Fl. Egypte: 238 (1813).

L. coronopifolia Poir.

S. VICENTE: Tope da Caixa, E slope, 350 m. 29-X-1972. 2755. — Tope Susana, NE slope, 300 m. 6-XI-1972. 2880. — Monte Vigia, N of Mindelo, summit, 300 m. 9-XI-1972. 2918.
SAL: Monte Grande, W slope, 130 m. 19-X-1972. 2566.

Lavandula stricta Del., var. **subtropica** (Gand.) Chaytor, Journ. Linn. Soc. Bot. **51**: 191 (1937).

L. subtropica Gand., Bull. Soc. Bot. Fr. **65**: 66 (1918).

S. VICENTE: Madeiral, 200-250 m. 22-X-1972. 2628.

Mentha × piperita L., Sp. Pl.: 576 (1753).

S. VICENTE: Monte Verde, NW slope, 540 m. 7-XI-1972. 2893.

Micromeria forbesii Benth., Lab. Gen. Sp.: 376 (1834).

SANTIAGO: Pico da Antónia, E slope, 850 m. 3-XI-1972. 2855.
FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1500 m. and 1800 m. 31-X-1972. 2780 and 2784. — Chã das Caldeiras, SW and W of the volcano, several collections in the altitude 1600-1700 m. 1-XI-1972. 2794, 2795, 2798, 2799, and 2803.

Micromeria forbesii Benth., var. **altitudinum** Bolle, Bonplandia, 8: 282 (1860).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1200 m. 24-x-1972. 2690.

Salvia aegyptiaca L., Sp. Pl.: 23 (1753).

SAL: Ribeira de Madama. 18-x-1972. 2561. — Baía de Joaquim Petinha. 11-xi-1972. 2940.

Salvia coccinea L., Mant. Pl.: 88 (1767).

SANTO ANTÃO: Ribeira do Paul, 200 m. 24-x-1972. 2648.

SOLANACEAE

Nicotiana glauca Grah., Bot. Mag. **55**: t. 2837 (1828).

S. VICENTE: sand dune area 1 km S of Praia da Galé. 6-xi-1972. 2875.

Physalis pubescens L., Sp. Pl.: 262 (1753).

P. peruviana L.

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1000 m. 24-x-1972. 2674.

SCROPHULARIACEAE

Campylanthus benthami Webb in Hooker, Niger Fl.: 163 (1849).

SANTIAGO: Pico da Antónia, E slope, 1050 m. 3-xi-1972. 2857.

Campylanthus glaber Benth. in DC., Prodr. **10**: 508 (1846).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 920 m. 26-x-1972. 2737.

S. VICENTE: Madeiral, 200-250 m. 22-x-1972. 2625. — Tope da Caixa, E slope, 500 m. 29-x-1972. 2752. — Tope Susana, NE slope, 350 m. 6-xi-1972. 2881. — Monte Vigia, N of Mindelo, summit, 300 m. 9-xi-1972. 2919.

Campylanthus spathulatus Chev., Rev. Bot. Appl. **15**: 897 (1935).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2702.

Kickxia brunneri (Benth.) Janchen, österr. Bot. Zeitschr. **82**: 152 (1933).

Linaria brunneri Benth. in DC., Prodr. **10**: 270 (1846).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2701.

S. VICENTE: Madeiral, 200-250 m. 22-x-1972. 2629. — Tope da Caixa, E slope, 500 m. 29-x-1972. 2750.

SAL: Monte Rocha de Salina, 275 m. 17-x-1972. 2543. — Monte Grande, W slope, 250 m. 19-x-1972. 2567.

NOTE. — Following the traditional delimitation between *Linaria* s. str. and *Kickxia* on the basis of fruit and inflorescense characters (e.g. Wettstein, 1895; Webb, 1972), the Cape Verde islands' *Linaria* species sensu Chevalier (1935) must be moved to *Kickxia* (with the exception of *L. cymbalaria* = *Cymbalaria muralis*).

Kickxia brunneri (Benth.) Janchen, var. **glaberrima** (Schmidt) Sunding, comb. nov.

Linaria brunneri Benth., var. *glaberrima* Schmidt, Beitr. Fl. Cap Verd. Ins.: 242 (1852).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 800 m and 920 m. 26-x-1972. 2740 and 2732.

Kickxia dichondraefolia (Benth.) Sunding, comb. nov.

Linaria dichondraefolia Benth. in DC., Prodr. **10**: 270 (1846).

SANTO ANTÃO: Ribeira do Paul, 380 m. 24-x-1972. 2659. — Ribeira do Paul, NW of Cova, 1050 m. 24-x-1972. 2668. — Lombo Cebide Vila, S of Ribeira Grande, 920 m. 26-x-1972. 2735.

S. VICENTE: Monte Verde, summit, 690 m. 21-x-1972. 2603.

SANTIAGO: Ribeira do Covado, 600 m. 3-xi-1972. 2829.

Kickxia webbiana (Schmidt) Sunding, comb. nov.

Linaria webbiana Schmidt, Beitr. Fl. Cap Verd. Ins.: 240 (1852).

Verbascum capitis-viridis Huber-Morath, Bauhinia, **5**: 11 (1973).

Verbascum caboverdeanum Sunding, Check-list Vasc. Pl. Cape Verde Isl.: 26 (1937), nom. provis. non val.
Celsia insularis Murbeck, non *Verbascum insulare* Boiss. et Heldr.

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1000 m. 24-x-1972. 2683.

FOGO: Chã das Caldeiras, W of the volcano, 1650 m. 1-XI-1972. 2791.

NOTE. — The two genera *Celsia* and *Verbascum* are nowadays usually united, under the latter name (e.g. Ferguson, 1972). Because of the existence of the name *Verbascum insulare* Boiss. & Heldr. from Asia Minor, this epithet could not be used for the Cape Verde endemic described by Murbeck, and a new name had to be made.

Veronica anagallis-aquatica L., Sp. Pl.: 12 (1753).

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2834.

GLOBULARIACEAE

Globularia amygdalifolia Webb in Hooker, Niger Fl.: 133 (1849).

Lytanthus amygdalifolius (Webb) Wettst.

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 900 m. 24-x-1972. 2679. — Cima do Monte Joana, 950 m. 25-x-1972. 2715.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1500 m. 31-x-1972. 2790. — Chã das Caldeiras, northern part, 1600 m. 1-XI-1972. 2813.

PLANTAGINACEAE

Plantago lagopus L., Sp. Pl.: 114 (1753).

S. VICENTE: Monte Verde, summit, 650 m. 21-x-1972. 2599.

New to the Cape Verde islands.

CAMPANULACEAE

Campanula jacobaea Chr. Sm. in Tuckey, Voy. Congo: 251 (1818).

SANTO ANTÃO: Ribeira do Paul, 380 m. 24-x-1972. 2634. — Cima do Monte Joana, 950 m. 25-x-1972. 2714.

S. VICENTE: Monte Verde, summit, 690 m. 21-x-1972. 2594.

COMPOSITAE

Acanthospermum hispidum DC., Prodr. **5**: 522 (1836).

SANTO ANTÃO: Ribeira do Paul, 600 m. 24-x-1972. 2656.

Ageratum conyzoides L., Sp. Pl.: 839 (1753).

S. VICENTE: Monte Verde, summit, 690 m. 21-x-1972. 2607.

Artemisia gorgonum Webb in Hooker, Niger Fl.: 142 (1849).

SANTO ANTÃO: Cova, 1200 m. 24-x-1972. 2684. — Lombo das Pedras, W slope, 1300 m, and near the summit, 1400 m. 26-x-1972. 2728 and 2724.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1400 m and 1700 m. 31-x-1972. 2778 and 2776. — Northern part of the ring mountains around the Chã das Caldeiras, near Fernão Gomes, 1950 m. 1-XI-1972. 2822.

Asteriscus daltoni (Webb) Walp., Ann. Bot. Syst. **2**: 844 (1852).

Odontospermum daltoni Webb in Hooker, Niger Fl.: 140 (1849).

SANTO ANTÃO: coast betw. Ribeira Grande and Ribeira do Barbasco. 25-x-1972. 2700. — Ribeira do Barbasco. 25-x-1972. 2706. — Lombo das Pedras, W slope, 1290 m. 26-x-1972. 2727.

S. VICENTE: Monte Verde, NW slope, 500 m. 21-x-1972. 2584. — Monte Verde, NE wall, 200 m. 8-XI-1972. 2906.

SANTIAGO: Ribeira do Covado, 740 m. 3-XI-1972. 2847. — Pico da Antónia, 960 m. 3-XI-1972. 2860.

Asteriscus vogelii (Webb) Walp., Ann. Bot. Syst. **2**: 845 (1852).

Odontospermum vogelii Webb in Hooker, Niger Fl.: 140 (1849).

S. VICENTE: Tope da Caixa, E slope, 400 m, and near the summit, 520 m. 29-x-1972. 2746 and 2751. — Tope Susana, NE slope, 370 m. 6-XI-1972. 2878. — Monte Verde, Pte. Ladeira, 460 m. 7-XI-1972. 2899.

Bidens bipinnata L., Sp. Pl.: 832 (1753).

SANTO ANTÃO: Ribeira do Paul, 600 m. 24-x-1972. 2657.

FOGO: N of Monte Contador, 900 m. 31-x-1972. 2773.

Conyza bonariensis (L.) Cronq., Bull. Torr. Bot. Club, **70**: 632 (1943).

Erigeron bonariensis L., Sp. Pl.: 863 (1753).

SANTO ANTÃO: N of Lombo das Pedras, 1050 m. 26-x-1972. 2722.

S. VICENTE: Monte Verde, summit, 600 m. 21-x-1972. 2596.

Conyza feae (Béguin.) Wild, Bol. Soc. Brot., sér. 2, **43**: 256 (1969).

Nidorella feae Béguin., Ann. Mus. Nat. Hist. Genova, ser. 3, **8**: 50 (1917).

See Wild (1969) for taxonomy and synonymy of this and the following species.

SANTO ANTÃO: Cova, 1150 m. 24-x-1972. 2685. — Torre do Pinhão, 900 m. 25-x-1972. 2713. — N of Lombo das Pedras, 1000 m. 26-x-1972. 2718.

SANTIAGO: Pico da Antónia, E slope, 850 m. 3-XI-1972. 2854.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1850 m. 31-x-1972. 2786.

Conyza varia (Webb) Wild, Bol. Soc. Brot., sér. 2, **43**: 255 (1969).

Erigeron varium Webb in Hooker, Niger Fl.: 134 (1849).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 950 m and 1000 m. 24-x-1972. 2664 and 2682. — Cova, 1150 m. 24-x-1972. 2694. — N of Lombo das Pedras, 1050 m. 26-x-1972. 2721.

S. VICENTE: Monte Verde, summit, 690 m. 21-x-1972. 2618.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1500 m and 1900 m. 31-x-1972. 2777 and 2788.

Gnaphalium luteo-album L., Sp. Pl.: 851 (1753).

S. VICENTE: Monte Verde, N slope, 600 m. 21-x-1972. 2589.

Launaea intybacea (Jacq.) Beauv., Bull. Soc. Bot. Genève, sér. 2, **2**: 114 (1910).

Lactuca intybacea Jacq., Icon. Pl. Rar. **1**: 16 (1784).

Launaea goreënsis (Lam.) Hoffm.

S. VICENTE: Monte Verde, NE wall, 200 m. 8-XI-1972. 2910.

Launaea nudicaulis (L.) Hook. fil., Fl. Brit. Ind. **3**: 416 (1881).

Chondrilla nudicaulis L., Mant. Pl. Alt.: 278 (1771).

SAL: 3 km N of Santa Maria. 11-XI-1972. 2929. — Baía de Joaquim Petinha. 11-XI-1972. 2936.

Launaea picridioides (Webb) Robins., Proc. Amer. Acad. **49**: 517 (1913).

Rhabdotheca picridioides Webb in Hooker, Niger Fl.: 146 (1849).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 900 m. 26-x-1972. 2736.

S. VICENTE: Monte Verde, W slope, 450 m. 21-x-1972. 2583. — Tope da Caixa, E slope, 350 m. 29-x-1972. 2744.

Phagnalon melanoleucum Webb in Hooker, Niger Fl.: 135 (1849).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 900 m. 24-x-1972. 2662. — Cova, 1150 m. 24-x-1972. 2693.

FOGO: northern part of the ring mountains around the Chã das Caldeiras, near Fernão Gomes, 1700 m. 1-XI-1972. 2818.

Phagnalon melanoleucum Webb, var. **luridum** (Webb) Chev., Rev. Bot. Appl. **15**: 877 (1935).

P. luridum Webb in Hooker, Niger Fl.: 136 (1849).

SANTO ANTÃO: Cova, 1150 m. 24-x-1972. 2692. S. VICENTE: Monte Verde, summit, 690 m. 21-x-1972. 2600.

Pluchea ovalis (Pers.) DC., Prodr. **5**: 450 (1836).

Baccharis ovalis Pers., Syn. Pl. **2**: 424 (1807).

S. VICENTE: Monte Verde, NE wall, 200 m. 8-XI-1972. 2907.

Pulicaria diffusa (Shuttlew.) B. Petters., Comm. Biol. Soc. Scient. Fenn. **22** (9): 58 (1960).

Francoeuria diffusa Shuttlew. in Brunner, Flora 23, Beibl. **1**: 72 (1840).

SAL: Lajedo dos Espargos. 17-x-1972. 2527. — Praia de António de Sousa. 18-x-1972. 2546. — Terra Boa. 19-x-1972. 2575. — Monte Grande, E slope, 200 m. 19-x-1972. 2582. — Ribeira de Fontona, near the sea. 11-XI-1972. 2933.

Sonchus daltoni Webb in Hooker, Niger Fl.: 144 (1849).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 1150 m. 26-x-1972, 2739.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1800 m. 31-x-1972. 2781. — Monte Velha, 1550 m. 1-XI-1972. 2814. — Northern part of the ring mountains around the Chã das Caldeiras, near Fernão Gomes, 1750 m. 1-XI-1972. 2817.

Sonchus oleraceus L., Sp. Pl.: 794 (1753).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 1050 m. 24-x-1972. 2678.

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972, 2838.

Tagetes patula L., Sp. Pl.: 887 (1753).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1200 m. 31-x-1972. 2771.

Tolpis glandulifera Bolle, Bonplandia, **7**: 298 (1859).

SANTO ANTÃO: Ribeira do Paul, NW of Cova, 950 m. 24-x-1972. 2680.

FOGO: northern part of the ring mountains around the Chã das Caldeiras, near Fernão Gomes, 1750 m. 1-XI-1972. 2823.

Tolpis sp.

FOGO: northern part of the ring mountains around the Chã das Caldeiras, near Fernão Gomes, 1750 m. 1-XI-1972. 2819.

In some respects this plant resembles typical *T. glandulifera*, with which it grew together, for instance by having the black glands in the leaf margins. The leaf shape, however, was entirely different from that of *T. glandulifera*, as the leaves were deeply pinnatifid, with linear-lanceolate pinnae. Due to the extreme drought, the specimen was in a bad state of preservation and further material is needed before a safe conclusion may be arrived at on its identity.

Zinnia pauciflora L., Sp. Pl., ed. 2, **2**: 1269 (1763).

SANTIAGO: Ribeira do Covado, 800 m. 3-XI-1972. 2853.

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1100 m. 31-x-1972. 2768.

MONOCOTYLEDONEAE

LILIACEAE

Asparagus squarrosus Schmidt, Beitr. Fl. Cap Verd. Ins.: 165 (1852).

S. VICENTE: Monte Verde, N slope, 550 m. 21-x-1972. 2590.

AGAVACEAE

Dracaena draco (L.) L., Syst. Nat., ed. 12: 246 (1767).

Asparagus draco L., Sp. Pl., ed. 2, **1**: 451 (1762).

SANTO ANTÃO: Torre do Pinhão, 820 m; growing spontaneously in cliffs. 25-x-1972. 2712. — Ribeira do Paul, NW of Cova, 1200 m; in vertical cliffs. 24-x-1972. (Not collected.)

JUNCACEAE

Juncus acutus L., Sp. Pl.: 325 (1753).

S. VICENTE: Monte Verde, NW slope, 560 m. 7-XI-1972. 2890.

COMMELINACEAE

Commelina forskaolaei («forskålaei») Vahl, Enum. Pl. 2: 172 (1805).

SANTO ANTÃO: Ribeira do Paul, 200 m. 24-X-1972. 2649.

GRAMINEAE

Aristida adscensionis L., Sp. Pl.: 82 (1753).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1100 m. 31-X-1972. 2775.

Bothriochloa intermedia (R. Br.) A. Camus, Ann. Soc. Linn. Lyon, **76**: 164 (1931).

Andropogon intermedius R. Br., Prodr. Fl. Nov. Holl.: 202 (1810).

SANTO ANTÃO: Monte Joana, 700 m. 25-X-1972. 2717.

Cynodon dactylon (L.) Pers., Syn. Pl. **1**: 185 (1805).

Panicum dactylon L., Sp. Pl.: 58 (1753).

S. VICENTE: Monte Verde, NE wall, 200 m. 8-XI-1972. 2909.
SAL: Ribeira de Madama. 18-X-1972. 2564.

Digitaria horizontalis Willd., Enum. Hort. Berol.: 92 (1809).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1100 m. 31-X-1972. 2766.

Eragrostis barrelieri Daveau, Journ. Bot. **8**: 289 (1894).

FOGO: W slope of the island, betw. Monte Contador and the caldera rim, 1100 m. 31-X-1972. 2770.

Eremopogon foveolatus (Del.) Stapf in Oliver *et al.*, Fl. Trop. Afr. **9**: 183 (1917).

Andropogon foveolatus Del., Fl. Egypte: 16 (1812).

SAL: betw. Montanha do Curral and Monte Rocha de Salina. 17-X-1972. 2542.

Heteropogon contortus (L.) Beauv. ex Roem. & Schult., Syst. Veg. **2**: 836 (1817).

Andropogon contortus L., Sp. Pl.: 1045 (1753).

SANTO ANTÃO: Lombo Cebide Vila, S of Ribeira Grande, 800 m. 26-X-1972. 2783.
S. VICENTE: Monte Verde, N slope, 600 m. 21-X-1972. 2588.

Hyparrhenia hirta (L.) Stapf in Oliver *et al.*, Fl. Trop. Afr. **9**: 315 (1917).

Andropogon hirtus L., Sp. Pl.: 1046 (1753).

FOGO: Chã das Caldeiras, W of the volcano, 1700 m. 1-XI-1972. 2804.

Oplismenus burmannii (Retz.) Beauv., Ess. Agrost. **54**: 168 (1812).

Panicum burmannii Retz., Obs. Bot. **3**: 10 (1783).

S. VICENTE: Monte Verde, summit, 700 m. 21-X-1972. 2615.
SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2840.

Panicum lindleyanum Nees ex Steud., Syn. Pl. Glum. **1**: 91 (1854).

P. hystrix Steud.

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2841.

Paspalum orbiculare Forst., Fl. Ins. Austr. Prodr.: 7 (1786).

P. scrobiculatum L.

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2842.

Pennisetum polystachyon (L.) Schult., Syst. Veg. Mant. **2**: 146 (1824).

Panicum polystachyon L., Syst. Nat., ed. 10, **2**: 870 (1759).

FOGO: northern part of the ring mountains around the Chã das Caldeiras, near Fernão Gomes, 1600 m. 1-XI-1972. 2815.

Polypogon semiverticillatus (Forssk.) Hyl., Upps. Univ. Årsskr. **1945**, No. 7: 74 (1945).

Phalaris semiverticillata Forssk., Fl. Aegypt.-Arab.: 17 (1775).
Agrostis verticillata Vill.

S. VICENTE: Monte Verde, NW slope, 560 m. 7-XI-1972. 2897.

Rhynchelytrum villosum (Parl.) Chiov., Ann. Ist. Bot. Roma, 8: 310 (1908).

Monachyron villosum Parl. in Hooker, Niger Fl.: 191 (1849).

SANTO ANTÃO: Ribeira do Paul, 200 m. 24-X-1972. 2647.

Sorghum halepense (L.) Pers., Syn. Pl. 1: 101 (1805).

Holcus halepensis L., Sp. Pl.: 1047 (1753).

SANTIAGO: Caiada, W of S. Domingos, 500 m. 3-XI-1972. 2868.

Sporobolus robustus Kunth, Rev. Gram. 2: 425 (1832).

S. VICENTE: Monte Verde, NE wall, 200 m. 8-XI-1972. 2911.
SAL: Ribeira de Madama. 18-X-1972. 2565. — Ponta do Linguincho. 19-X-1972. 2568.

Sporobolus spicatus (Vahl) Kunth, Rev. Gram. 1: 67 (1829).

Agrostis spicata Vahl, Symb. Bot. 1: 9 (1790).

S. VICENTE: Praia da Galé. 6-XI-1972. 2873.

Tricholaena teneriffae (L. fil.) Link, Handb. Erk. Gew. 1: (1829).

Saccharum teneriffae L. fil., Suppl. Pl.: 106 (1781).

SANTO ANTÃO: Lombo de Figueira, 1200 m. 23-X-1972. 2633.
SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2839.
FOGO: Chã das Caldeiras, W of the volcano, 1650 m. 1-XI-1972. 2792.

CYPERACEAE

Cyperus laevigatus L., Mant. Pl. Alt.: 179 (1771).

S. VICENTE: Monte Verde, NE wall, 300 m. 8-XI-1972. 2915.

Cyperus longus L., Sp. Pl.: 45 (1753).

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2843.

New to the Cape Verde islands.

Fimbristylis ferruginea (L.) Vahl, Enum. Pl. 2: 291 (1805).

Scirpus ferrugineus L., Sp. Pl., ed. 2, 1: 291 (1805).

SANTIAGO: Ribeira do Covado, 730 m. 3-XI-1972. 2844.

*

From the list of species given above, it appears that 217 taxa of vascular plants were identified in the herbarium collections brought home by the author. Of those, 8 were new to the archipelago of the Cape Verde islands, viz.:

Apium graveolens (S. Vicente)
Beta patellaris (Santo Antão)
Boussingaultia cordifolia (Santo Antão)
Cuscuta approximata (Fogo)
Cyperus longus (Santiago)
Hyptis pectinata (Santo Antão and Santiago)
Oenothera rosea (Santo Antão)
Plantago lagopus (S. Vicente)

New records for the single islands were made of the following taxa:

SANTO ANTÃO:

Amaranthus graecizans
Beta patellaris
Boussingaultia cordifolia
Euphorbia heterophylla
Hyptis pectinata
Oenothera rosea
Parietaria debilis
Phagnalon melanoleucum var. *luridum*
Salvia coccinea

S. VICENTE:

Apium graveolens
Asparagus squarrosus (see Schmidt, 1852, p. 166)
Equisetum ramosissimum
Foeniculum vulgare var. *piperitum*
Heliotropium curassavicum
Leucaena glauca
Mentha × *piperita*
Plantago lagopus
Sesuvium portulacastrum
Ziziphus mauritianus

SAL:

Alternanthera peploides
Andrachne telephioides
Boerhavia diffusa
Fagonia latifolia
Melhania ovata

SANTIAGO:

Campylanthus benthami
Cyperus longus
Hyptis pectinata
Lobularia intermedia ssp. *spathulata*
Oplismenus burmannii
Panicum lindleyanum
Silene gallica

FOGO:

Achyranthes aspera var. *sicula*
Bidens bipinnata
Cuscuta approximata
Digitaria horizontalis
Forsskaolea procridifolia
Heliotropium erosum
Pteridium aquilinum ssp. *capense*
Trianthema pentandra

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INDEX TO GENERA AND FAMILIES

Euphorbiae succulentae Angolenses: IV

L. C. LEACH

National Herbarium, Salisbury, Rhodesia

(Received the 1-VIII-1973)

Estabelecem-se a validade do nome e a identidade de *Euphorbia candelabrum* Welw., tombando na sua sinonímia *E. conspicua* N. E. Br.; discute-se o âmbito e apresenta-se uma descrição ampliada desta espécie. Descrevem-se três novas espécies arbóreas da mesma afinidade e apresenta-se um mapa da distribuição destas três, da primeira referida e de *E. eduardoi* Leach, e uma chave para a identificação das cinco espécies em referência. Tecem-se considerações sobre o provável pano de fundo evolutivo os prováveis antecedentes evolutivos deste grupo de espécies. Discute-se também a identidade de *E. hermentiana* Lem. e de *E. negromontana* N. E. Br. Descrevem-se ainda quatro outros novos taxa.

The validity of the name and the identity of *Euphorbia candelabrum* Welw. are established and *E. conspicua* N. E. Br. reduced to synonymy; the circumscription of the species is discussed and an amplified description drawn up. Three new associated tree species are described and a map showing the known distributions of the foregoing and including also that of *E. eduardoi* Leach, is provided, together with a key to the identification of the five species involved. Some aspects of the possible evolutionary background of the group are also considered. The identities of *E. hermentiana* Lem. and *E. negromontana* N. E. Br. are also discussed and four other new taxa described.

In the course of revisionary work on the succulent euphorbias of Angola it was necessary to investigate the nomenclature of *Euphorbia candelabrum* Welw. (=*E. conspicua* N. E. Br.). It is clear from the ensuing investigation that Welwitsch's name was validly published in *Annaes do Conselho Ultramarino, Parte não Oficial,* sér. I (caderno 36, Maio 1856): 251, and in *Boletim e Annaes do Conselho Ultramarino,* No. 24 (caderno 36, Maio 1856): 251, as accepted by Hiern (*Cat. Afr. Pl.* Welw. 1, 4: 946, 1900).

The name *E. candelabrum* Welw. was *effectively* published in terms of art. 29 of the *International Code of Botanical Nomenclature* (1972); it seems therefore that it is only in relation to Art. 34 that its validity migth be questioned. However, on examination of the provisions of this Article in relation to *E. candelabrum* Welw. it is apparent that all the requirements for valid publication have been met. That Welwitsch accepted the name and its application is evident from both the original description and the protologue.

The epithet was first used in a letter (originally written in German) addressed to Richard Kippist Esq., Libr. L. S., a translation of which was read at a meeting of the Linnean Society on June 6, 1854, and subsequently published in vol. 2 of *The Proceedings* in the following year.

The relevant extracts are as follows:

> St. Paul de Loanda,
> Trop. W. Africa, 8° 48′ S,
> March 2, 1854.
>
> I have already become acquainted with and plundered upwards of 40 miles of

coast, from the Guizembo Riv. (3 miles N of Ambriz) to near the mouth of the mighty Cuanza (± 9° 30′ S) and possess the materials for a Flora of Loanda, of 5-6 miles in circumference (German mile = 4.5 English miles) in well preserved specimens [...] what especially surprises me here, with respect to the geographical distribution of certain genera, is the occurrence of 3 or 4 *Aloes,* of a *Stapelia (Heurnia),* and several other Cape genera. Of *Euphorbia* I have already found near Loanda a gigantic species, with a stem 2.5 ft. in diam. and upwards of 30 ft. high, forming woods as *Pinus sylvestris* does with us! This species, which is readily discernible even from ship-board, is not noticed in Flora nigritiana [...] In the woods of Euphorbia (Candelabra n. sp.) is found a wonderfully beautiful terrestrial *Orchidea* [...]

This could probably be regarded as a valid publication but as priority is not affected it is considered advisable not to treat it as such, in view of the possible complication arising from the circumstances of its translation. It does indicate, however, that Welwitsch had no doubts whatever about his «n. sp.» which was «not mentioned» in *Fl. Nigrit.*

«Candelabra» is almost certainly an orthographic error arising in the course of translation and publication, since Welwitsch himself wrote «candelabrum» twice in his list of plants and again on the label attached to his specimen 641 (LISU).

The entry in *Ann. Cons. Ultram., Parte não Oficial,* sér. I (1856), is as follows (p. 251):

No. 5 — *Euphorbia spec.* (Euphorbia candelabrum Welw mspt) [...] Arvore de 30 até 45 pés de altura em fórma de candelabro; faz matas densas em sitios pedregosos e seccos; é a arvore mais caracteristica da Flora Africano-equinocial, e estando com flores, que são rôxas e em innumeravel quantidade, faz lindissimo effeito.

This description is incidentally diagnostic, as Welwitsch's descriptions usually were, inasmuch as no other species of this size or habit occurs in the Luanda District.

The entry under No. 18 of the same list is also noteworthy (p. 252):

No. 18 — *Orchidea terrestre* (Limodorum spec. sensu Linneano) Tuberculos [...] Vegeta dentro das matas da Euphorbia candelabrum, no sitio de *Cacuaco,* em terras argilosas, e dá lindas espigas de flores grandes amarellas.

This is evidently the beautiful terrestrial *Orchidea* found in the woods of *Euphorbia* (*Candelabra* n. sp.) of his letter to R. Kippist Esq., while Cacuaco, just to the north of Luanda, is a locality cited by Hiern, *l.c.*

It also appears to be significant that *E. candelabrum* is now cited without either authorship or «mspt.» indicating, one may assume, that Welwitsch now considered his new species to be satisfactorily established. That it is intended as a name and not as a description of the habit of the plants concerned is evident from the lack of an article and the use of a noun in apposition; had Welwitsch intended merely to describe the habit of these euphorbias he would doubtless have used an adjectival form as in the description of his No. 5 *E. candelabrum* Welw.

In final confirmation of Welwitsch's acceptance of and application of the name to the tall euphorbias in the vicinity of Luanda is the label in his handwriting, which is attached (bottom, left) to his specimen No. 641 in the herbarium of Lisbon University (LISU) (that in the British Museum is a copy made by a Mr. Geodcholvien, acting on the instructions of Mr. Hiern when the Welwitsch collections were being divided in accordance with the decision of the Chancery Court). This reads (PL. I):

No. 641 Distr. Loanda
Euphorbia
Euphorb. candelabrum Welw. [?] [?] [?] Cons. do Ultr.

Arbor 15-50 pedalis, trunco recto 1-2 $^1/_3$ ped. crass. cortice rinoso ramis subverticillatis, ascendenti-arcuatis ramulis verticillatis. Truncus et rami 3-8 goni, ramuli plerumque 3 goni. Flores rubri creberrimi, et uti tota planta, *lacte* abundantissime.

Habit. freq. modo solitaria, nunc sylv- formans ubique in collinis siccis et imo demissis maritimis agri Loandensis. c. fl. Julio et Aug. 1858 leg. W.

and I am most grateful to Dr. E. J. Mendes for his interpretation and translation of the indistinct letters following «Welw.», which are taken as reading «i. t. ad. Cons. do Ultr.» and as being an abbreviation of «in tabul. adit. Conselho do Ultramar», i.e. «in the list addressed to Conselho do Ultramar». Although advanced slightly tentatively by Dr. Mendes I have little doubt that this is the correct interpretation, so we now have an excellent specimen (with duplicates) annotated by the author and with the place of original publication indicated. It also seems significant that the name is again no longer cited as «mspt.».

From the foregoing it seems that there is no doubt whatever regarding either the validity or application of the name *Euphorbia candelabrum* Welw., which is accordingly reinstated herein, with lectotype: *Welwitsch* 641 (LISU).

In supporting *E. candelabrum* of Welwitsch, Hiern specifically gave it priority over that of «Trémaux ex Kotschy»; N. E. Brown in *Flora of Tropical Africa,* 6, 1: 600 (1912), reversed this and included *E. candelabrum* Welw. without comment (not as name only as in the synonymy of *E. hypericifolia, E. propinqua, E. petitiana,* etc., *tom. cit.*), as a straightforward synonym under his *E. conspicua,* at the same time accepting *E. candelabrum* Trém. ex Kotschy as a legitimate name. From this it appears that N. E. Brown correctly accepted *E. candelabrum* Welw. as validly published (he cannot logically have done otherwise in view of his unqualified acceptance of *E. rhipsaloides* which was published with a brief description in the same Caderno), but must, it seems, have accorded priority to *E. candelabrum* Trém. ex Kotschy. I cannot, in view of the circumstances outlined above, envisage any other grounds on which N. E. Brown would have felt justified in reversing Hiern's decision.

As Kotschy's «candelabrum» was not published until 1857, one can only assume that N. E. Brown considered Kotschy's «Trémaux ex» to give it a starting date earlier than that of Welwitsch's, misled possibly by Kotschy and Boissier who both attributed «candelabrum» to Trémaux. However, since Trémaux appears never to have used the word, even in an adjectival form, the epithet must be attributed solely to Kotschy.

The assumption that N. E. Brown did consider *E. candelabrum* of Kotschy to predate that of Welwitsch appears to receive support from his note under *E. candelabrum* Trém. ex Kotschy, *tom. cit.* (598):

> Those referred to this species by Hiern [...] cannot belong.

In fact Hiern did not refer anything to Kotschy's species but did say that this latter was probably not the same as Welwitsch's, at the same time, correctly in my opinion, according, Welwitsch's name priority.

It has been suggested, in the course of lengthy correspondence related to the validity of this and other Welwitsch names, that the use of parentheses implies doubt in Welwitsch's mind regarding the application of the name in question. Just why the use of brackets should be so interpreted seems incomprehensible and there appears to be no justification in the text for such an assumption. In fact the words within the brackets seem to be confirmatory of the application of a name rather than implying doubt and are often a definite statement of fact, not in any way suggestive of doubtfulness. They merely give further information about the plants or cuttings concerned, e.g. «No. 10 — *Tavaresia angolensis* Welw. (Heurnia tavaresii nobis. Flor. ang. mspt)» — here both names are unequivocally applied to the same specimen; the former as the finally accepted (and published) name and the other as a synonym of discarded manuscript name. It seems here that the whole object of his mentioning the two names was to avoid any possibility of confusion regarding the identity of the plant in question and to indicate that only one taxon was involved; certainly there does not seem to be the slightest expression of doubt. So it was throughout his list, in which it seems almost certain that the names (or words) in italics next to the number were those which appeared on the label attached to the plants, cuttings, etc. (e.g. «No. 5 — *Euphorbia spec.*») and that the rest of the wording served merely to identify the plant as far as possible — sometimes, as in No. 5, with his own manuscript name — thus affirming his acceptance of the epithet «candelabrum» and its application rather than casting any doubts upon it.

When doubtful Welwitsch appears to be in no way short of words nor hesitant to express various degrees of doubt by utilizing such terms as «ad interim», «Parece-me», «Julgo», «Talvez», etc. There also appears to be a slight difference between «Welw.» and «nobis», the

latter being used apparently when there is some suspicion that the epithet concerned, although at the time accepted by Welwitsch, may eventually prove to be inapplicable for some reason.

It has also been suggested that Welwitsch was unaware that his lists, etc. (including the *Apontamentos*), would be published; however, surely he would have known by 1856 that his letter and list of 1854 had appeared in print, and appears to accept that his *Tavaresia angolensis* had been so published when citing this in his 1856 list.

It also seems certain that he was aware of the position when submitting his *Apontamentos* to the Minister for Oversea and Navy Affairs, as in his covering letter dated 22-VIII-1858 he requested that his manuscript should be printed or at least carefully filed (A. Pires de Lima, *Correspondência Oficial de Welwitsch,* Lisbon, 1949); and again in a letter addressed to Sir W. J. Hooker, dated 4 April de 1859: «The abstract of my investigations [...] will shortly be printed at Lisbon [...] and as soon as the brochure (the *Apontamentos*) is printed I shall have the honour of offering you a copy» (Hiern, in *Journ. of Botany,* 33: 140, 1895).

However, even if the suggestions regarding Welwitsch's ignorance of the facts were correct, the names published in the *Annaes* and accepted by him with a definite application were validly published.

It is perhaps fortunate that it is necessary to reinstate Welwitsch's species as the correct application of this name presents no problem; on the other hand *E. conspicua* N. E. Br. has, subsequent to its original publication, become somewhat confused; and has, in the literature, been applied collectively to several quite distinct, mostly phylogenetically widely separated, tree-like species which inhabit the coastal regions of Angola. These are all very similar in silhouette, especially when viewed from a distance, and often constitute the dominant feature of the landscape.

Following further field work and study of plants in cultivation it is now possible to provide an amplified description for *E. candelabrum* as well as to describe the three new species involved, with notes on their variability and known distribution, and to discuss the probable affinities of the group.

It is considered to be most useful for practical purpose to base the diagnoses of the three new species on comparisons with *E. candelabrum* and/or between themselves; however, it seems possible that their evolutionary relationships may actually lie with species from the eastern part of Africa. In many details of the inflorescence, as well as in habit and in some vegetative characters, these species appear perhaps to be most closely related to *E. triangularis* Desf. and *E. confinalis* R. A. Dyer and, to a somewhat lesser extent, to *E. grandidens* Haw. and *E. evansii* Pax. These, with the exception of *E. confinalis,* are restricted more or less to the east of the line of the Drakensberg Range; *E. confinalis* subsp. *rhodesiaca* Leach is now known to occur as far west as the Matopos, to the south-west of Bulawayo in Rhodesia, not far from the Botswana border, and it is considered that this should be borne in mind in any attempt to assess the possibilities in relation to the evolutionary background of the three Angolan species.

The position with regard to *E. candelabrum* seems to be rather more obscure, although here again it appears that its affinities should perhaps be sought in eastern rather than in western Africa. This species, which so far as our present knowledge extends, appears to be endemic to the tropical coastal areas of Angola more or less to the north of Benguela, does not seem to be particularly closely related to any of the other W. African species, except perhaps in wing margins and spinescence to *E. kamerunica* Pax. Although otherwise entirely different, sterile herbarium specimens of these two species may be easily confused. However, among the species known to me, it seems probable that *E. candelabrum* may, on the evidence of overall morphological characters, be most closely related to *E. lividiflora* Leach, from coastal Moçambique and the Rhodesian and Malawian eastern lowveld, and hence, albeit much more remotely, to the more northerly based *E. robecchii* Pax.

E. eduardoi Leach, which was described in *Bol. Soc. Brot.,* sér. 2, 42: 161 (1968), is included in the following key as this also has, in the past, generally been included in the various concepts of *E. conspicua* N. E. Br.; it has a more or less coastal distribution similar to that of *E. candelabrum* Welw. but extending southward from about the latitude of Benguela into the northern Kaokoveld in S. W. Africa. The distributional overlap between the two species is very small and nowhere are they known to be socially associated. *E. eduardoi* appears to belong to an entirely different group from any of the

foregoing; there are, as one might expect, close vegetative links with *E. virosa* complex, but on overall characteristics it seems possible that its closest relationship, among existing known species, may well be with *E. fortissima* Leach from the region around Victoria Falls.

There are considerable variations in the habit of *E. candelabrum*, many of which appear to be caused by edaphic and other factors affecting nourishment; this is rather dramatically illustrated by a photograph (PL. III, fig. 2) taken at the foot of the escarpment ± 40 km E of Benguela. The lush plant on the right is growing at the edge of a flat seasonal vlei (pan), while the relatively depauperate plants to the left inhabit a rather steep stony hillside. Single stemmed plants are not uncommon, although the general habit seems to include branching of the main trunk. Despite the extent of variation it is seldom that any difficulty should be experienced in distinguishing *E. candelabrum* (PL. III, fig. 1) from *E. parviceps* even at those localities where the species are closely socially associated. The photograph (PL. VIII, fig. 2) perhaps shows rather extreme examples but does illustrate the smaller weaker heads of *E. parviceps* which, although almost as variable in habit as *E. candelabrum,* is usually easily recognized by its weaker, more drooping, flowering branches.

Key to the Angolan species of the habit of *E. candelabrum*

Inflorescence pedunculate:

Trunk usually branched, often freely so; spiny branches with long slender segments, usually 3-winged, weakly armed and with small separate spineshields; inflorescence reddish purple; capsule ± 17 mm diam., truncate, deeply 3-lobed, far exserted from the involucre ... ... *E. candelabrum*

Trunk usually simple; spiny branches stout with short, rather obscure segments, more than 3 angles, strongly armed continuous horny margins and a yellowish inflorescence; capsule ± 18 mm diam., very obtuse, very shortly exserted from the involucre ... ... *E. eduardoi*

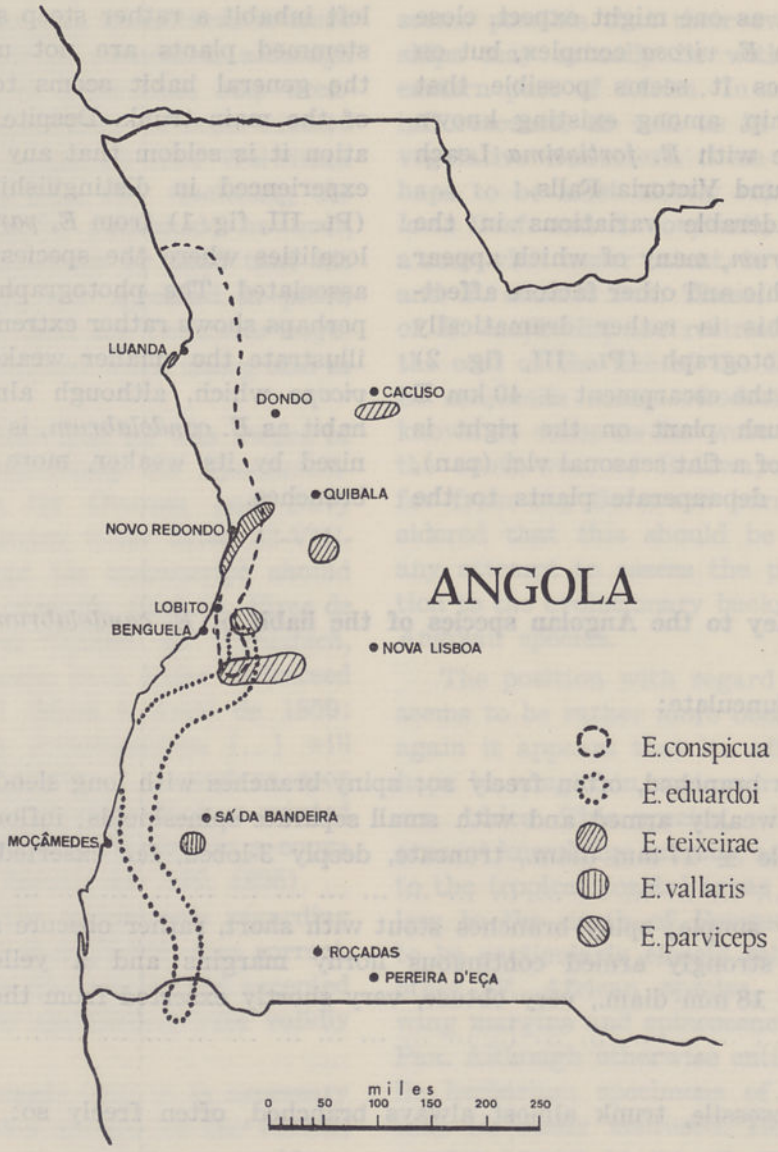
Inflorescence subsessile, trunk almost always branched, often freely so:

Spiny branches ± rigid, involucral glands separate:

Branches 3-5 (mostly 4)-angled or somewhat winged with ± even or slightly sinuate-dentate margins with spineshields sometimes forming a continuous margin; capsule very obtusely 3-lobed, usually almost subglobose, ± 7 mm diam. ... ... *E. teixeirae*

Branches 3-winged (rarely 4) with prominently tuberculate crenate toothed (often almost mammose) margins with small separate spineshields; capsule ± subacutely 3-lobed usually somewhat truncate ... ... *E. vallaris*

Spiny branches weak and usually drooping, with 3-5 very thin wings with sinuate-dentate or crenate margins with weakly armed small separate spineshields; involucral glands contiguous; capsule truncate, ± acutely 3-lobed, usually almost triangular ... ... *E. parviceps*



Euphorbia candelabrum Welw. in Ann. Cons. Ultram., Parte não Oficial, sér. I: 251 (1856); Bol. Ann. Cons. Ultram. 24: 251 (1856). — Hiern, Cat. Afr. Pl. Welw. 1, 4: 946 (1900). Non Trém. ex Kotschy (1857). — PL. I-III and VII, fig. 2.

Type: Angola, Luanda Distr., *Welwitsch* 641 (BM, photo in LISC and PRE; COI!; G!; K!; LISU, lectotype). — PL. I.

Euphorbia candelabra Welw. in Proc. Linn. Soc. 2: 329 (1854).

Euphorbia sp. sensu Monteiro, Angola, 1: 24, etc., tab. 1 (1875).

Euphorbia hermentiana sensu Pax in Engl. Bot. Jahrb. 34: 72, 375 (1904), p.p. quoad specim *Welwitsch* 641 et syn. *E. candelabrum* Welw.

Euphorbia conspicua N. E. Br. in Flora Trop. Afr. 6, 1: 600 (1912). — Gossweiler & Mendonça, Carta Fitogeogr. Angol.: 121, etc., «Fotos» 33, 37, 39 (1939). — Jacobsen, Sukk. Lexikon: 185 (1970). — Barbosa, Carta Fitogeogr. Angol.: 209, etc., «Fotos» 23.1, 23.3 (1970), nom. superfl.

Type: as for *E. candelabrum* Welw.

ANGOLA. Luanda Distr., around Cacuaco, on dry hills and maritime fields, fl. July-Aug. 1858, *Welwitsch* 641 (BM; COI; G; K; PRE, photo.); ibid., fr. 13-VII-1918, *Gossweiler* 8262 (BM; LISJC); Morro da Cruz, ♂ fl. July 1969, *A. J. Duarte* sub *Leach* 14 447 (LISC; LUAI), Catete, ♂ fl. 7-VII-1969, sub 14 447A (LISC; LUAI), + idem, fr. 6-VIII-1969, sub 14 447B (LISC: LUAI;

SRGH); between Luanda & Viana, fr. 22-III-1937, *Exell & Mendonça* 27 (BM); Vale do Bengo, Viana, fl. 26-IV-1966, *Teixeira et al.* 10 328 (LISC). Cuanza-Sul Distr., Porto Amboim, st. 1967, *Teixeira* s.n. (LUA); Novo Redondo, fl. VII-1968, *Teixeira et al.* 21 810 (10 501) (LUA; PRE); Chicomba Riv., st. 11-X-1970, *Leach &* Cannell 14 614 (LUAI). Benguela Distr., ± 50 km N of Lobito, fr. 21-VIII-1967, *Leach & Cannell* 13 925 (K; LISC; PRE; SRGH).

Plant: a laticiferous, succulent, spiny tree, up to 15 m high, with a very variable habit; trunk stout, up to 0.75 m diam., erect, simple or more often with a number of trunk-like branches randomly or subverticillately arranged, often freely branched and rebranched from towards the base; *trunk* and *branches* grey, more or less nude, cylindric, each crowned with a rather crowded pseudo-verticil of winged, spiny, flowering branches. *Flowering branches* spreading, arcuate-ascending, eventually falling, mostly simple, up to ± 1 m long, 3.5-7.0 cm diam., narrowed into a short, stout, stalk-like base and constricted into *segments* of variable shape and length, mostly long, ± parallel-sided, up to ± 45 cm long (generally about 20 cm), with 3-4 wing-like angles (almost invariably 3); with sinuate (sometimes almost even) sinuate-dentate or crenate spiny margins; *spine-shields* more or less obovate, decurrent below to an acute point, sometimes produced above to include the flowering eye, but not forming a continuous margin; *spines* in spreading divergent pairs, 10-40 (mostly 20-30) mm apart along the angles, up to 6 mm long. *Leaves* fleshy, caducous somewhat variable in shape and size, subcircular, elliptic, ovate or obovate, obtuse or usually acute, sometimes minutely apiculate, up to 5.5 cm long, 2.0 cm wide; with a quite separate, acute prickle on each side at the base; *leaf scar* subcircular to depressed obovate, partly or wholly enclosed within the spine shield. *Inflorescence* purplish-red, axillary, cymose with 1-3 pedunculate cymes horizontally arranged, usually with one or two fleshy (soon withering) protuberances on each side at the base. *Cymes* each with 3 cyathia, the initial central, male deciduous or sometimes bisexual persistent; the lateral, bisexual, raised on spreading ascending cyme branches. *Peduncle* bibracteate, 9-15 mm long, ± 2 mm diam. at the base, laterally expanded at the apex to ± 5 mm, glabrous; *bracts* more or less semicircular, irregularly finely (almost fimbriately) toothed, ± 4.0 mm × 2.5 mm, usually split and deteriorated, prominently, transversely, brown ridged at the base. *Cyme branches* 4-10 mm long, similar to the peduncle but uniformly expanded at the apex; *bracts* sublunate, deeply concave at the prominently, transversely ridged base, very irregularly fimbriate-toothed, ± 5 mm × × 3 mm. *Involucre* shallowly campanulate, 2.0-2.5 mm long, 8.0-8.5 (10) mm diam. including the glands; *glands* 5, widely spreading, often somewhat deflexed, usually convex on the rugulose upper surface from being deflexed at the sides, more or less transversely oblong-elliptic, sometimes with a raised lip on the inner margin, 4.0-4.5 mm × ± 2 mm red; *lobes* 5, erect, more or less transversely broadly elliptic, subcuneate, fimbriate; with fimbria up to 0.75 mm long. *Male flowers* ± 55, arranged in 5 fascicles with each fascicle subtended on the inside opposite the lobe, by a broad, irregularly laciniate, deeply filiform-divided bract ± 3 mm long, and with numerous filiform-divided bracteoles ± 3.5 mm long, mostly crowded on the outside of the fascicles next to the lobe; *pedicels* 3-4 mm long; *filaments* ± 0.75 (1.25) mm long. *Ovary* 3-lobed, more or less trigonous, very early exserted to one side on a stout, sometimes clearly 5-ribbed pedicel; *styles* ± 2.5 mm long, very shortly united at the base with the free portions widely spreading, grooved on the inner face, shortly bifid with widely divergent, recurved, rugulose stigmas; *ovule* suspended under an acutely 3-lobed, minutely denticulate, hood-like obturator. *Capsule* deeply 3-lobed, almost acute on the angles, sub-triangular when seen from above, truncate, 13-17 mm across the angles, 8.5-9.5 mm high, purplish-red, (dehisced valves brown with relatively thin walls); *pedicel,* at length erect, 5-10 mm long, ± 3 mm diam. at the ribbed and expanded base, tapering to ± 2 mm diam. towards the apex; *perianth* very fleshy, somewhat irregularly obtusely triangular, ± 4.5 mm diam. *Seed* subglobose, ± 3.25 mm diam., with a pale buff-coloured, sometimes patchy, waxy coating, with small olive-brown or pale brown «bird's egg» dots; suture dark brown.

Euphorbia teixeirae Leach, sp. nov. — PL. IV-V and VIII, fig. 3.

Ab *E. candelabrum* Welw. ramis florentibus gracilioribus plerumque 4-angulatis; cymis subsessilibus viridibus, cyathiis parvissimis; capsula parviore obtusissima facile distinguenda; *E. par-*

viceps propius affinis sed ab ea ramis florentibus rigidioribus fere angulatis, marginibus minus dentatis podariis latioribus; capsula obtusissime lobata seminibusque ovoideis prominenter maculatis bene distincta.

Arbor laticifera succulenta spinosa, usque c. 10 m alta; *trunco* crasso, initio angulato, postea cylindrico, e basi vel supra ramificanti, raro simplici, usque c. 30 cm diam.; trunco ramisque griseis cylindricis, nudis vel interdum spinis vetustis persistentibus aliquanto spinulosis uniuscujusque pseudoverticillo relative parvo ramorum spinosorum angulatium coronati. *Rami florentes* simplices vel raro 1-2-ramosi, initio plus minusve recti rigentique, suberecto-patenti, postea demissescenti, denique delapsi, plerumque c. 80 cm longi, 2.0-2.5 (3.5) cm diam., in basi stipiformi angustati et in segmentis constricti; *segmenta* 1-6 (plerumque 4), plus minusve angustissime oblonga, usque 37 cm longa; angulis 3-5, plerumque 4, aliquanto compressis interdum parum aliformibus, marginibus plus minusve aequis vel leviter sinuato-dentatis. *Podaria* cornea, brunnea, obovata vel plus minusve elliptica, basi acuta, 5-10 mm longa, 3-5 mm lata, separata vel interdum subcontinua interdum aetate provecta continua; *spinis* binis, 3-8 mm longis, divergentibus patentibus, secus angulos 5-15 (plerumque 10) mm distantibus dispositis. *Folia* statim caduca, anguste ovata, acuta, recurva, convexa, marginibus revolutis, usque 5 mm longa, c. 2 mm lata, spinula molli mox marcescenti in quoque latere basi instructa; *cicatrice* plus minusve depresse obtriangulari, leviter impressa mox inconspicua. *Inflorescentia* cymosa, plerumque ramorum apicem versus conferta; *cymis* 1-3 (plerumque 2) horizontaliter dispositis, protuberatione carnosa, cito marcescenti, in quoque latere plerumque basaliter praeditis. *Cymae* subsessiles, cyathiis 3 verticaliter dispositis, cyathio medio masculino marcescenti, *cyathia lateralia* bisexualia; cymis saepiuscule prolificantibus usque 3-furcatis, cyathiis tum itaque confertis; *pedunculus* crassus, saepissime quam 2 mm brevior, bibracteatus bracteis plerumque laesis scissisque; *cymarum ramis* pedunculo similibus; *bracteae* plus minusve ovatae, aliquantum oblique carinatae, c. 3 mm latae, 2.5 mm longae. *Involucrum* viride, crateriforme, 2.0-2.5 mm longum, 4.5-6.0 mm diam. glandulis inclusis; *glandulae* 5, patulae, separatae vel aliquando fere contiguae, plus minusve reniformes vel transverse oblongo-ellipticae, 2.0-2.25 × 0.75-1.0 mm, leviter rugulosae; *lobi* 5, fimbriati, subquadrati vel oblongi, usque 2.25 mm longi; fimbriis c. 8, usque plus minusve 1 mm longis. *Flores masculi* 30-66, 5-fasciculati; *bracteolis* numerosis subtiliter filamentosis, bubalini-laneis; *pedicelli* 2.5-2.75 mm longi; *filamenta* suberecto-patula, pallide viridia, c. 1.5 mm longa; *thecae* brunnescentes demum atro-marroninae, *polline* luteo-auriantiaco. *Ovarium* ex involucro pedicello curvato exsertum; *styli* c. 2 mm longi, in columnam brevissime connati, partibus libris valde patulis, ampliato-bilobatis apicem versus; lobis divergentibus, rugulosis, tandem longitudinaliter accrescentibus contortisque; *ovulum* obturamento 2-lobato suspensum. *Capsula* obtusissime 3-lobata, c. 7 mm diam., 5.5 mm alta, ex involucro exserta pedicello tandem erecto, 6-10 mm longo, relative gracili, diametro apicem versus leviter decrescenti; *perianthio* obtuse triangulari vel pentagono vel subcirculari, c. 2 mm diam. *Semen* ovoideum leviter compressum, c. 3 mm longum; testa ceracea, brunnea dense irregulariter pallide grandi-maculata; maculis cremeis vel bubalinis.

Typus: Angola, Cuanza-Sul, Santa Comba, *Leach & Cannell* 14 552 (BM; K; LISC, holo.; LUA; PRE; SRGH).

ANGOLA. Malanje Distr., near Mangue, Pungo Andongo, *Welwitsch* 637 (BM!); «Salto de Cavalo», N bank Cuanza Riv., on rock slopes, fr. 1-IX-1967, *Leach & Cannell* 13 989 (K; LISC; SRGH). Cuanza-Sul Distr., ± 5 km N of Santa Comba, on wooded rocky hillside, fr. 4-X-1970, *Leach & Cannell* 14 552 (BM; K; LISC; LUA; PRE; SRGH); ± 4 km N of Santa Comba, fr. 3-IX-1967, *Leach & Cannell* 13 998 (BR; LUAI); Cela, st. March 1966, *Teixeira* sub *Leach* 13 261 (LUA). Benguela Distr., ± 14 km W of Caimbambo, st. 18-VIII-1967, fr. 9-X-1970, *Leach & Cannell* 13 910 (G; K; LISC; LUAI; M); ibid., st. 9-X-1970, *Leach & Cannell* 14 599 (BM; SRGH); at base of enormous steep rock slope, ± 5 km E of Mariana Machado, st. 9-X-1970, *Leach & Cannell* 14 595 (COI; LUA; PRE; ZSS); scattered on rock slopes ± 10 km E of Mariana Machado, fr. 17-VIII-1967, *Leach & Cannell* 13 900 (BM; K; LISC; PRE; SRGH).

L & C 13 900 has been included here on the evidence of all the observed characters except those of the seeds, which are the smallest and most nearly globose of the complex and have markings somewhat similar to those of *E. candelabrum*. Seed characters have generally been

found to be reliable; however, among members of this complex there does appear to be more variation than usual, e.g. seeds from *L & C* 13 910, Caimbambo, and *L & C* 13 989, Cuanza Riv., are ellipsoid rather than the typical ovoid, although there seems little doubt that all these populations are conspecific.

Welwitsch 641b (BM!) from Pungo Andongo and *L & C* 14 556, from the small scattered colony of smaller plants on rock slopes and «whale backs» c. 12 km S of Santa Comba, probably belong here but, in view of the more prominently toothed, wider wings to the branches, flowering and fruiting material is needed for more positive identification. *Welwitsch* 641a from Pungo Andongo I have not seen.

This conspicuous new species is named in honour of the late Eng.º J. Brito Teixeira of the Divisão de Botânica e Fitogeografia, Instituto de Investigação Agronómica de Angola, Nova Lisboa, whose collections and published studies have contributed so much to our knowledge of the flora of that country.

Cuttings from plants near Cela, Cuanza-Sul, were first sent to me by Eng.º Teixeira in March 1966; although these did not survive the journey they remained sufficiently intact to be recognizable as representing an undescribed taxon. It was not, however, until October 1970 that material adequate for a description was obtained.

Appearing to be rather distantly related to *E. candelabrum*, *E. teixeirae* is easily distinguished by its entirely different inflorescence; that of the former is purplish red, borne on long peduncles and cyme branches, with large deeply lobed capsules and subglobose seeds with small «bird's egg» dots and markings; while that of *E. teixeirae* is greenish, subsessile with very short cyme branches, relatively small cyathia and smaller, very obtusely lobed capsules with smaller, ovoid-ellipsoid seeds marked with large pale blotches. The flowering branches are also quite different, those of the latter being generally 4-angled, not deeply winged, mostly more or less evenly margined and more slender than those of *E. candelabrum*, in which the generally 3-winged branches are usually prominently sinuate-dentate or crenate. Although apparently more nearly related to *E. parviceps* the differences are nevertheless quite numerous; possibly the most distinctive being in the flowering branches which in *E. teixeirae* are initially suberectly spreading, rigid, more or less angular and only sometimes somewhat winged as compared with those of *E. parviceps* which, initially spreading, soon become drooping with weak, very thin, prominently dentate winged angles with weaker, narrower spine shields. The cyathia of *E. teixeirae* are also rather larger as also is its very obtusely lobed capsule, of which the thicker walled valves are quite different; and finally its ovoid-ellipsoid, differently coloured seeds are more distinctly maculate than the smoother subglobose seeds of *E. parviceps*.

E. teixeirae is most commonly found growing among enormous boulders on or at the base of steep, often well wooded hillsides; in such situations plants attain their maximum size while those growing on rock slopes or «whale backs» are usually much smaller with very sparingly branched or simple trunks.

The known distribution of this species comprises a few disjunct populations, the largest group being in the Cela-Santa Comba region; but there is little doubt that other so far unrecorded colonies exist. When more is known concerning the overall distribution pattern it may be possible to recognize at infra-specific levels some of the disjunct populations, such as that to the east of Mariana Machado (represented by *L & C* 13 900).

See note below list of cited specimens.

Plant: a succulent, laticiferous, spiny tree, up to ± 10 m high, with a stout, initially angular, eventually cylindric trunk, branched at or near the base or rarely simple, up to ± 30 cm diam., with simple or rebranched trunk-like branches up to ± 10 cm diam.; *trunk* and *branches* grey, cylindric, nude or sometimes prickly from old, persistent spines; each with a relatively small crown of angular or somewhat winged, spiny, flowering branches subverticillately crowded at its apex. *Flowering branches* simple or very rarely 1-2 branched, initially more or less straight and rigid, suberectly spreading, eventually, with age, becoming drooping and finally falling; averaging about 80 cm in length and 2.0-2.5 (3.5) cm diam., tapering into a stalk-like base and constricted into 1-6, usually 4, more or less parallel-sided segments, variable in length up to ± 37 cm; with 3-5, usually 4, compressed or somewhat wing-like angles with more or less even or slightly sinuate-dentate margins. *Spine shields* brown, obovate or more or less elliptic, narrowing to an acute base, 5-10 mm long, ± 3 mm wide, separate or sometimes subcontinuous, rarely continuous then only

becoming so with age. *Spines* dark brown, 3-8 mm long, in horizontally spreading, widely divergent pairs, 5-15 mm (usually ± 10 mm) apart along the angles. *Leaves* very fleeting, narrowly ovate acute, convex from being recurved with revolute margins, up to 5 mm long, ± 2 mm wide, with an acute, quite separate, quickly deteriorating soft prickle on each side at the base; *scar* slightly recessed below the surface of the spine shield, depressed obtriangular, soon becoming inconspicuous. *Inflorescence* cymose, usually crowded towards the apex of the branches; *cymes* 1-3 (usually 2) horizontally arranged immediately above the spine shield, usually with a quickly withering, fleshy protuberance on each side at the base. *Cymes* very shortly pedunculate (almost sessile), with 3 vertically arranged cyathia; the central initial cyathium male marcescent and the lateral cyathia bisexual, but the cymes frequently proliferate, forking up to 3 times with the cyathia consequently densely crowded; however, relatively few capsules appear normally to reach maturity; *peduncle* stout, almost always less than 2 mm long, bibracteate with the bracts usually split and torn; *cyme branches* similar to the peduncle; *bracts* more or less ovate, somewhat obliquely keeled, ± 3 mm wide, 2.5 mm long. *Involucre* green, cup-shaped, 2.0-2.5 mm long, 4.5-6 (6.5) mm diam. including the glands; *glands* 5, spreading, separate or sometimes almost contiguous, more or less reniform or transversely oblongo-elliptic, 2.0-2.25 × 0.75-1.0 mm, lightly rugulose, often with a very narrow slightly raised, smooth, outer margin; *lobes* 5, fimbriate, subquadrate or somewhat oblong, ± 1.25 mm wide, up to 2.25 mm long, with about 8 tapering fimbria up to 1 mm or more long. *Male flowers* 30-66, with numerous, finely filamentose, rather woolly, buff coloured bracteoles, arranged in 5 fascicles inserted in shallow pockets excavated at the base of the thin-walled involucre; *pedicels* 2.5-2.75 mm long; *filaments* suberectly spreading, pale green, ± 1.5 mm long; *thecae* brownish to dark maroon-red; *pollen* yellow-orange (♂ from cutting of *L & C* 14 552 cult. at «Farview»). *Ovary* exserted on a pedicel curved to one side (exsertion appears to be delayed until after pollination, aborted ovaries remain included); *ovule* suspended under a two-lobed obturator; *styles* ± 2 mm long, united into a short column at their base, the free portions widely spreading, widened and bilobed towards the apex, with the lobes widely diverging, rugulose, increasing in length and becoming contorted with age. *Capsule* very obtusely 3-lobed (sometimes subglobose) ± 7 mm diam., 5-5 mm high, valves exceptionally thick and woody, pale brown, exserted from the involucre on a curved (becoming erect shortly before dehiscence), relatively slender pedicel, 6-10 mm long, with the diameter tapering slightly towards the apex; *perianth* very obtusely triangular or pentagonal, sometimes almost circular, ± 2 mm diam. *Seed* ovoid, somewhat compressed, ± 3.0 mm long, ± 2.6 mm in its greater diam., ± 2.2 in the lesser, dark brown, with a blotchy (of uneven thickness) creamy buff to pale brown waxy coating, so that the testa appears to be densely but irregularly palely maculate.

Euphorbia vallaris Leach, sp. nov. — PL. VI and VIII, fig. 2.

E. teixeirae Leach arcte affinis sed ramis florentibus robustissimis saepissime 3-alatis, marginibus prominentissime tuberculato-crenatis; cymis plerumque solitariis, cyathio initio bisexuali; capsula profundius lobata, angulis plus minusve subacutis, in sinubus costata valde differens; *E. parviceps* Leach etiam accedens sed ab ea ramis florentibus robustissimis, rigidioribus initio suberectis, marginibus crassioribus podariis robustioribus; foliis grandioribus et inflorescentiae fructuumque differentiis significantibus numerosis abhorrens.

Arbor laticifera succulenta spinosa, usque c. 12 m alta; trunco crasso cylindrica (initio angulato), interdum prope basin parce ramosa, plerumque supra copiosius ramosa; rami trunciformes plerumque simplices, uniuscujusque pseudoverticillo relative parvo ramorum florentium spinosorum coronati. *Rami florentes* plerumque simplices, initio suberecti, recti rigentique, tandem delapsi, plerumque c. 90 cm longi, 2.5-5.5 cm diam., tuberculorum dentibus inclusis, in basi stipiformi crassiuscula angustati et in segmentis constricti; *segmenta* formis longitudinibus aliquanto variis (plerumque c. 35 cm longa); angulis aliformibus crassiusculis 3 (rarissime 4), marginibus prominenter crenato-dentatis. *Podaria* brunnea mox pallescentes, late obovata, basi subacuta, apice truncata, obtusa vel raro subacuta, c. 6 mm long, 4 mm lata, separata, haud decurrentia. *Spinae* binae purpureo-brunneae, 3-7 mm longae, divergentes paten-

tes ad apicem tuberculorum dentorum prominentium, 5-8 mm altorum obtusorum, plerumque tuberantium, secus angulos 7-20 (plerumque c. 15) mm distantes dispositae. *Folia* caduca, elliptica vel anguste ovata, acuta, in basi cuneata interdum fere petiolata angustata, usque 15 mm longa, 7 mm lata, marginibus aliquanto revolutis; cicatrix subcircularis vel late obovata, spinula satis separata marcescens in quoque latere instructa. *Inflorescentia* axillaris, cymosa, cymis 1-3, saepissime cyma solitaria, rarissime spinulis binis foliiformibus caducis basi instructa; *cymae* brevissime pedunculatae, cyathio medio persaepe bisexuali (ubi masculino tum deciduo) cyathiisque lateralibus bisexualibus irregulariter prolificantibus; *pedunculus* brevissimus, crassus, bibracteatus, bracteis plerumque scissis; *cymarum rami* pedunculo simili sed c. 3 mm longi; *bracteae* subquadratae vel late ovatae, c. 3.5 mm longae, minute denticulatae, plerumque in ramis cymarum coalescentes. *Involucrum* crateriforme, c. 2.5 mm longum, c. 5 mm diam. glandulis inclusis; *glandulae* 5 carnosae, separatae, suberectae virides, tandem plus minusve patulae sordide aureae, transverse ellipticae, c. 2.0 × 1.0 mm, convexae vel plus minusve planae, leviter rugulosae; *lobi* 5, subcarnosi, oblongi vel oblongo-cuneati, usque 2.5 mm longi, interdum emarginati vel fere 2-lobati, irregulariter fimbriati, fimbriis 1 mm longis longioribusve. *Flores masculi* c. 25-40, bracteolis relative paucis, subtiliter filamentosis, aliquantum bubalini-laneis, c. 3 mm longis, 5-fasciculati; *pedicelli* c. 3 mm longi; *filamenta* c. 1.5 mm longa, pallide viridia; *thecae* initio persicinae tandem atro-marroninae, polline luteo. *Ovarium* 3-lobatum, in sinubus costatum, pedicello 5-costato, curvato mox exsertum (apparenter ante fecundationem); *styli* c. 2.5 mm longi, in columnam usque 0.75 mm longam connati; partibus libris patulis, apicibus granulosis translucentibus, capitatis emarginatis vel bifidis; *ovulum* obturamento parvo bilobato denticulato suspensum. *Capsula* subacute tri-lobata, in sinubus prominenter obtuse costata, 8-9 mm diam., c. 5.5 mm alta, ex involucro pedicello crassiusculo, distincte 5-costato, c. 10 (12) mm longo, curvato tandem erecto exserta; *perianthium* carnosum, obtusissime triangulare vel pentagonum vel fere circulare, c. 3.25 mm diam. *Semen* ovoideo-ellipsoideum, brunneum bubalino-maculatum, c. 3.5 mm longum, 2.5 mm diam., saepe basi sparse minute tuberculatum.

Typus: Angola, Huíla Distr., *Leach & Cannell* 14 007A (BM; BR; K; LISC, holo.; LUAI; M; MO; PRE; SRGH; ZSS).

ANGOLA. Huíla Distr., Serra da Chela, «Chão da Chella», st. June 1860, *Welwitsch* 636 (Icon. BM; photo. PRE!); «l'Euphorbia candelabre de Chella» st. *Dekindt* 248 (LISC); cliffs of escarpment west of Tchivinguiro, above Bruco, st. 7-IX-1967, *Leach & Cannell* 14 007 (LISC; SRGH), ibid., st. 24-X-1970, 14 649 (BM; BR; K; M; PRE), ibid., Hort. Leach. Greendale, fl. & fr. Apr.-Sept. 1972, 14 007A (BM; BR; K; LISC; LUAI; M; MO; PRE; SRGH; ZSS), ibid., Hort. Leach., fl. 9-X-1972, 14 649A (B; COI; G; LUA).

The distribution of this new species from the ramparts of the southern escarpment of the Serra da Chela appears to be restricted to a limited area to the west and south-west of Tchivinguiro, more or less on the border between Huíla and Moçâmedes Districts. Live specimens from the locality immediately above Bruco flowered in cultivation, in the author's garden at Salisbury, Rhodesia, for the first time in 1972. The species enjoys, at least in cultivation, a very extended flowering period (not matched by specimens of *E. parviceps* or *E. teixeirae* in cultivation under identical conditions, while larger specimens of *E. candelabrum* have shown no sign of flowering). The larger of the two plants came into full flower in May 1972 and has continued uninterruptedly to produce flowers and fruits until the time of writing (20-V-1973) and there are still young cyathia appearing.

E. vallaris appears to be most closely related to *E. teixeirae* but is well differentiated therefrom by its much more robust, deeply winged flowering branches with prominently tuberculate, toothed margins; its usually solitary, very proliferous cymes with the initial cyathium almost always bisexual; its larger, subacutely angled and more deeply lobed capsule which is prominently ribbed in the sinuses, and its larger seeds together with numerous, more minor differences. There is also an evident relationship with *E. parviceps* but with its much more robust, rigid and initially suberect flowering branches with their more robustly winged margins and relatively massive spine shields there is little doubt of the distinctiveness of *E. vallaris* even without taking into account the numerous significant differences exhibited in the characters of the inflorescence and infructescence.

Plant: a succulent, laticiferous, spiny tree, up to ± 12 m high; with a stout, cylindric trunk (initially angular), sometimes somewhat sparingly branched from near the base, usually more freely branched above; branches trunk-like, usually simple, each with a relatively small crown of spiny flowering branches, subverticillately arranged at its apex. *Flowering branches* usually simple, initially straight and rigid, suberect, eventually with age becoming drooping and finally falling; averaging about 90 cm in length, 2.5-5.5 cm diam., including the prominent tubercles, tapering into a rather stout, stalk-like base and constricted into segments of somewhat variable shape and length (generally about 35 cm), with 3 (very rarely 4) stout wing-like angles, with prominently crenate toothed margins. *Spine shields* brown, very soon becoming pale, broadly obovate, subacute at the base, truncate, obtuse or rarely subacute at the apex, ± 6 mm long, 4 mm wide, separate, not at all decurrent. *Spines* purplish brown, 3-7 mm long, in spreading, widely divergent pairs, at the obtuse, usually somewhat thickened apex of the prominent, 5-8 mm high tubercle teeth, 7-20 (usually ± 15) mm apart along the angles. *Leaves* elliptic or narrowly ovate, acute, narrowed into the cuneate, sometimes almost petiolate base, up to 15 mm long, 7 mm wide, with somewhat revolute margins, caducous, leaving a subcircular or broadly obovate scar, with a quite separate marcescent prickle on each side. *Inflorescence* axillary, cymose with 1-3 cymes, very rarely with more than 1, usually devoid of any glands or prickles at its base or rarely with a pair of caducous leaf-like prickles; cymes very shortly pedunculate, with the initial central cyathium almost always bisexual (when male then deciduous), the lateral cyathia bisexual, proliferating irregularly and haphazardly; *peduncle* very short and stout, bibracteate, with the bracts usually split and torn; *cyme branches* similar to the peduncle but ± 3 mm long; *bracts* subquadrate to broadly ovate, ± 3.5 mm long, denticulate, somewhat keeled, usually merging into the cyme branch without a distinct transverse ridge. *Involucre* cup-shaped, ± 5 mm diam., 2.5 mm long; *glands* 5, fleshy, at first suberect, becoming more spreading with age, separate, ± transversely elliptic, ± 2.0 × 1.0 mm, convex or flat, lightly rugulose, green becoming dull yellow-orange; *lobes* 5, rather fleshy, oblong or cuneate-oblong, up to 2.5 mm long, sometimes widely emarginate or almost 2-lobed, irregularly fimbriate with tapering fimbria 1 mm or more long. *Male flowers* ± 25-40 with relatively few fimbriate-laciniate and filamentose, rather woolly, buff-coloured bracteoles ± 3 mm long; arranged in 5 fascicles, inserted in very shallow pockets lightly excavated at the base of the thin-walled involucre; *pedicels* ± 3 mm long; *filaments* ± 1.5 mm long, spreading, pale green; *anther cells* initially peach-coloured becoming dark maroon; *pollen* yellow. *Ovary* 3-lobed, longitudinally ribbed in the sinuses, very soon exserted (apparently before pollination) on a 5-ribbed pedicel curved to one side; styles ± 2.5 mm long, united at the base into a column up to 0.75 mm long, the free portions spreading, bifid or capitate-emarginate, with somewhat translucent granulose apices; *ovule* suspended under a small bilobed denticulate cap-like obturator. *Capsule* subacutely 3-lobed (4 lobes not rare), prominently obtusely ribbed in the sinuses, 8-9 mm diam., ± 5.5 mm high, exserted from the involucre on a curved (becoming erect at dehiscence), distinctly 5-ribbed, stout pedicel, ± 2.5 mm diam. at the base, tapering slightly towards the apex, ± 10 (12) mm long; *perianth* fleshy, very obtusely triangular, pentagonal or almost circular, ± 3.25 mm diam. *Seed* ovoid-ellipsoid, brown with brownish buff blotches, ± 3.5 mm long, 2.5 mm diam., often minutely sparsely tuberculate at the base.

Euphorbia parviceps Leach, sp. nov. — PL. VII and VIII, fig. 1.

Cum *E. candelabrum* Welw. arcte consociata sed ab ea ramorum florentium debilium initia patentium mox demissorum capitulis parvioribus; inflorescentia parviore viridi subsessili capsulisque parvissimis facile distinguenda; *E. teixeirae* Leach affinis sed ramis florentibus debilioribus initio patentibus, angulis tenuissime alatis validius sinuato-dentatis, podariisque debilioribus parvioribus; involucro glandulis contiguis lobisque parvioribus; capsula subacutangulata subtruncata, parietibus tenuioribus seminibusque subglobosis maculatis, manifeste differens.

Arbor laticifera succulenta spinosa, usque c. 15 m alta; *trunco* crasso, initio angulato, postea cylindrico, plerumque e basi vel supra ramificanti, saepe ramosissimo, rarissime simplici, usque c. 30 cm diam.; *rami* trunciformes plerumque ramosi, cylindrici usque c. 10 cm diam.,

trunco ramisque griseis, orchidibus epiphyticis lichenibusque saepe vestitis, uniuscujusque pseudoverticillo relative parvo, ramorum florentium spinosorum aliquantum debilium coronati. *Rami florentes* simplices, initio patentes mox demissescenti, denique delapsi, plerumque c. 45 cm, rarissime usque 90 cm longi, c. 2.5-4.0 cm diam., basi stipiformi angustati et in segmentis constricti; *segmenta* 1-4 (plerumque 2-3), plus minusve anguste oblonga vel anguste elliptica, longitudine variabili, usque c. 40 cm, parte media tenuissima; angulis 3-5, tenuissime aliformibus marginibus sinuato-dentatis vel crenatis. *Podaria* pallide brunnea, plus minusve obovata vel anguste elliptica, infra et interdum supra in acumine angustata sed nunquam continua, 4-6 (raro 10) mm longa, c. 2 mm lata; *spinis* binis brunneis, ad apicem nigrescentibus, valde divergentibus patentibus, (2) 5-7 mm longis, tenuibus (aliquando obsolescentibus), ad apicem tuberculorum dentorum secus angulos 10-20 mm distantibus dispositis. *Folia* caduca, plus minusve ovata acuta, aliquanto recurva, c. 5 mm longa; spinula satis separata, molli, cito obsolescenti, in quoque latere basi instructa; *cicatrix* subcircularis, cito inconspicua. *Inflorescentia* cymosa subsessilis plerumque cyma solitaria, cyathiis 3, horizontaliter dispositis, cyathio medio masculino deciduo; cyma adaxiali interdum instructa, nonnunquam cymarum cyathiis lateralibus aliquanto prolificantibus; *pedunculus* bibracteatus brevissimus; *ramis cymarum* pedunculo similibus prope basin orientibus; *bracteae* plus minusve ovatae subacutae, c. 2.5 mm longae, c. 3 mm latae, basin versus carnosae in ramis cymarum coalescentes. *Involucrum* crateriforme, c. 2.5 mm longum, 4.5 mm diam. glandulis inclusis; *glandulae* 5, patulae vel patulo-deflexae, plerumque arcte contiguae, plus minusve transverse ellipticae, c. 2.25 × 1.0 mm, convexae, leviter rugulosae, virides demum flavo-virentes; *lobi* 5, subquadrati subcuneati, c. 1.5 × 1.5 mm, fimbriati fimbriis plerumque c. 0.5 mm longis. *Flores masculi* 20-30, 5-fasciculati; *bracteolis* subtiliter filamentosis, aliquantum bubalini-laneis; *pedicelli* c. 2 mm longi; *filamenta* c. 1.5 mm longa; *thecae* bubalinae, polline luteo. *Ovarium* tri-lobatum, pedicello curvato ex involucro exsertum; *styli* c. 2 mm longi, in columnam c. 0.5 mm longam connati, partibus libris patulis reflexis, apicem versus valde ampliatis profunde sulcatis, bifidis, lobis patulo-recurvis; *ovulum* obturamento minute denticulato suspensum. *Capsula* aliquantum profunde tri-lobata, interdum fere triangularis, angulis subacutis, usque 7 mm diam., c. 4.5 mm alta, brunnea, albido-puncticulata scabridiuscula, valvis tenuibus, pedicello leviter sulcato c. 4 (7) mm longo ex involucro exserta; *perianthium* obtusissime angulatum vel fere circulare, c. 2 mm diam. *Semen* subglobosum, leviter compressum c. 3.0 × 2.5 mm; testa tenuiter ceracea, purpureo-brunnea, obscure albido nebuloso-notata.

Typus: Angola, Cuanza-Sul, Rio Queve, *Leach & Cannell* 13 940 (BM; K; LISC, holo.; LUAI; PRE; SRGH).

ANGOLA. Cuanza-Sul Distr., sulphur pans c. 25 km SW of Gabela, fl. 23-VIII-1967, *Leach & Cannell* 13 943 (BM; LISC; SRGH), ibid., cult. Farview, st. 1972, 13 943A (LISC; SRGH); Parc Cachoeiras, Rio Queve, fl. 23-VIII-1967, *Leach & Cannell* 13 940 (BM; K; LISC; LUAI; PRE; SRGH), ibid., fl. 11-X-1970, *Leach & Cannell* 14 612 (BR; G; LUA; M; MO; ZSS); steep hillside near mouth of Quicomba Riv., st. 16-X-1970, *Leach & Cannell* 14 626 (COI; LISC; SRGH); Benguela Distr., rocky escarpment 50-60 km east of Lobito, fl. 6-X-1970, *Leach & Cannell* 14 584 (K; LISC; LUA; LUAI; PRE), 14 584A (BM; MO), 14 584B (B; BR; COI; M; SRGH), 14 584 C (G; K; PRE).

The new species differs from *E. candelabrum* and from both of its close relatives in Angola, in its smaller heads of initially spreading, weaker and more drooping, more thinly winged flowering branches, while its smaller, much narrower spine shields are quite different from those of either of its relatives. Its subsessile, greenish inflorescence and small capsule immediately distinguish *E. parviceps* from the associated *E. candelabrum,* while it is separated, although not quite so conspicuously, from the related *E. teixeirae* by its angular, thin walled capsule and subglobose obscurely marked smooth seeds, as wall as by its winged branches which contrast markedly with those of the inland species which are so much more solid and angular in cross-section. In strongly toothed wing margins *E. parviceps* comes closest to the related *E. vallaris* from the southern escarpment of the Serra da Chela, but is distinguished from that species, in addition to the criteria mentioned above, by its thinly 3-5-winged branches (almost always stoutly 3-winged in *E. vallaris*); by its smaller differently shaped leaves, several

cyathial characters, including its smaller involucral lobes and finally by its smaller, subtruncate, thin-walled capsule and smaller subglobose relatively unmarked, smooth seeds.

The distribution of *E. parviceps* appears to coincide more or less with the southern portion of that of *E. candelabrum* although appearing to be divided into two main concentrations. One extends from some 25 km south of the mouth of the Quicomba Riv. to the vicinity of Gabela, more or less along the Queve (Cuvo) River, where there are numerous magnificent, much branched specimens in the vicinity of Parc Cachoeiras, especially above the spectacular waterfalls where plants grow socially with *E. candelabrum*. In the strange region of extensive sulphur pans about 25 km from Gabela, plants growing on rock «islets» in association with *Aloe zebrina* Bak. and *A. littoralis* Bak., with very scanty grass cover and little other vegetation, are dwarfed, seldom if ever exceeding 3 m in height. The other known population occurs on the rocky escarpment about 50-60 km east of Lobito; here there appears to be rather more variation in number of wings to the branches and the toothing of their margins than was observed in plants in the Queve River area. Although *E. candelabrum* is to be found at the foot of the escarpment and considerable numbers of *E. eduardoi* occur further up, with *E. atrocarmesina* and several other species of spiny euphorbias only a few kilometres away, no plants exhibiting any appearance of hybridization were seen, either on the escarpment or elsewhere.

Plant: a laticiferous, succulent, spiny tree, up to ± 15 m high with a stout cylindric nude trunk up to ± 30 cm diam. (seedlings initially 3-angled, soon becoming 4-angled), usually with few to many trunk-like branches up to ± 10 cm diam. from near the base and above, often densely branched and rebranched, very rarely with a simple trunk; trunk and branches grey, often clad with lichens and epiphytic orchids, each crowned with a relatively small pseudo-whorl of rather weak, spiny flowering branches. Flowering branches initially spreading, soon becoming drooping, eventually falling, simple, up to 90 cm long, but usually much less (averaging ± 45 cm), 2.5-4.0 cm diam., tapering into a stalk-like base and constricted into 1-4 (usually 2-3) segments. *Segments* very variable in length, up to ± 40 cm, more or less parallel sided or very narrowly elliptic, with a very small central core and 3-5 thin wing-like angles; *margins* sinuate-dentate or crenate (sometimes prominently so). *Spine shields* pale brown, more or less narrowly ovate or narrowly elliptic, narrowing below and sometimes above, to an acute or sometimes somewhat obtuse point, sometimes somewhat decurrent but not forming a continuous margin, 4-6 (rarely 10) mm long, ± 2 mm wide, 10-20 mm apart at the apex of the tubercle teeth along the wing margins. *Spines* brown, blackish at the tips, (2)5-7 mm long, rather slender, sometimes obsolescent, in spreading, widely divergent pairs. *Leaves* caducous, more or less ovate acute, somewhat recurved ± 5 mm long, with a quite separate, soon obsolescent, soft prickle on each side at the base; *leafscar* subcircular soon becoming inconspicuous. *Inflorescence* cymose, subsessile, usually comprising a single cyme with 3 horizontally arranged cyathia with the initial central cyathium male deciduous and the laterals bisexual; sometimes with an additional cyme developing in the adaxial position and occasionally with the lateral cyathia proliferating; *peduncle* bibracteate, very short with equally short or shorter lateral cyme branches arising almost at its base; *bracts* more or less ovate subacute, ± 2.5 mm long, ± 3 mm wide, with a somewhat fleshy, usually somewhat oblique keel, thick and fleshy towards the base and merging into the cyme branches without an evident junction. *Involucre* cup-shaped, ± 2.5 mm deep, 4-5 mm diam. including the glands; *glands* 5, spreading to spreading deflexed, usually closely contiguous, more or less transversely elliptic ± 2.25 × 1 mm, convex, lightly rugulose, green becoming yellowish; *lobes* 5, subquadrate, subcuneate, ± 1.5 × 1.5 mm, variably fimbriate with the fimbria averaging ± 0.5 mm long. *Male flowers* 20-30, with finely filamentose, rather woolly, buff coloured bracteoles ± 2.5 mm long, arranged in 5 fascicles inserted in very shallow pockets lightly excavated at the base of the involucre; *pedicels* 1.5-2.0 mm long; *filaments* ± 1.5 mm long; *anther cells* buff coloured; *pollen* yellow. *Ovary* 3-lobed, exserted from the involucre on a curved pedicel; *styles* ± 2 mm long, united at the base into a column about 0.5 mm long, with the free portions spreading recurved, much widened towards the apex, deeply channelled on the inner face, becoming bifid with the lobes spreading recurved and rolled; *ovule* suspended under a minutely fringed, hood-like obturator. *Capsule* rather deeply 3-lobed, some-

times almost triangular with subacute angles, up to 7 mm diam., ± 4.5 mm high, dark brown, minutely whitish puncticulate, scabridulous, the dehisced valves with relatively thin walls; *perianth* very obtusely angular or almost circular ± 2 mm diam. *Seed* subglobose, slightly compressed, ± 3.0 × 2.5 mm, testa purplish brown, obscurely marked and clouded from a thin whitish waxy coating, rarely with some small brown «bird's egg» dots and markings, suture brown with a dark brown line on each side.

Euphorbia hermentiana Lem. in Ill. Hort. 5: 63 (1858).

As *E. hermentiana* Lemaire appears to have been confused with *E. candelabrum* Welw. (= *E. conspicua* N. E. Br.) and other west African species, it seems to be advisable to discuss the various concepts of this species in some detail.

Type: A cultivated cutting sent to Lemaire by M. Herment, Curator of the Botanic Gardens, Caen, who reputedly received the original plant from Gabon. No specimen is known to exist.

Bossier, DC. Prodr. 15 (2): 82 (1862); this author also cites Herment and Rio Gabon, however he appears to describe a specimen quite different from that of Lemaire.

Pax in Engl. Bot. Jahrb. 34: 72, 375 (1904) cites «Gabun (nach Boiss.)» (which he appears not to have seen); «Kamerun (Johannes Braun!)»; «Angola (*Welwitsch* 641!)» (the type of *E. candelabrum* Welw.), and «Benguela (*Pogge* 1402!)». He then goes on to describe a plant quite different from Lemaire's or from *E. candelabrum* Welw. (*E. conspiqua* N. E. Br.). Of the cited specimens I have seen only *Welwitsch* 641, so cannot say whether this description was based on a mixture, on *Braun,* or on *Pogge* 1402; Benguela, at that date, probably referred to Angola generally; unfortunately Pogge's numbers do not correspond to his itinerary.

Berger, Sukk. Euphorb.: 50 (1907); this author provides a figure (fig. 13) reputed to represent *E. hermentiana* and to be from «Gaboonflusse»; while N. E. Brown, *Fl. Trop. Afr.* 6, 1: 600 (1912), describes plants under the same name and also reputedly from Gabom but gives no reference to collector or collection details; moreover the specimen (of a plant cultivated at Kew) could scarcely be considered to match the figure supplied by Berger.

Croizat in the *Cactus & Succulent Journal (U.S.A.),* 5: 582 (1934) traces the history of *E. hermentiana* and establishes that it was almost certainly collected in Gabon by a Naval Officer (E. Jardin) about 1840. Also in 1934 he infers (*De Euphorbio Antiquorum atque Officinarum*) that it is a synonym of *E. trigona* Haw. and that this latter came from Africa, probably Angola, not from Malabar or Ceylon as cited by Linnaeus for his *E. antiquorum* var. β, on which Haworth's species was based.

The references to *E. hermentiana* in Durand & Schinz, *Études Fl. Congo:* 240 (1896); De Wildemann & Durand in *Ann. Mus. Congo,* sér. 2, 1: 53 (1899); De Wildemann in *op. cit.* 3: 434 (1912); and Th. & Hel. Durand, *Syll. Florae Congol.:* 144 (1909), appear all to refer to plants of the affinity of *E. ingens* E. Mey. ex Boiss.; *E. bilocularis* N. E. Br. and *E. ambacensis* N. E. Br., as also do those of Chevalier in *Revue de Bot. Appl. et d'Agric. Trop., Bull.* 144: 539, 564, tab. VII (1933).

It is apparent from the foregoing that considerable uncertainty, not to say confusion, existed in respect of plants cultivated in Europe under the name *E. hermentiana* and that this extended to plants in the field as well as to the literature. In view of this and as there seems little, if any, possibility of identifying Lemaire's species with certainty with any one of the several somewhat similar species in west Africa, it is considered that the name should be discarded, especially as it is not applied to any known plants, either at present of for some time past.

Euphorbia viduiflora Leach, sp. nov. — PL. XV, fig. 2.

Euphorbia sp., Barbosa, Carta Fitogeogr. Angol.: 216, foto. 23-24 (1970).

Ab affinitate *E. ingenti* E. Mey. ex Boiss. et specierum affinium statura parvissima; ramis strictis confertioribus, saepe 3-angulatis, satis distinguenda; ultro plantae visae steriles sunt.

Frutex arboreus, succulentus, spinosus, usque 3 m altus (plerumque 2.3 m), trunco brevi crasso cylindrico, ramis angulatis strictis confertis sphaerico-coronato. *Rami* angulis aliformibus 3-4, rigide erecti, in segmentis in intervallis variantibus leviter constricti. *Segmenta* plus minusve oblongo-elliptica vel oblonga, faciebus plus minusve parallelis; usque c. 20 cm longa, 3-6 cm

diam. (plerumque c. 5 cm), atroviridia saepe pallide plumoso-picta; margine sinuato-dentato, dentibus 5-15 mm secus angulos distantibus; *podaria* plus minusve latissime obovata, ad apicem truncata vel aliquanto concava, basi saepe subacuta, 2-5 mm longa, plerumque latiora quam longiora. *Spinae* binae valde divergentes, plus minusve horizontaliter patentes, 2-7 mm longae; podariis spinisque initio castaneis demum cinerascentibus. *Folia* sessilia caduca, oblonga vel oblongo-elliptica, obtusa, minute apiculata, cuneata, acute carinata, usque 22 mm longa, ad 10 mm lata; *cicatrice* initio subcirculari, cito inconspicua; spinula mox marcescenti in quoque latere instructa. *Floribus fructibusque* ignotis; plantis ut videtur sterilibus.

Typus: Angola, Luanda Distr., *Leach & Cannell* 13 967 (BM; K; LISC, holo.; SRGH).

ANGOLA. Luanda Distr., near Catete, plants demarcating cotton fields, st. 24-VIII-1967, *Leach & Cannell* 13 967 (BM; K; LISC; SRGH); ibid., st. various dates. *A. J. Duarte* s.n. (LISC; LUAI).

These plants are a conspicuous feature of the landscape around Catete, where they are utilized to mark the boundaries of sections of the cotton fields, and as they form a significant portion of the flora of the area a name becomes necessary.

Their origin is something of a mystery; they appear to be distinct from all the other W. African species so that neither infraspecific rank nor a hybrid formula can be applied, while a cultivar name seems quite inappropriate. It is considered, therefore, that these plants can only be treated as a new species.

Specimens of which the stems were examined below soil level appeared to be grown from cuttings and Eng.° A. J. Duarte of the Instituto de Investigação Científica de Angola, Luanda, informs me that the cotton growers confirm that the plants are, as far as they know, all grown from cuttings. These strike very readily and eventually develop into the neat, quite ornamental shrubs shown in the accompanying photograph. No sign of past flowering could be found and Eng.° Duarte subsequently confirmed that not only were no flowers produced during the 18 months that plants near Catete were kept under observation but that none of the natives of the area had ever known them to flower. It seems, therefore, that these specimens are probably all from one sterile clone; unfortunately plants have not so far been found in the wild state; those sometimes appearing possibly to be so in the vicinity of Catete are almost certainly relics in abandoned lands.

Dr. E. J. Mendes (personal comm.) suggested that the original plants or cuttings may have been imported from elsewhere and might possibly be inhibited from flowering by unsuitable day-length. However, with this possibility in mind, plants have been grown for some time past at Salisbury, Rhodesia, Lat. ± 18° S; Pretoria and Nelspruit, Transvaal, ± 25° S; under glass at Cape Town, ± 34° S, and more recently in Ghana, ± 7° N, which with Luanda at ± 9° S includes a fairly wide range of day-lengths and temperatures; unfortunately none of these has as yet shown any sign of flowering.

Dissections carried out on my behalf by Mr. H. D. L. Corby of the Dept. of Botany, University of Rhodesia (personal comm.), showed that the vascular strands which are present in the area of «the flowering eye» terminate in small scales (?rudimentary stipules) with a thickened area between, also connected to the vascular system, which could be a rudimentary bud of some kind. It is from this point that new vegetative shoots are developed.

Although, in the absence of flowers, there is bound to be some element of doubt in any attempt to assess relationships, it seems fairly certain that the affinities of the new species lie with *E. ingens* complex, although differing from all others in the group in its much smaller stature with densely packed erect branches, and from most in having the majority of these 3-angled. The sterile nature of the plants does seem perhaps to indicate the possibility of hybrid origin and it certainly seems possible that they are a fairly recent introduction, since despite their conspicuousness, they do not appear to have been mentioned by any of the early travellers, nor do they seem to have found a place in Welwitsch's chronicles or gatherings. This latter possibility does perhaps receive a measure of support from the frequent close association of *Calotropis gigantea* (L.) Ait.f. which is almost certainly an introduction.

Plant: a small tree-like shrub usually about 2.3 m high (up to 3 m) and often almost as much in diam., with a short stout cylindric trunk and a densely branched, compact, rounded head of angular spiny branches. *Branches* strictly erect,

with 3-4 compressed wing-like angles, slightly constricted at intervals into segments of varying lenght. *Segments* more or less oblong-elliptic or oblong, with more or less parallel sides; up to ± 20 cm long, 3-6 cm diam. (generally about 5 cm), dark green often with paler «feather» markings; margins sinuate-dentate, sometimes only slightly so, with the teeth 5-15 mm apart along the angles; *spine shields* more or less very broadly obovate, usually truncate or somewhat concave at the apex, often subacute at the base, 2-5 mm long, usually wider than long. *Spines* paired, widely diverging, more or less horizontally spreading, 2-7 mm long, spines and shields dark chestnut brown soon becoming grey. *Leaves* sessile, caducous, oblong or oblong elliptic, obtuse, minutely apiculate, cuneate, acutely keeled, up to 22 mm long, 10 mm broad; *leaf scar* subcircular, very quickly becoming inconspicuous, with a rapidly deteriorating prickle on each side. *Flowers* and *fruits* not known; all the plants seen appearing to be sterile with the flowering eye either abortive or producing a vegetative shoot.

Euphorbia cannellii Leach, sp. nov. — PL. IX.

E. semperflorenti Leach affinis sed frutice parviore; ramis gracilioribus, 4-5 angulatis, marginibus non undulatis relative infirme armatis et forma segmentorum variantissima; cyathiis parvioribus; capsula parviore rubescenti; stylis brevissimis; semine parviore bene distinguenda.

Frutex succulentus, spinosus, effusus, usque ad c. 0.7 m altus × 3 m diam. *Rami* patuli, saepe initio decumbentes, arcuato-ascendentes, plerumque simplices, 4 vel raro 5-angulati, in segmentis constricti, magnitudine formaque segmentorum variantissima; *margine* corneo continuo, irregulariter sinuato-dentato non undulato, initio purpureo-brunneo mox cinerascenti. *Spinae* binae rectae, divergentes, patulae, 0.5-12.5 mm longae, in segmentis angulatis saepe fere obsolescentes. *Folia* sessilia, plus minusve ovata subacuta, c. 2 mm longa, saepe latiora quam longiora, caduca; *cicatrice* transversa, mox inconspicua, spinula carnosa acuta arctissime in quoque latere instructa. *Inflorescentia* flava, pedunculo brevi cyathioque bisexuali singulatim praedita; *pedunculus* plerumque c. 2.5 mm longus × 2.5 mm diam., minute scabridiusculus, ad bracteas juncturis vix perceptibilibus connatus. *Bracteae* plerumque scissae, plus minusve lunatae, c. 3 mm latae, basaliter leviter transverse brunneo-porcatae. *Involucrum* plus minusve late truncato-obconicum, 4.5-6 mm diam. glandulis inclusis, c. 2 mm longum, minute scabridiusculum; *glandulae* 5-6, plerumque 5, separatae, transverse anguste oblongae, 1.25-3 mm × c. 0.6 mm, plerumque perleviter concavae, margine laevi leviter incrassato; *lobi* 5-6, forma aliquanto variabili, plerumque transverse oblongi, 1.5-2 mm × × c. 1 mm, irregulariter dentati. *Flores masculi* c. 40-50, 5-6 fasciculati; fasciculi bractea laciniata fimbriata interne subtenti, bracteolisque filamentosis numerosis instructi; *pedicelli* c. 2.5 mm longi; filamenta c. 0.6 mm longa. *Ovarium* subsessile; *ovulum* obturamento dentato aliquanto bilobato suspensum; *styli* patuli reflexique, c. 1 mm longi, libri fere ad basim, apicibus amplificatis rugulosis. *Capsula* trilobata, c. 4 mm alta, usque ad 8 mm diam., subsessilis, pedicello crasso, c. 1.5 mm longo, leviter obtuse 5-6-costato perianthioque rudimentali, aliquanto carnoso, irregulariter dentato, c. 3 mm diam. *Semen globosum*, olivaceo-brunneum vel cinerascens, saepe pallide maculatum et persubtiliter rimulaceo-lineatum, sutura atrobrunnea, c. 2.4 mm diam.

Typus: Angola, Benguela Distr., *Leach & Cannell* 13 907 (BM; LISC, holo.; LUAI; PRE; SRGH).

ANGOLA. Benguela Distr., ± 17.5 km W of Catengue, among rocks in woodland shade, fl. & fr. 10-X-1970, *Leach & Cannell* 14 602 (BR; K; LISC; M; SRGH); ± 6 km E of Catengue, on rocks in Adansonia bush, fl. & fr. 7-X-1970, *Leach & Cannell* 14 589 (G; LUA; WIND; ZSS); ± 5 km W of Caimbambo, on rocks in open and in shade, in Adansonia bush, fl. & fr. 18-VIII-1967, *Leach & Cannell* 13 907 (BM; LISC; LUAI; PRE; SRGH), ibid., cult. Salisbury, fl. & fr. 5-IX-1972, *Leach & Cannell* 13 907A (K; MO); ± 40 km SSE of Catengue, small isolated colony of robust plants on rocky hill, fl. & fr. 21-X-1970, *Leach & Cannell* 14 653 (LISC; SRGH).

E. cannellii is a member of the closely related group of acaulescent small shrubs which includes *E. atrocarmesina* Leach; *E. dekindtii* Pax; *E. semperflorens* and *E. williamsonii* Leach. All of these, except for the last mentioned, which is native to Zambia, are restricted, as far as is known, to the western areas of Angola to the south of Lat. 10°S.

The variably segmented, winged or angled branches of all of these, with the exception of the Zambian species, are continuously horny margined and all are armed with straight paired spines which are longest at the widest part of the segments. Common to all is a subsessile or shortly pedunculate inflorescence of single (not cymose) bisexual cyathia from which subsessile capsules bearing smooth subglobose seeds are eventually developed. Most of the species involved, including *E. cannellii,* enjoy a prolonged («staggered») flowering season. The group appears also to have a close relationship with that containing *E. seretii* De Wild. which displays several of the characters outlined above. *E. cannellii* differs significantly from all these in its very much shorter styles (only ± 1 mm long) and seems to be most closely related to *E. semperflorens* from which it is additionally distinguished by its smaller stature, its more slender, 4-5 angled branches with straight (not undulate) margins, its weaker spinescence and very variably shaped segments, as well as its smaller cyathia with smaller reddish capsules and smaller seeds.

The distribution of the new species appears to be centred on the Caimbambo-Catengue area where plants are plentiful in Adansonia bush and woodland, often on exposed rock outcrops; a small colony of more robust plants bearing an inflorescence of up to 3 horizontally arranged single cyathia (not seen elsewhere in the wild but occasional in a cultivated clone of *L & C* 14 602), was found occupying a small rocky kopje some 40 km along the road towards Quilengues.

Plant: an acaulescent, spreading and somewhat straggling, succulent, spiny shrub, up to ± 0.7 m high (usually less), and as much as 3 m in diameter, with a pungent latex. *Branches* spreading, arcuate-ascending, with the lower portion often somewhat decumbent and sometimes developing adventitious roots when in contact with the soil, mostly simple or only sparingly rebranched, constricted at intervals into very variably shaped segments; *segments* 4- or rarely 5-angled or winged, of very variable length, with a continuous sinuate-dentate, horny margin, at first dark purplish-brown, soon becoming grey. *Spines* in pairs, very variable in length, longest at the widest part of the wings, sometimes almost obsolescent on angular parts, 0.5-12.5 mm long, straight, widely spreading, diverging, with the included angle ± 70°-100°. *Leaves* sessile, more or less ovate, subacute, up to 2 mm long, often wider than long, caducous, leaving an inconspicuous transverse scar with an acute, fleshy prickle on each side, soon deteriorating or occasionally becoming hardened and spine-like. *Inflorescence* a solitary pedunculate bisexual cyathium, produced from the flowering eye shortly above the spine pairs, or very rarely (*L & C* 14 653) with 1-3 horizontally arranged solitary cyathia, with the cyathia developing randomly and successively, over an extended period; *peduncle* stout, cylindric, ± 2.5 mm long and thick, minutely scabridulous. *Bracts* usually split, more or less lunate, ± 3 mm wide, lightly transversely brownish ridged at the base but merging with the peduncle without an evident joint. *Involucre* more or less broadly truncate-obconic, 4.5-6 mm diam. including the glands, ± 2 mm long, minutely scrabridulous; *glands* 5-6 (very rarely 7, *L & C* 14 602, glands then subcontiguous), separate, transversely narrowly oblong, 1.25-3 × × ± 0.6 mm, usually slightly concave, with a smooth, slightly thickened margin; *lobes* 5-6(7), somewhat variably shaped, mostly transversely oblong, irregularly toothed, 1.5-2 × ± 1 mm. *Male flowers* ± 40-50, arranged in 5-6(7) fascicles, with the fascicles with numerous filamentous bracteoles, and subtended on the inside by a deeply laciniate fimbriate bract; *pedicels* ± 2.5 mm long; *filaments* ± 0.6 mm long. *Ovary* subsessile; *ovule* suspended beneath a somewhat two-lobed, dentate, cap-like obturator; *styles* spreading recurved, ± 1 mm long, free almost to the base, with enlarged rugulose apices. *Capsule* 3-lobed, ± 4 mm high, up to 8 mm diam., subsessile with a short, stout, obscurely 5-6 obtusely ribbed pedicel about 1.5 mm long, and a rudimentary, irregularly dentate, somewhat fleshy perianth about 3 mm diam. *Seed* globose, ± 2.4 mm diam., olive-brown to greyish, often marked with whitish or pale blotches and fine crack-like lines; suture dark brown.

Euphorbia dispersa Leach, sp. nov. — PL. X-XI.

E. seretii De Wild. praesertim subspeciei *variantissimae* Leach arcte affinis sed habitu ramis valde patulis; plantis juvenibus florum gemmis carentibus; pedunculis ramisque cymarum non scabridis; cymis cyathiis-3, cyathio medio plerumque masculo deciduo; floribus masculis filamentis brevioribus minus exertis; pe-

rianthio bene evoluto, lobato, dentato, dentibus in sinubus capsulae coalescentibus; stylis brevioribus e basi libris differt.

Frutex succulentus spinosus candelabriformis, interdum arboreus, usque 2.2 m altus (plerumque c. 1.25 m), basiramifer vel aliquando trunco brevi crasso nudo cylindrico usque c. 1 m alto, 30 cm diam., ramis valde patulis arcuato-ascendentibus confertis. *Rami* simplices, usque 2.4 m longi, in segmentis ad intervalia variantia constricti; *segmenta* forma varia, saepe prope basin expansa, angulis late aliformibus, supra in parte plus minusve anguste oblonga angulata producta; *angulis* 4-5 (plerumque 4), marginibus continuis plus minusve aequis vel leviter sinuatis, griseis corneis, spinis binis validis armatis. *Spinae* plerumque breves, crassae, 1.5-5 (10) mm longae. *Folia* plus minusve late triangularia vel late ovata acuta, c. 3 mm lata, cito caduca; *cicatrice* plus minusve reniformi, spinula carnosa acuta, initio c. 2 mm longa sed cito marcescenti, in quoque latere disposita. *Inflorescentia* cymosa; *cymae* 1-3, pedunculatae, horizontaliter dispositae; unaquaeque cyathiis-3 verticaliter dispositis, cyathio initio medio plerumque masculo deciduo, interdum bisexuali; cyathiis lateralibus bisexualibus. *Pedunculus* bibracteatus 2.5-7.5 mm longus, basi c. 3 mm diam. leviter lateraliter compressus, versus apicem auctus ad 5 mm latus, aliquam perleviter sparse pusticulatus haud scabrellus; *ramis cymarum* pedunculo similibus; *bracteae* c. 5 mm latae, 3 mm longae, plus minusve late ovatae, minute denticulatae, prominenter plicato-carinatae, saepe scissae, basi transverse brunneo-porcatae. *Involucrum* cyathiforme, c. 3 mm longum, 6-7 mm diam. glandulis inclusis; *glandulae* 5-7 (infrequenter 7) transverse oblongo-reniformes, 2.5-4 mm × × 1.2-1.5 mm, patulae, leviter convexae, plerumque rugulosae, cum vel sine margine laevi leviter incrassato, integrae, arcte contiguae vel leviter imbricatae, flavae; *lobi* 5-7, subquadrati, c. 1.5 mm lati, brevissime subtiliter fimbriato-dentati. *Flores masculi* 5-7-fasciculati; fasciculis omnibus floribus 8-9 bracteolisque filiformibus instructis, bractea laciniata fimbriata interne subtentis; *pedicelli* usque 3.5 mm longi; *filamenta* c. 0.75 mm vel breviora. *Ovarium* plus minusve anguste obovoideum; costis 3, obtusis prominentibus, lobis alternantibus instructum; pedicello brevi pentagoni, perianthioque bene evoluto, lobato, dentato munitum; *ovulum* obturamento minute denticulato suspensum. *Styli* c. 1.5 mm longi, e basi libri patuli, apicibus bifidis vel emarginatis rugulosis. *Capsula* aliquam obtuse profunde 3-lobata, c. 9 mm diam., 5 mm alta, pedicello curvato vel recto, c. 4 mm vel longiore, basi aliquantum aucto et obscure pentagono, usque ad 3 mm diam., brevissime vel bene ex involucro exserta; *perianthio* irregulariter lobato dentato, c. 4.5 mm diam.; dentibus capsulae in sinubus coalescentibus. *Semen* subglobosum, c. 2.5 mm diam., laeve, atro-brunneum.

Typus: Angola, Benguela Distr., Mariano Machado, *Leach & Cannell* 13 905 (BM; K; LISC, holo.; SRGH).

ANGOLA. Benguela Distr., bare granite hill ± 14 km W of Mariano Machado, fl. & fr. 18-VIII-1967, *Leach & Cannell* 13 905 (BM; K; LISC; SRGH); ± 16 km W of Mariano Machado, fl. & fr. 9-X-1970, *Leach & Cannell* 14 597 (BR; LUA; LUAI; M; PRE); although sterile, acaulescent plants from a granite hill ± 17.5 km E of Caimbambo, almost certainly belong here, st. 18-VIII-1967, *Leach & Cannell* 13 906 (BM; LISC).

Plants are very scattered on otherwise almost bald granite hills, quite unlike the crowded populations in river gorges of its apparently closest relatives, which appear to be relic populations which have been enabled to survive, probably because of protection from fire and possibly by the existence of a suitable micro-climate. It is considered that, despite their scattered nature, the small sparse populations of *E. dispersa* may similarly be relics on fire protected sites.

It seems probable that the rather more robust plants from near Vila Arriaga at the foot of the Serra da Chela escarpment belong here but the material available is at an early stage of flowering with male cyathia only developed, so that a decision regarding their identity is not yet possible. Similar plants from granite hills about 60 km north of Alto Hama are probably also conspecific but only sterile material is as yet available. Live specimens from both localities are in cultivation and it is hoped that flowers and fruits will eventually be obtained from these.

E. dispersa appears to be most closely related to *E. seretii* subsp. *variantissima* from the Kabompo Gorge in north-western Zambia, although there are also affinities with other Angolan species, notably with the as yet uni-

dentified plants occupying Cuchi Gorge in Cuando-Cubango District.

With widely spreading branches the habit of the new species is quite different from that of the more erect plants from Zambia; there also appears to be some significance in the fact that while flower buds are very evident on new growth of quite young plants of both of the gorge populations, these are absent from apparently older (certainly larger) specimens of *E. dispersa* (at the time of writing a relatively small plant of *E. seretii* is in flower and fruit in my garden near Salisbury). The peduncles and cyme branches of the new species are more or less smooth or sometimes sparsely minutely pusticulate but not at all like those of its relative which are densely white flecked scabridulous; there is considerable variation in their length and the cyme branches are usually much longer than the associated peduncle. The inflorescence of *E. dispersa* is regularly arranged in 1-3 cymes of 3 cyathia with the initial cyathium generally male deciduous (all bisexual in *E. seretii),* while the male flowers are, due to their shorter filaments, only shortly exserted from the involucre; the exceptionally well developed perianth of the new species is most distinctive, especially in the manner in which the teeth of the perianth are firmly fused to the sinuses of the developed capsule, the perianth remaining free elsewhere; these teeth are sometimes produced into long subulate points which coalesce with the fleshy covering of the capsule, which latter is somewhat more obtusely lobed than that of its Zambian relative; finally the somewhat shorter styles of the new species are free to their base.

In addition to the foregoing, other apparently constant differences exist in characters more difficult to define in precise terms, such as colour and texture of cuticle and the overall pattern of the spinescence.

A succulent, spiny, candelabriform, sometimes tree-like *shrub* up to 2.2 m high (usually about 1.25 m), branched from the base, or occasionally with a stout, more or less nude, cylindric trunk up to ± 1 m high, 30 cm diam., with widely spreading, arcuate-ascending, crowded branches. *Branches* simple, up to 2.4 m long, constricted into segments at varying intervals; *segments* variably shaped, often expanded near the base with broad wing-like angles, then produced above into more or less oblong, angular portions; with 4-5 (mostly 4) angles, with continuous, more or less even or slightly sinuate, horny, grey margins, armed with stout paired spines. *Spines* mostly short, stout, 1.5-5 (10) mm long. *Leaves* more or less broadly triangular or broadly ovate acute, ± 3 mm wide at the base, almost immediately caducous, leaving a more or less reniform *scar,* with a fleshy, acute prickle, initially about 2 mm long but rapidly deteriorating, on each side. *Inflorescence* cymose with 1-3 horizontally arranged pedunculate cymes of 3 vertically arranged cyathia with the initial central cyathium mostly male, or sometimes bisexual and the lateral cyathia bisexual. *Peduncle* bibracteate, varying in length from 2.5-7.5 mm, about 3 mm diam. at the base, somewhat compressed, expanding towards the apex to about 5 mm wide, sometimes minutely sparsely pusticulate but not scabridulous; *bracts* ± 5 mm wide, 3 mm long, split and deteriorated; *cyme branches* similar to the peduncle but usually longer, up to 7.5 mm long; *bracts* ± 5 mm wide, 3 mm long, usually split, initially finely denticulate, prominently plicate-keeled and with a transverse brown ridge at the base. *Involucre* cup-shaped ± 3 mm long, 6-7 mm diam. including the glands; *glands* 5-7 (usually 5-6), more or less transversely oblong-reniform 2.5-4 mm × 1.2-1.5 mm, spreading, slightly convex, lightly rugulose, with or without a slightly thickened smooth margin, entire, closely contiguous or sometimes slightly overlapping, yellow; *lobes* 5-7, subquadrate ± 1.5 mm wide, very shortly finely fimbriate-dentate. *Male flowers* arranged in 5-7 fascicles, each with 8-9 flowers and numerous filiform divided bracteoles and subtended on the inside by a deeply laciniate fimbriate bract; *pedicels* up to 3.5 mm long; *filaments* ± 0.75 mm or less. *Ovary* more or less narrowly obovoid, with three prominent obtuse ribs alternating with the embryo lobes, borne on a short, ribbed and markedly pentagonal pedicel with a well developed, irregularly lobed and toothed perianth; *ovule* suspended under a minutely denticulate cap-like obturator. *Styles* ± 1.5 mm long, free to the base, widely spreading with shortly bifid or emarginate granulate-rugulose apices. *Capsule* always tending to be held erect whatever the position of the involucre, somewhat obtusely deeply 3-lobed, ± 9 mm diam., 5 mm high, shortly or well exserted from the involucre on a stout, straight or curved pedicel about 5 mm or more long, somewhat enlarged to ± 3 mm diam. at the now only very obscurely pentagonal base; with an

irregularly hexagonal, irregularly toothed *perianth* ± 4.5 mm diam. with the teeth coinciding with the sinuses of the capsule firmly fused thereto and often produced into a long subulate fleshy point which coalesces with the fleshy outer coat of the capsule (perianth otherwise free). *Seed* subglobose, c. 2.5 mm diam., smooth, dark brown.

Euphorbia carunculifera Leach in Bol. Soc. Brot., sér. 2, 44: 190 (1970). — PL. XII-XIII.

Euphorbia rhipsaloides sensu Gossweiler & Mendonça, Carta Fitogeogr. Angol.: 195, 202 (1939) pro parte. — Sensu Gossweiler in Agron. Angol. 1: 128, 161 (1948) pro parte; in Fl. Exot. Angol.: 12, 45 (1950) pro parte et in Agron. Angol. 7: 410 (1953) pro parte.

Two subspecies of this recently described Angolan taxon may be recognized. In the desert areas of the littoral between Moçâmedes and Lucira vast numbers of plants of the typical subspecies are to be seen populating many of the hillsides; while some 180-200 km to the north of Lucira, large numbers of the more erect shrubs of the new subspecies are found occupying the stony hills of the immediate hinterland of Lobito and, in lesser numbers, scattered along the dry watercourses of the Cavaco River area, inland from Benguela.

Subsp. **subfastigiata** Leach, subsp. nov. — PL. XII, fig. 2, and XIII.

A subspecie typica habitu plus minusve fastigiato, frequentius arborescenti; inflorescentia densius tomentosa differt.

Typus: Angola, Benguela Distr., *Leach & Cannell* 14 607 (BM; BR; K; LISC, ♀, holo.; LUAI; MO; PRE; SRGH).

ANGOLA: Benguela Distr., on stony maritime hills, 5-10 km from Lobito on Novo Redondo road, fl. & fr. 10-X-1970, *Leach & Cannell* 14 607 (BM; BR; K; LISC; LUAI; MO; PRE; SRGH); Vale do Cavaco, picada de Capilongo, c. 40 m alt., fl. 19-XI-1968, *Brito Teixeira et al.* 12 784 (LUA); ± 15 km inland from Benguela, along dry watercourses among mudstone hills, in bud 7-X-1970, *Leach & Cannell* 14 587 (BM; K; LISC; LUA; M; PRE; SRGH).

Plants of the new subspecies adopt a more erect and frequently more tree-like habit which is quite different from that of the rounded shrubs of the typical subspecies; while the clustered suberect rod-like branches and branchlets are usually tawny to dark brown scabridulous at the apex and around the leaf scars on older parts. The inflorescence of subsp. *subfastigiata* is more heavily tomentose than that of its southern relative and plants appear to flower earlier than do those of the typical subsp. The population near Lobito was in full flower with many fruits almost mature in early October, 1970, while the only record, from the Cavaco River area, of a specimen in flower bears partially developed fruits (in mid-November); whereas according to the available records the typical subspecies flowers generally in Dec./Jan.

The distribution of the new taxon appears to be restricted to a relatively small area in the vicinity of Lobito and Benguela; it was not seen anywhere to the south to as far as Equimina. Records of subsp. *carunculifera* cover a much larger area, but from as far north only as Lucira.

Subsp. *subfastigiata* appears in many respects to be even closer to *E. tirucalli* L. than does the typical subsp. and seems perhaps to offer some confirmation of a possible evolutionary link between the morphologically closely related taxa of the western littoral of Africa.

*

THE IDENTITY OF EUPHORBIA NEGROMONTANA *N. E. Br.*

Subsequent to the discovery, during the expedition of 1970, of some small populations of plants identifiable as *Euphorbia fragiliramulosa* Leach, it became apparent that these were conspecific with both *E. negromontana* N. E. Br. and *E. conformis* N. E. Br., and that these latter had been described from unisexual female and male specimens respectively. It is consequently now possible to furnish the resulting synonymy, and this follows below:

Euphorbia negromontana N. E. Br. in Thiselton-Dyer, Fl. Trop. Afr. 6, 1: 557 (1911). — Pax & Hoffm. in Engl. & Prantl, Pflanzenfam., Ed. 2, 19c: 214 (1931), sphalm. «negremontana». — PL. XIV and XIV, fig. 1.

Type: Angola, Moçâmedes Distr., *Welwitsch* 632 (BM, lecto.!; G!; K!; LISU!). — PL. XIV.

Euphorbia decussata sensu Hiern, Cat. Afr. Pl. Welw. 1, 4: 944 (1900). Type: as for *E. negromontana*.

Euphorbia viminalis sensu Hiern, Cat. Afr. Pl. Welw., 1, 4: 944 (1900). Type: Angola, Moçâmedes Distr., *Welwitsch* 631 (LISU!).

Euphorbia conformis N. E. Br. in Thiselton-Dyer, Fl. Trop. Afr. 6, 1: 601 (1912). Type: as for *E. viminalis* sensu Hiern.

Euphorbia fragiliramulosa Leach in Bol. Soc. Brot., sér. 2, 44: 201 (1970). Type: Angola, Moçâmedes Distr., *Mendes* 1374 (BM; LISC, holo.; LUA).

ANGOLA. Moçâmedes Distr., Serra de Montes Negros, ♀ young fl., *Welwitsch* 632 (BM, photo; G; K; LISU), ♂ st., *Welwitsch* 631 (LISU); «16 km de Moçâmedes para Dois Irmãos, ♀ and ♂ fl. 24-I-1956, *Mendes* 1374 (BM; LISC; LUA); «entre a foz dos rios Bero e Giraul», ♂ fl. 13-IV-1959, *Correia* 475 (LUAI; SRGH); between Giraul and Bero rivers, ♀ and ♂ fl. 26-X-1970, *Leach & Cannell* 14 664 (BOL; G; LUA; LUAI; M; MO; WIND); ± 4 km E of Moçâmedes, ♀ fl. 31-X-1970, *Leach & Cannell* 14 684 (BM; K; LISC; PRE; SRGH), ♂, 14 685 (BM; K; LISC; PRE; SRGH).

N. E. Brown's description of *E. negromontana* appears to have been based on an exceptionally tall 90-120 cm) female specimen with unusually long internodes and immature cyathia; plants in the two colonies discovered in October 1970, between the Bero and Giraul rivers, averaged only 35-45 cm in height (with a maximum of perhaps 60 cm). The characteristic dark reddish brown colour of the type material appears to be acquired during the drying process and to be restricted to the female plants. None of the recently collected specimens displays as dark a colour as that of Welwitsch's gathering, but this was very nearly approached in a plant, uprooted apparently by wind erosion, and found lying on its side in full sun. It seems possible therefore that this character may be to some extent affected by the age or condition of the plant when collected.

The imperfectly known *E. conformis* appears to have been described from a sterile, glaucous male plant of the same species and is therefore included in the synonymy.

The full description, discussion of relationships and other notes which appear under *E. fragiliramulosa* in *Bol. Soc. Brot.*, sér. 2, 44 (1970) require modification only in respect of the unisexuality of the plants (a character not evident in the material previously available).

Female specimens are generally somewhat taller than the male and are rather less freely branched with longer internodes. Cyathia borne on female plants appear always to be quite devoid of anthers, although rather strangely, are provided with a number of plumose bracteoles; in cyathia of male plants however, there seems always to be an ovary present, although this apparently never develops. Stems and branches are of a peculiar yellowish «khaki» colour when alive, with those of the female plants only sometimes with a slight reddish tinge.

It seems probable that plants are relatively short-lived and possibly monocarpic, while the small colonies are very localized; both factors contributing no doubt to the apparent rarity of the species.

*

ACKNOWLEDGEMENTS

Prof. Eng.º L. A. Grandvaux Barbosa for photographs of *E. viduiflora*, *E. candelabrum*, etc.

Mr. I. C. Cannell for much assistance during our journeys together in Angola, when material of *E. cannellii* was collected.

Dr. L. E. Codd, Director, Botanical Research Institute, Pretoria (PRE), for the facilities of the herbarium and library and especially for many helpful discussions.

Mr. H. D. L. Corby, Dept. of Botany, University of Rhodesia, for dissecting and commenting on the stem structure of *E. viduiflora*.

The Directors of the British Museum (Natural History) (BM); the Instituto Botânico «Dr. Júlio Henriques», Coimbra (COI); the Conservatoire botanique de l'Université de Genève (G); the Royal Botanic Gardens, Kew (K); the Jardim e Museu Agrícola do Ultramar, Lisboa-Belém (LISJC); the Instituto de Investigação Agronómica, Nova Lisboa (LUA); the Instituto de Investigação Científica, Sá da Bandeira (LUAI), for the loan of material and other

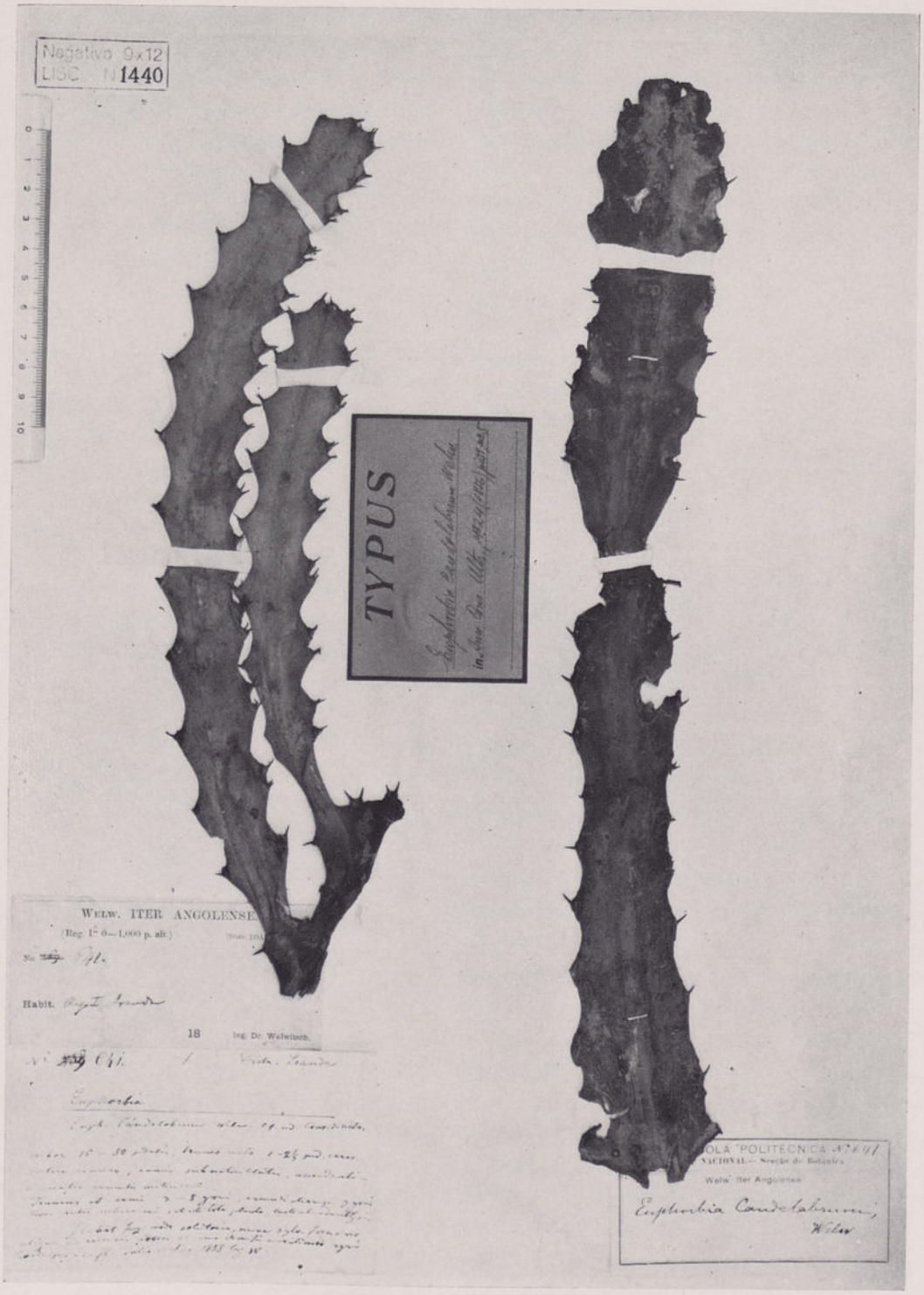
assistance; and of the Botanische Staatssammlung, München (M), and the Museum National d'Histoire Naturelle, Paris (P), for photo-copies from the literature relating to *E. candelabrum* Trém. ex Kotschy.

The Director of the Centro de Botânica da Junta de Investigações do Ultramar, Lisbon (LISC), for the loan of material and for many photo-copies of the literature relating to the Welwitsch collections; and especially to Dr. E. J. Mendes of that institute for many valuable discussions, in correspondence, of the nomenclatural problems in connection with some of Welwitsch's names.

Eng.º A. J. Duarte, lately of the I. I. C. A., Luanda, for valuable cooperation in the matter of the collection of «spirit» material of *E. candelabrum* and *E. viduiflora* at various stages during their growing seasons.

The South African Council for Scientific and Industrial Research for a generous grant towards the coast of my initial Angolan expedition.

Plates



Euphorbia candelabrum Welw.
Luanda, *Welwitsch* 641, lectotype (LISU)

± 16 km E of Luanda

Photo. the late Dr. N. R. Smuts

Plants near Catengue, Benguela Distr., *Leach & Cannell* 13 913

Euphorbia candelabrum Welw.

Fig. 1 — Flowering and fruiting material, Catete, *Duarte* s.n. sub *Leach* 14 447

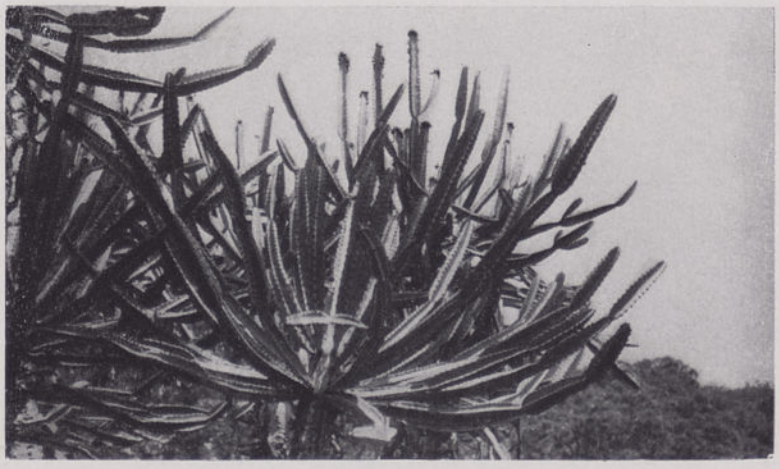
Fig. 2 — Comparison of plants on dry hillside and at edge of pan at foot of hill ± 40 km E of Benguela

Euphorbia candelabrum Welw.

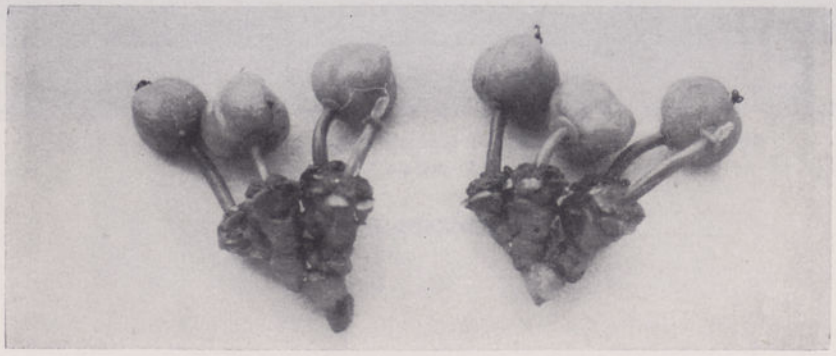
Euphorbia teixeirae Leach

Plant ± 10 m high, on rugged hillside at the type locality near Santa Comba

Salto de Cavalo, Cuanza Riv., Malanje Distr.

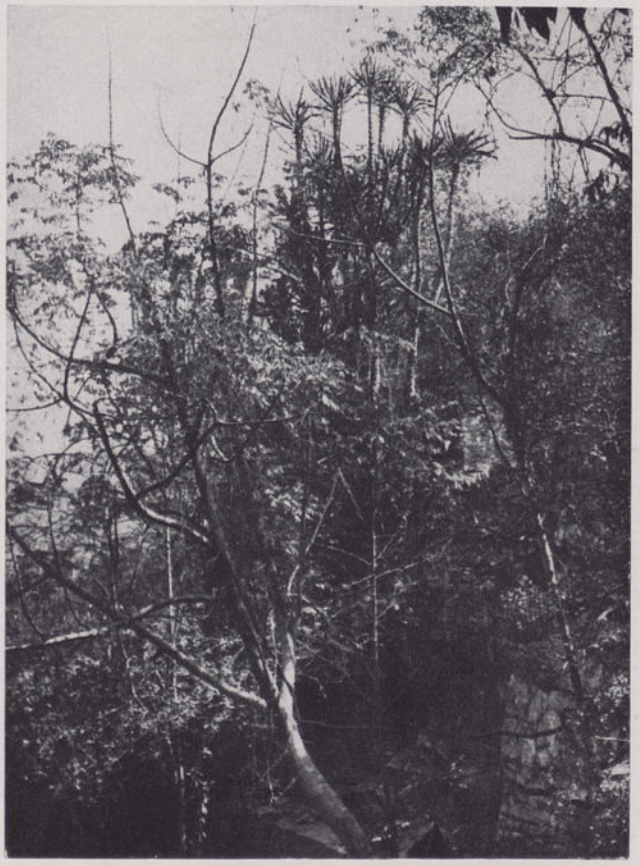


Densely branched heads of rigid branches, type locality



glands and persistent ♂ cyathia
Fruiting cymes showing obtusely lobed capsules, slender pedicels, separate

Euphorbia teixeirae Leach



Serra da Chela escarpment above Bruco *Leach & Cannell* 14 007

Branch fl. & fr. in cultivation at Greendale *Leach & Cannell* 14 007

Euphorbia vallaris Leach

Fig. 1 — **Euphorbia parviceps** Leach
Escarpment ± 60 km E of Lobito, plant ± 10 m high, showing small heads of weak branches, and trunks clad with lichens and epiphytic orchids

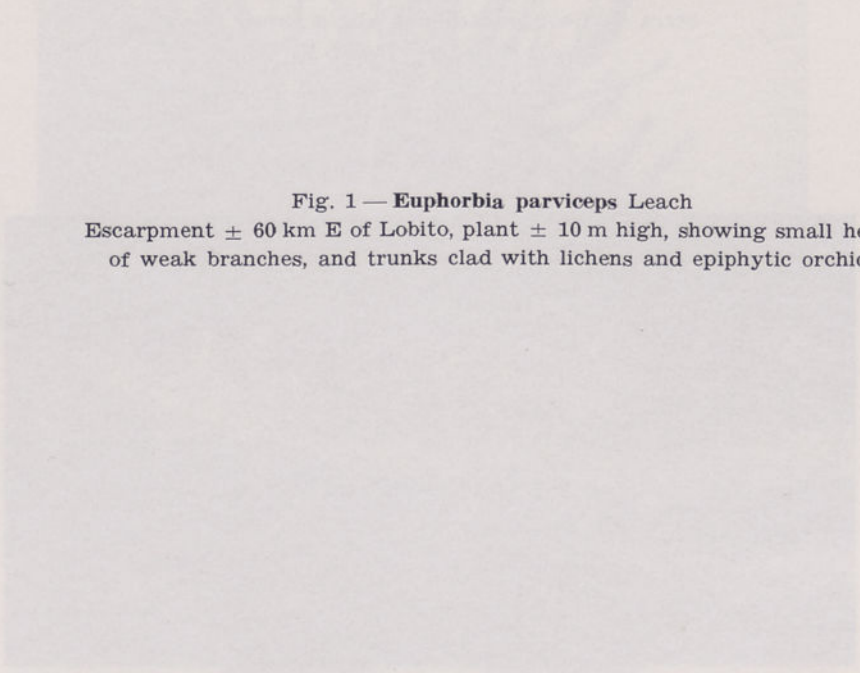
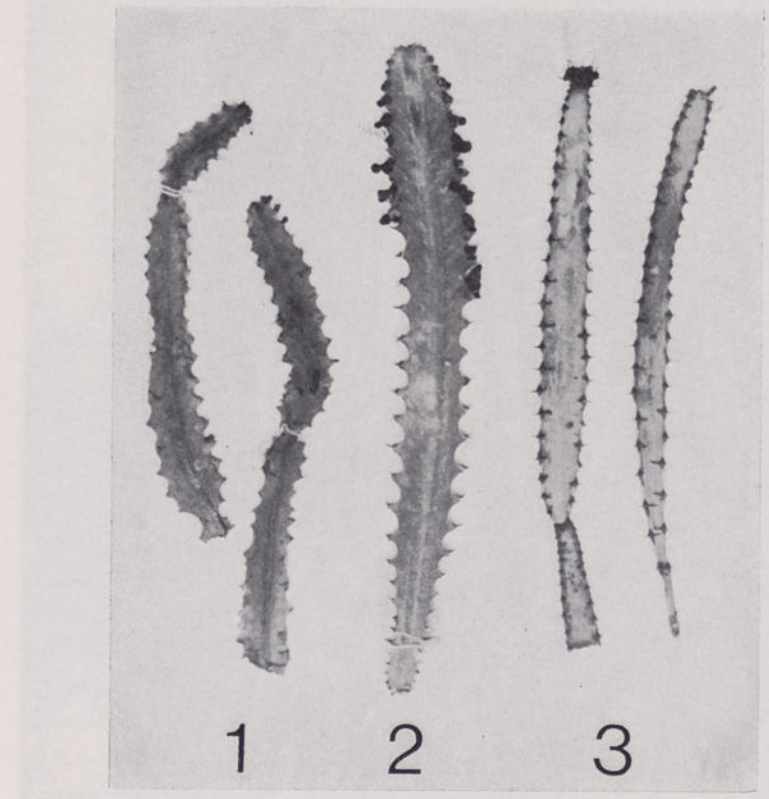


Fig. 2 — **E. candelabrum** Welw. and **E. parviceps** Leach
Growing socially above Parc Cachoeiras, rio Cuvo, Cuanza-Sul



A comparison of branches and fruiting cymes

(1) **E. parviceps**, *L & C* 14 584

(2) **E. vallaris**, *L & C* 14 007

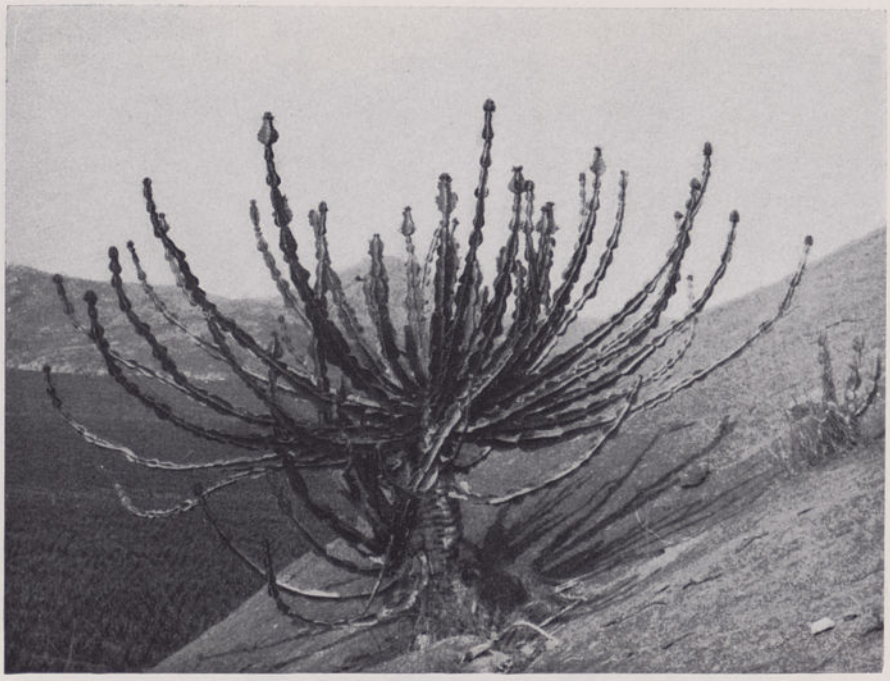
(3) **E. teixeirae**, *L & C* 14 552

Large plant on slab rock in dense bush at the type locality near Caimbambo
Leach & Cannell 13 907

Photo. Mr. I. C. Cannell

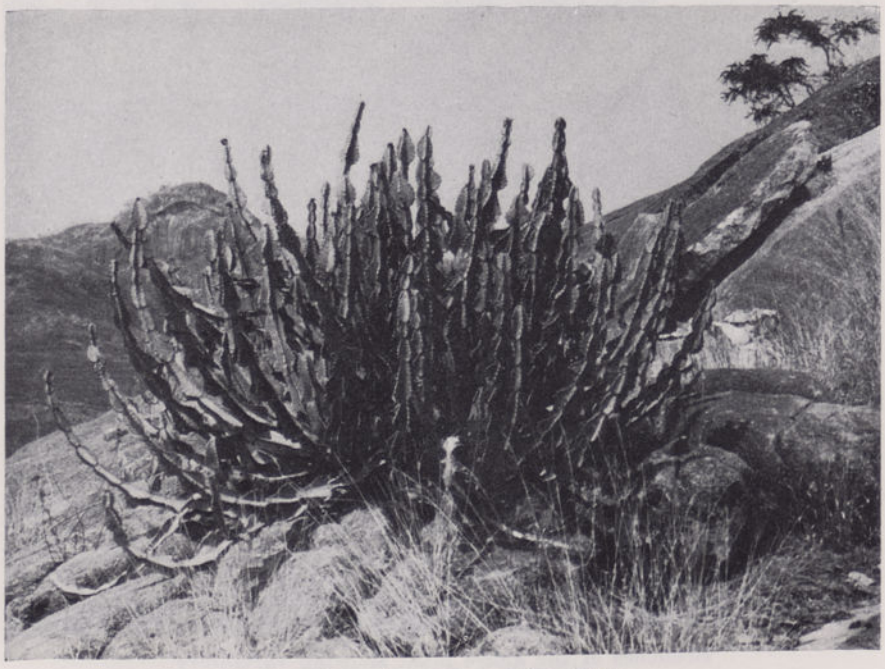
Branches of the above plant showing variability
in size and shape of segments

Euphorbia cannellii Leach



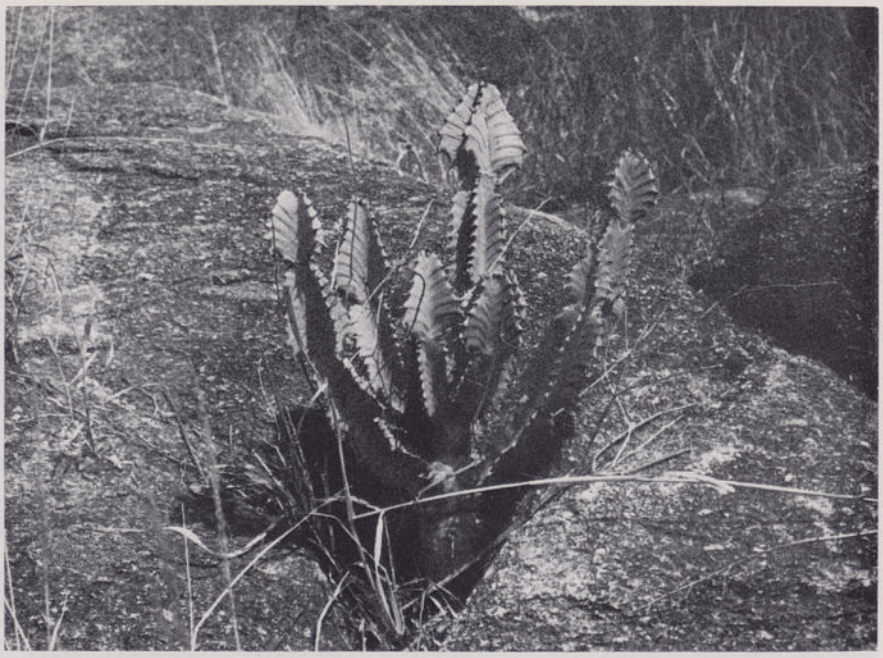
Tree-like plant ± 2.2 m high

Photo. Mr. I. C. Cannell



Acaulescent shrub ± 1.8 m high
Leach & Cannell 13 905, ± 14 km W of Mariano Machado

Euphorbia dispersa Leach



Juvenile in rock crevice
Leach & Cannell 13 905, ± 14 km W of Mariano Machado

Plants ± 1 m high, on brow of isolated granite hill
with similar isolated hills on horizon
Leach & Cannell 13 906, ± 17.5 km E of Caimbambo

Euphorbia dispersa Leach

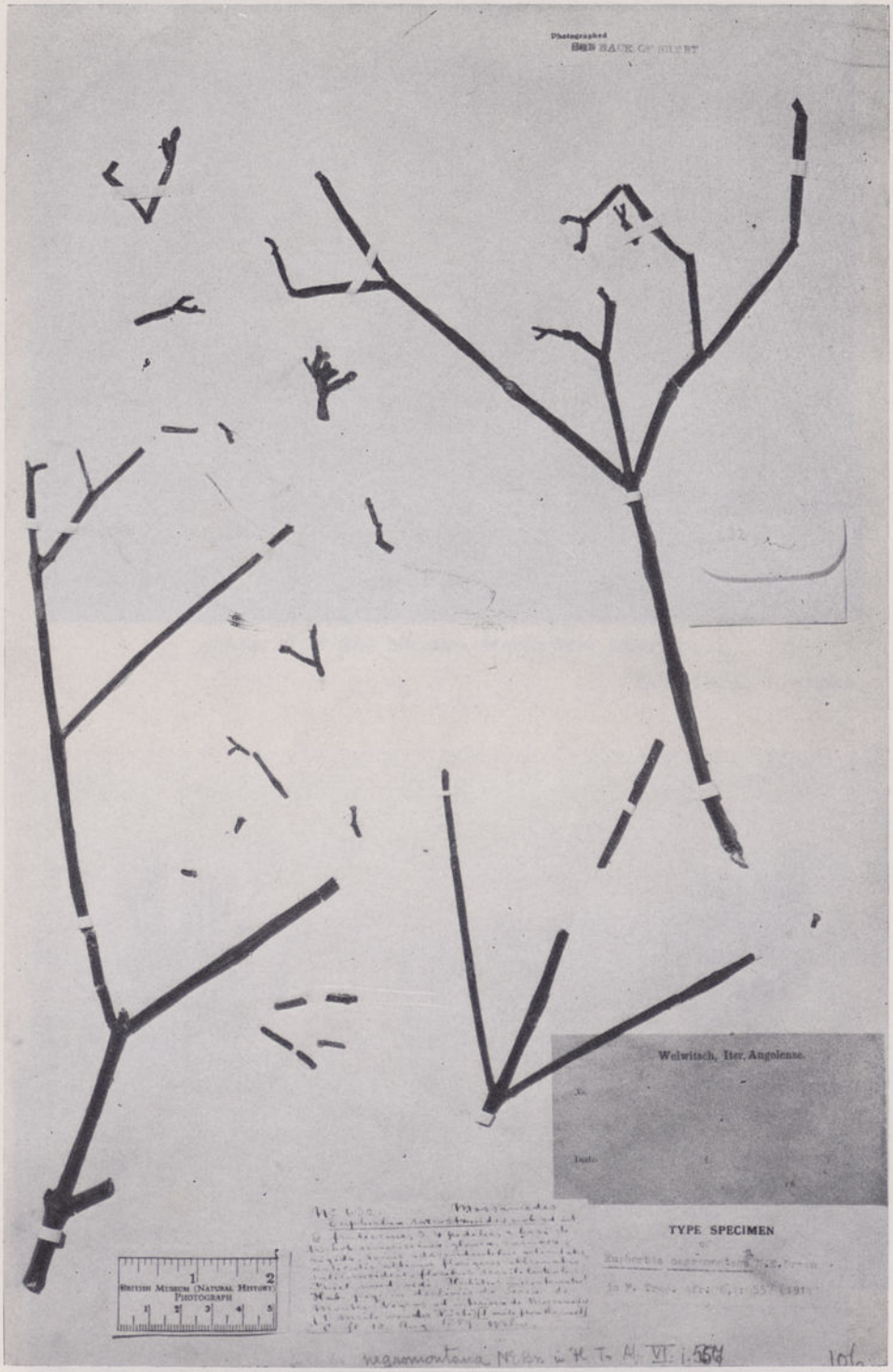
Fig. 1 — **E. carunculifera** subsp. **carunculifera**
Large numbers of plants populating the hills,
± 7 km S of São Nicolau, Moçâmedes District

Photo. Dr. E. J. Mendes

Fig. 2 — **E. carunculifera** subsp. **subfastigiata**
Scattered plants along dry watercourses of the Vale do Cavaco,
± 15 km inland from Benguela

Euphorbia carunculifera subsp. **subfastigiata**
Typical shrubs on stony hills, 5-10 km from Lobito

Leach & Cannell 14 607



Euphorbia negromontana N. E. Br.
Welwitsch 632, lectotype (BM)

Photo. by kind permission of the Trustees of the British Museum (Natural History).

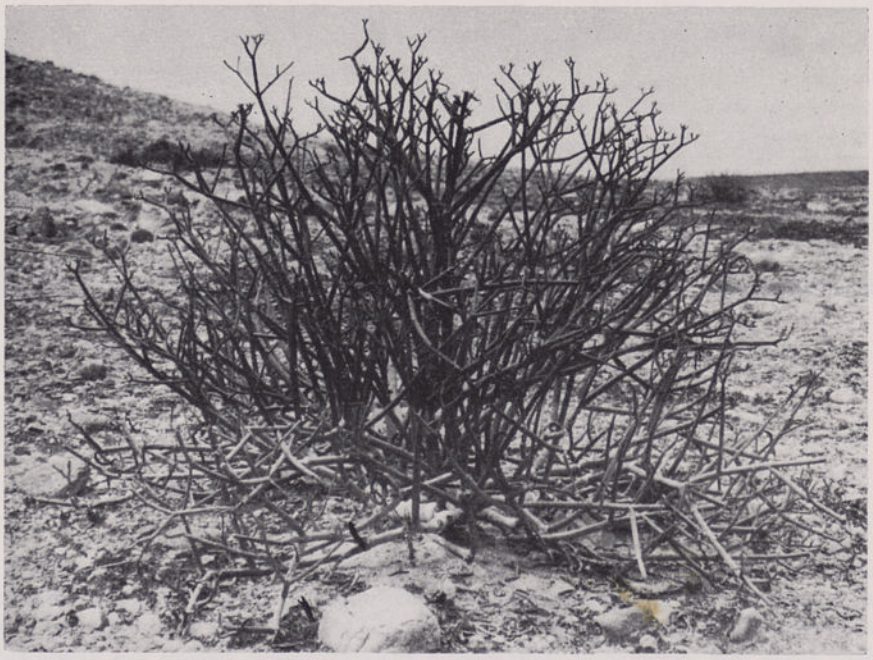


Fig. 1 — **Euphorbia negromontana** N. E. Br.
Giraul River, Moçâmedes Distr.

Fig. 2 — **Euphorbia viduiflora** Leach
Mr. I. C. Cannell examining a plant near Catete
Leach & Cannell 13 967

Memecylon sessilicarpum, sp. nov. *(Melastomataceae)*

A. & R. FERNANDES

Instituti Botanici Universitatis Conimbrigensis

(Acceptus 30-XI-1973)

Descreve-se *Memecylon sessilicarpum*, espécie nova proveniente das proximidades de António Enes, da região costeira de Moçambique. A nova espécie é afim de *M. sansibaricum* Taub. e de *M. sousae* A. & R. Fernandes, dos quais difere principalmente por possuir folhas menores e laxamente reticuladas, bem como flores e frutos sésseis.

The new species *Memecylon sessilicarpum*, collected near António Enes, in the coastal region of Mozambique, is described. The new species is akin of *M. sansibaricum* Taub. and of *M. sousae* A. & R. Fernandes from which it differs in having smaller and loosely reticulate leaves, and by its sessile flowers and fruits.

Memecylon sessilicarpum, sp. nov. — TAB. I.

Arbor vel *frutex* usque ad 7 m altus. *Rami* hornotini anguste 4-alati, siccitate brunneo-purpurei, annotini etiam anguste 4-alati, cortice griseo obtecti, vetustiores ± teretes, cortice griseo ± irregulariter fisso instructi, valde nodosi; internodia 0.5-2.5 cm longa. *Folia* ca. 1 mm longe petiolata, petiolo crasso, supra canaliculato; lamina ovata vel elliptica, (1.5) 2-3.5 × 1-2.5 cm, apice obtusa, margine brunnea, basi rotundata vel leviter cordata interdum leviter subcuneata, coriacea, discolor (pagina superiore obscure luteo-brunneo-viridi, inferiore lutea) vel fere concolor (pagina superiore obscure viridi, inferiore laete viridi), longitudinaliter 3-nervia, costa et jugo laterale utrinque ± prominentibus sed jugo laterale tenuiore, reticulo conferto utrinque notato sed in pagina inferiore conspicuiore. *Flores* sessiles ad nodos 3-6 (vel plures) dense conferti, basi bracteati, bracteis concavis. Alabastra sphaerica ca. 1.5 mm in diam. Calycis lobi crassi, apice inflexi, 0.75-1.25 mm lati et 1 mm alti, leviter apiculati. Petala (unum evolutum tantum visum) oblonga, ca. 1.5 × 1 mm, leviter unguiculata. Androecium et gynoecium evoluta non vidimus. *Fructi* immaturi sessiles ad nodos ramorum dense aggregati, calycis lobis rubris ca. 1.5 mm altis coronati.

Alabastra: Oct. Fr. immat.: Jan.

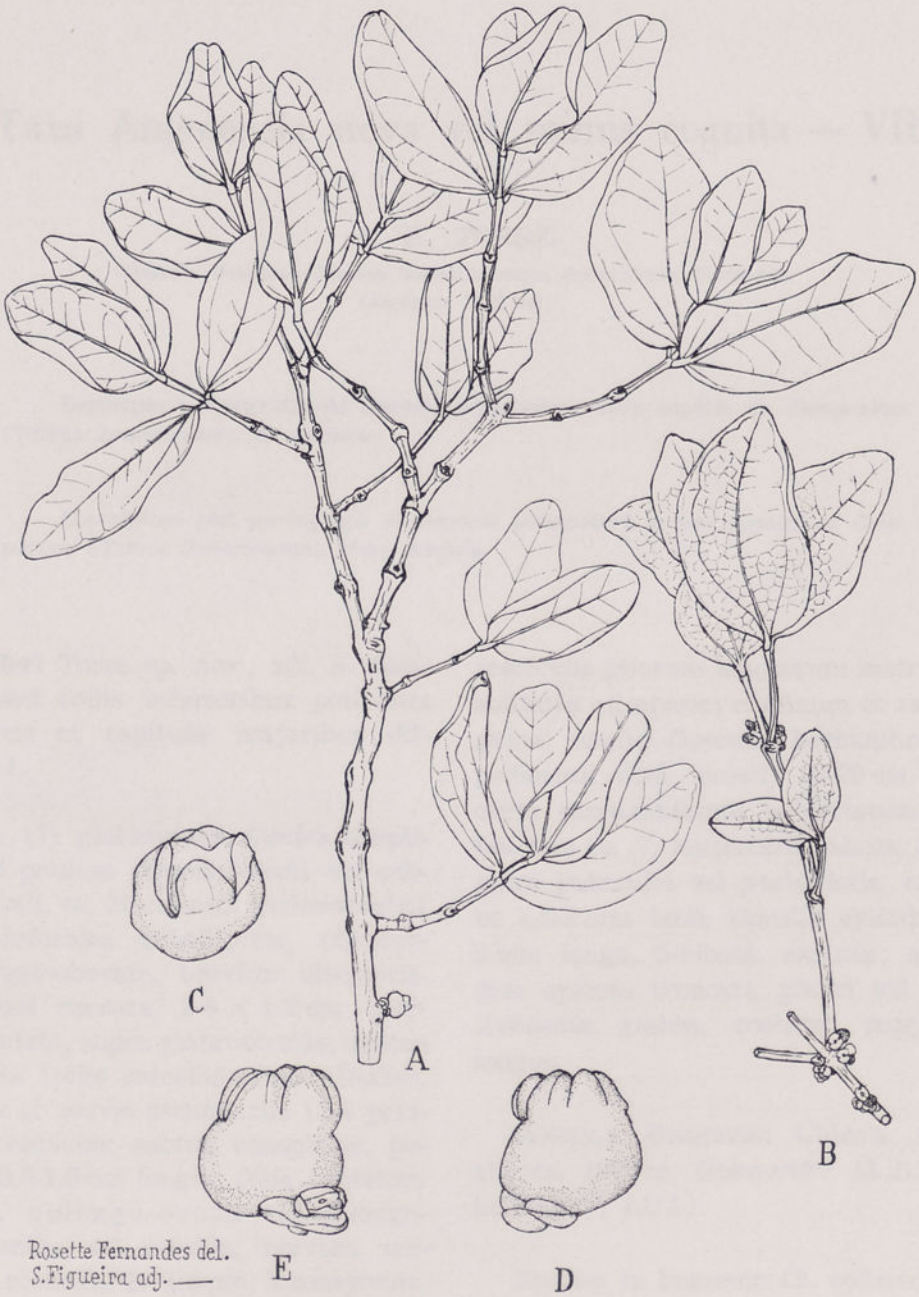
Habitat in Mozambique, loco dicto António Enes, «ao km 5, entre a praia e a lagoa, em frente à Missão, arbusto ca. 3 m, frutos imaturos, abundante na floresta aberta com *Cynometra* sp., *Trachylobium verrucosum, Ochna* sp., *Garcinia, Vepris* sp., *Commiphora* sp., *Landolphia* sp., etc., solos arenosos», 25-I-1968, *Torre & Correia* 17 355 (COI; K; LISC, holotypus; SRGH).

Etiam in António Enes, «in the coast, 16° 15′ S, 40° E Gr., a shrub, violet coloured flowers, in the woody vegetation of the dunes», 17-X-1965, *Gomes e Sousa* 4868 (K). António Enes, «Nantangula Praia, woodland scrub, sandstone, shrub 3-5 m», alt. ca. 5 m, st. 17-X-1965, *Mogg* 32 302 (LISC). Idem, «*Colophospermum* forest, sandstone, common, tree 2-5 m, alt. ca. 2 m», alab.

17-X-1965, *Mogg* 32 306 (LISC). Idem, «evergreen tree 4-7 m», st. 16-X-1965, *Mogg* 32 249 (LISC). Idem, st. 22-X-1965, *Mogg* 32 519 (LISC). Idem, «shrub 3-5 m», alab. 20-X-1965, *Moog* 32 468 (LISC).

Affinis M. sansibarico Taub. var. buchananii (Gilg) A. et R. Fernandes, a quo foliis minoribus [(1.5) 2-3.5 × 1-2.5 cm neque 3.8-10.5 × 2-5.2 cm], petiolo breviore (1 neque 3-6 mm), floribus et fructibus sessilibus praecipue differt.

Affinis etiam M. sousae A. et R. Fernandes a quo foliis minoribus [(1.5) 2-3.5 × 1-2.5 cm neque 3-9 × 1.5-6.5 cm], petiolo breviore (1 neque 2-5 mm), reticulo paginae inferioris foliorum laxiore, floribus et fructibus sessilibus praecipue differt.



Memecylon sessilicarpum A. et R. Fernandes

A — Rami pars superior fructum juvenilem ostendens, × 1; B — Rami pars superior inflorescentias juveniles ostendens, × 1; C — Fructus juvenilis desuper visus, × 6; D, E — Fructus juvenilis cum bracteis, lateraliter visus, × 6. A, C, D, E ex *Torre & Correia* 17 355 (LISC); B ex *Mogg* 32 306 (LISC)

Taxa Angolensia nova vel minus cognita — VII

A. R. TORRE

Centrum Botanices Junctae Investigationum Scientificum Ultramaris

(Acceptus 21-II-74))

Descrição e fotografia de *Senecio gossweileri*, nova espécie de *Compositae* (Tribus *Senecioneae*), de Angola.

Description and photograph of *Senecio gossweileri*, a new species of *Compositae* (Tribus *Senecioneae*), from Angola.

Senecio gossweileri Torre sp. nov., aff. *S. basifoliis* Bak. sed foliis inferioribus petiolatis glabrescentibus et capitulis majoribus differt. — TAB. I.

Herba annua (?) glabrescens. *Caules* simplices vel cespitosi paulum ramosi, erecti vel suberecti, monocephali, ca. 30 cm alti, glabrescentes. *Folia* caulina inferiora subelliptica, oblongo-ovata vel oblongo-obovata, breviter discoloria, apice obtusa, basi cuneata, 2-4 × 1-2 cm, margine sparse crenulata, supra glabrescentia, subtus dense pubescentia (pilis unicellularibus albidis), nervura mediana et nervis secundariis (3-4 paribus) supra inconspicuis subtus conspicuis, petiolata, petiolis 0.5-1.5 cm longis; folia superiora oblonga-obovata, oblongo-ovata vel oblongo-elliptica, subsessilia vel sessilia, nervura mediana et nervis secundariis (supra inconspicuis, subtus conspicuis); axillae foliorum inferiorum fasciculis pilorum lanosorum instructae. *Capitula* solitaria ad apicem caulinum et ramorum, homogama, omnia flosculis hermaphroditis, ca. 35; pedunculi nudi, erecti, 10-20 cm longi; involucrum campanulatum uniseriatum ecalyculatum, bracteis ca. 7, lanceolatis, alatis, acutis, glabris, apice puberulis vel penicillatis, ca. 8 mm longis et 1.5-2 mm latis. *Corolla* cylindrica, lutea, ca. 9 mm longa, 5-lobata, exserta; styli rami versum apicem truncati, glabri vel subglandulosi. *Achaenia* glabra, costata; pappus ca. 5 mm longus.

ANGOLA. Benguela: Chicala, Calenga (Es), alt. ca. 1900 m, *Gossweiler* 12 212 (BM; LISC, holotypus; LUA).

Species in honorem Cl. collectoris florae Angolae John Gossweiler nominata.

Taxa Angolenia nova vel minus cognita — VII

A. R. TORRE

Centrum Botanicae Investigationum Scientificum Ulixbonense

(Accepta III-II-70)

Descrição e fotografia de Senecio pascuellen, nova espécie de Compositae (Tribus Senecioneae), de Angola.

Description and photograph of Senecio pascuellen, a new species of Compositae (Tribus Senecioneae), from Angola.

Senecio gossweileri Torre

Gossweiler 12 212 (LISC, holotypus)

Aditamentos à flora de Angola — I

ISABEL NOGUEIRA

Instituto Botânico da Universidade de Coimbra

(Recebido em 8-III-1974)

Referem-se pela primeira vez para Angola um género e duas espécies: *Spergularia media* (L.) Presl e *Bergia ammannioides* Heyne ex Roth, e alarga-se a área de distribuição em Angola de outras quatro.

First notification is given of the occurrence in Angola of one genus and two species: *Spergularia media* (L.) Presl and *Bergia ammannioides* Heyne ex Roth, and the range of four other species is enlarged.

Ao realizarmos tarefa de rotina de identificação de espécimes de várias colecções, para integração no nosso herbário, verificámos que havia dois exemplares, que correspondiam a taxa inéditos para Angola e quatro colhidos em distritos para onde não tinham ainda sido assinalados.

Apresentamos, seguidamente, uma pequena nota onde damos notícia dessas novidades, visto pertencerem a famílias que já foram tratadas no *Conspectus Florae Angolensis*.

Ao Ex.^{mo} Sr. Prof. Doutor Abílio Fernandes expressamos os nossos sinceros agradecimentos pela cuidadosa revisão do nosso manuscrito.

1. **Spergularia media** (L.) C. Presl, Fl. Sic.: 161 (1826). — H.-Ch. Friedrich in Prodr. Fl. S. W. Afr., Fam. 31: 5 (1967). — TAB. I.

Arenaria media L., Sp. Pl., ed. 2: 606 (1762).

Arenaria marginata DC., Fl. Fr. 4: 703 (1804).

Spergularia marginata (DC.) Kittel, Tasch. Fl. Deutschl., ed. 2: 1003 (1844).

MOÇÂMEDES: Porto Alexandre, fl. & fr. 15-X-1969, *Murta & Silva* 850 (COI; LUAU). Foz do Cunene, fl. & fr. 14-I-1956, *Mendes* 1286 (BM; COI; LISC; LUAI; M; MO; SRGH); fl. & fr. 12-X-1968, *Teixeira et al.* 12 711 (LISC; LUA).

Género e espécie novos para a flora de Angola.

As chaves para a determinação dos géneros de *Caryophyllaceae* publicadas em *Consp. Fl. Angol.* 1: 108 (1937), podem ser convenientemente adaptadas se substituirmos a linha 4 da p. 108 como passa a indicar-se:

Sépalas livres ou quase livres:

Estiletes livres desde a base:

Estípulas nulas, pétalas bífidas ... ... 1. *Stellaria*

Estípulas escariosas, pétalas inteiras:

Cápsulas trivalves; estiletes 3; estípulas adunadas ... ... 3. *Spergularia*

Cápsulas com 5 valvas; estiletes 5; estípulas livres ... ... 2. *Spergula*

Damos a seguir uma pequena descrição da espécie:

Planta vivaz, de 10-40 cm, com raiz grossa e lenhosa. Caules robustos, sublenhosos inferiormente, glabros na parte inferior e peludo-glandulosos superiormente. Folhas carnudas, ± comprimidas, mucronadas ou múticas; estípulas escariosas, adunadas na base, ovado-lanceoladas nos nós superiores. Inflorescências axilares e terminais, laxas e paucifloras. Flores grandes; cálice (4-5 mm) de sépalas quase livres, obtusas ou subagudas no ápice; pétalas largamente ovais, brancas, branco-rosadas ou rosadas, muitas vezes mais pálidas na base, geralmente maiores que o cálice; estames 10 (7-9), mais curtos que as pétalas; ovário ovóide subséssil; estiletes 3, curtos, livres ou ligeiramente unidos na base. Cápsula ovóide, trivalve; sementes piriformes, ovóide-lenticulares a lenticulares ± comprimidas com asa completa de largura muito variável.

DISTRIBUIÇÃO GEOGRÁFICA: Largamente dispersa na Europa e África do Norte. Na África Tropical encontrava-se apenas citada para o Sudoeste Africano.

NOTA. — Esta espécie, certamente introduzida em Angola, encontrou nos salgadiços de Porto Alexandre e de Foz do Cunene condições óptimas para o seu desenvolvimento.

2. **Bergia ammannioides** Heyne ex Roth, Nov. Pl. Sp.: 219 (1821). — Roxb., [Hort. Beng.: 34 (1814), nom. nud.] Fl. Ind., ed. 2, 2: 456 (1832), «ammanoiodes». — Oliv., F. T. A. 1: 152 (1868), «ammanoides». — Engl., Pflanzenw. Afr. 3, 2: 523, t. 237 fig. K — R (1921). — Keay, F. W. T. A., ed. 2, 1: 128 (1954). — Wild. in Fl. Zamb. 1: 373, t. 72 fig. A (1961).

HUÍLA: Cunene, Cuamato, Roçadas, Fazenda experimental do I. I. A. A., margem esquerda do rio Cunene, fl. & fr. 22-VII-1970, *Santos & Barroso* 2790 (COI; LISC; LUAI); Mucope, Txika, alt. ca. 1200 m, fl. & fr. 7-VII-1957, *Teixeira* 2632A (LISC).

Erva anual, erecta ou decumbente, de 10-30 cm de altura, das savanas, geralmente nos terrenos húmidos ou pantanosos.

Esta espécie, nova para a flora de Angola, é próxima de *B. polyantha*, distinguindo-se dela pelas suas flores mais pequenas, subsésseis, em agregados densos verticilados.

DISTRIBUIÇÃO GEOGRÁFICA: Largamente espalhada na África, Ásia e Austrália.

3. **Rhamnus prinoides** L'Hérit., Sert. Angl.: 6, t. 9 (1788). — Sond. in Harv. & Sond., F. C. 1: 477 (1860). — Hemsl. in Oliv., F. T. A. 1: 382 (1868). — Bak. f. in Journ. Linn. Soc., Bot. 40: 45 (1911). — Eyles in Transv. Roy. Soc. S. Afr. 5: 407 (1916). — Burtt Davy, F. P. F. T. 2: 470 (1932). — Brenan, T. T. C. L.: 468 (1949); in Mem. N. Y. Bot. Gard. 8, 3: 329 (1953). — Suesseng. in Proc. & Trans. Rhod. Sci. Ass. 43: 110 (1951); in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 20 d: 65 (1953). — Exell & Mendonça, C. F. A. 2: 31 (1954). — Pardy in Rhod. Agr. Journ. 53: 965 cum photogr. (1956). — Verdcourt in Bull. Jard. Bot. Brux. 27: 358 (1957). — Keay, F. W. T. A., ed. 2, 1: 670 (1958). — Evrard in F. C. B. 9: 433 (1960). — Dale & Greenway, Kenya Trees and Shrubs: 391 (1961). — White, F. F. N. R.: 227 (1963). — Drummond in Fl. Zamb. 2: 427, t. 89, fig. B (1966). — Drummond & Torre in Fl. Moçamb., Fam. 49: 10 (1973).

À área de distribuição desta espécie acrescente-se o distrito do Bié:

BIÉ: Cuemba, a jusante das quedas do rio Cuemba, arbusto virgado até 3 m, fl. 2-X-1965, *Santos* 1932 (COI; LISC; LUAU); fl. 2-X-1965, *Monteiro & Murta* 1782 (LISC).

DISTRIBUIÇÃO GEOGRÁFICA: Luanda, Benguela, Bié e Huíla. Largamente dispersa nas altitudes elevadas desde a Etiópia até Angola e província do Cabo.

NOME VERNÁCULO: «Numa».

4. **Neptunia oleracea** Lour., Fl. Cochinch. 1: 654 (1790). — Oliv., F. T. A. 2: 334 (1871). — Benth. in Trans. Linn. Soc. 30: 383 (1875). — Torre & Mendonça in Est. Ens. Doc., Junt. Invest. Ultram. 12: 93 (1954); in C. F. A. 2: 267 (1956). — Keay, F. W. T. A., ed. 2, 1: 496 (1958). — Brenan in F. T. E. A., Legum.-Mimos.: 40, fig. 12 (1959). — Mitchell in Puku, 1: 150 (1963). — Brenan & Brummitt in Fl. Zamb. 3: 45 (1970).

Mimosa prostrata Lam., Encycl. 1: 10 (1783) excl. β *M. natans* L. f., nom. illegit.

Neptunia prostrata (Lam.) Baill. in Bull. Soc. Linn. Par. 1: 356 (1883). — Bak. f., Legum. Trop. Afr. 3: 809 (1930). — Gilbert & Boutique in F. C. B. 3: 198 (1952).

Herborizou-se este taxon no distrito da Huíla, onde não estava ainda assinalado:

HUÍLA: s.l., *Antunes v. Dekindt* 906 (LISC); Tyimbolelo, ribeira temporária Duvangué, fl. & fr. imat. 11-II-1956, *Mendes* 1712 (BM; BR; LISC); Cuamato, Mucope, fl. & fr. 3-III-1956, *Menezes* 2489 (LISC; LUAI); Roçadas, nas águas paradas do rio Cunene, fr. 9-X-1969, *Murta & Silva* 742 (COI; LUAU).

DISTRIBUIÇÃO GEOGRÁFICA: Luanda, Cuanza-Sul e Huíla. Frequente nos trópicos do Velho e Novo Mundo.

5. **Oenothera tetraptera** Cav., Icon. 3: 40, t. 279 (1796). — Gossw. in Agr. Angol. 1: 145 (1948). — R. & A. Fernandes in Garcia de Orta, 7: 495 (1959); in C. F. A. 4: 202 (1970).

Esta espécie, conhecida de Angola apenas do distrito de Benguela, foi herborizada recentemente mais para sul:

HUÍLA: Sá da Bandeira, Lubango, fl. & fr. 11-XI-1971, *Anabela Borges* 309 (COI; LUAI).

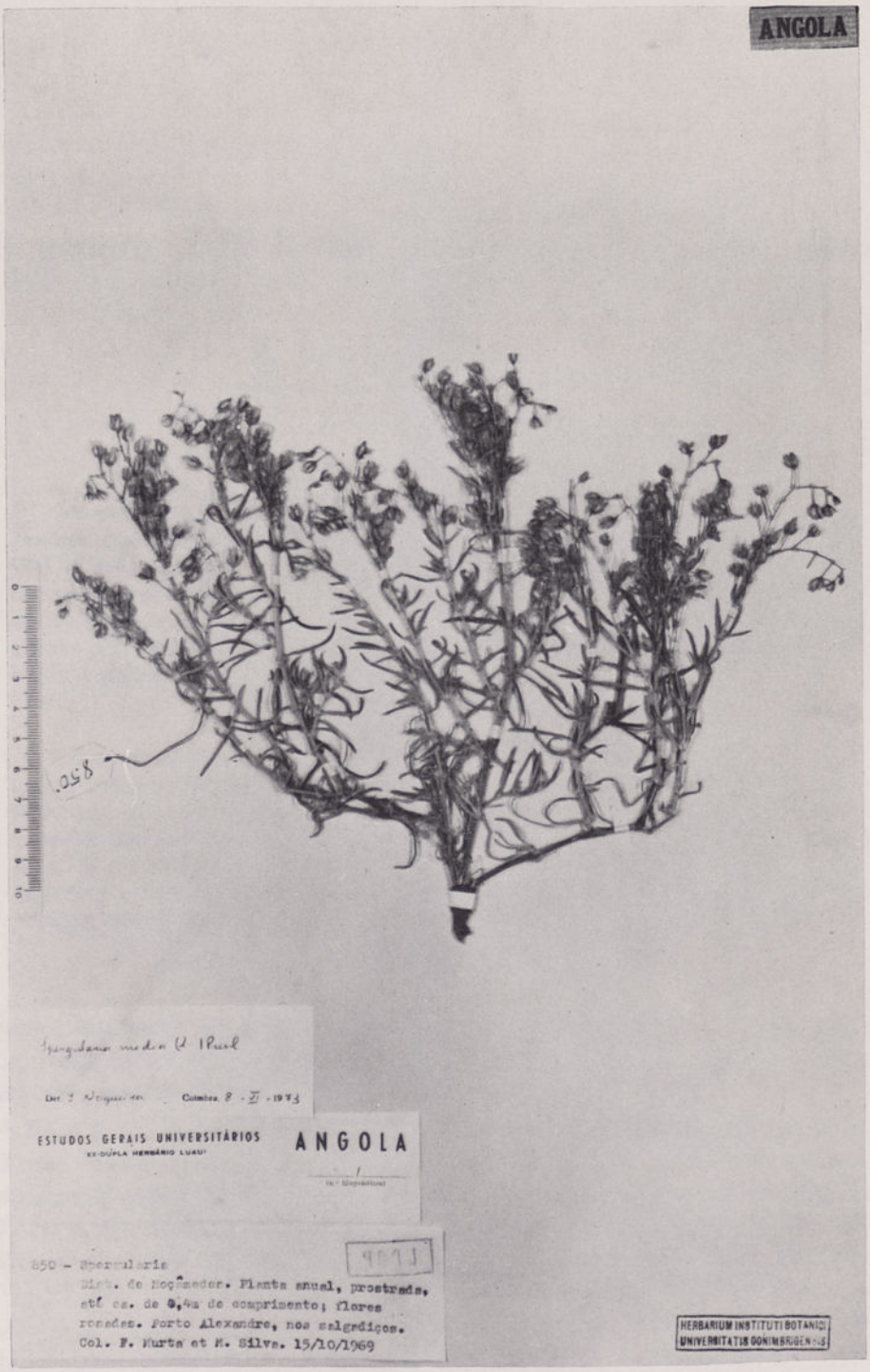
6. **Apium leptophyllum** (Pers.) F. Müll. ex Benth., Fl. Austr. 3: 372 (1867). — Hiern, Cat. Afr. Pl. Welw. 1: 425 (1898). — Sprague in Journ. of Bot. 61: 129 (1923). — Cannon in C. F. A. 4: 343 (1970).

Pimpinella leptophylla Pers., Syn. Pl. 1: 324 (1805).

Apium ammi sensu Wolf in Engl., Pflanzenr. IV, 228: 53 (1927).

Esta espécie, referida para Angola, somente do distrito de Luanda, foi agora encontrada no da Huíla:

HUÍLA: Sá da Bandeira, sopé da serra de Chela, fl. & fr. 26-I-1971, *Anabela Borges* 18 (COI; LISC; LUAI).



Spergularia media (L.) Presl
Murta & Silva 850 (COI)

O género *Sida* L. no arquipélago de Cabo Verde

J. A. R. PAIVA & ISABEL NOGUEIRA

Instituto Botânico da Universidade de Coimbra

(Recebido em 15-III-1974)

Reabilita-se *Sida cordifolia* L. var. *angustifolia* P. Cout., mas considerando-a como espécie independente — *S. coutinhoi* J. Paiva & I. Nogueira, *nom. nov. et stat. nov.* Em quadro apresentam-se os caracteres diferenciais mais nítidos entre a nova espécie e as duas mais próximas (*S. alba* L. e *S. cordifolia* L.). Faz-se também a revisão do género *Sida* L. no arquipélago de Cabo Verde, com chaves para a identificação das seis espécies reconhecidas e descrições do género e das espécies.

Sida cordifolia L. var. *angustifolia* P. Cout. is rehabilitated, but considered as an independent species — *S. coutinhoi* J. Paiva & I. Nogueira, *nom. nov. et stat. nov.* A table is given presenting the more striking differential characters between the new species and both *S. alba* L. and *S. cordifolia* L., the nearest ones. A revision of genus *Sida* L. from Cape Verde islands is also presented, including a key for the identification of the six species recognized in the archipelago; descriptions of the genus and the six species are also given.

Ao estudarmos o material do género *Sida* L. de Cabo Verde, depararam-se-nos exemplares que não pertenciam a qualquer das espécies até agora indicadas para a flora do arquipélago.

Pela abundância desse material, surgiram-nos sérias dúvidas de que os autores que trabalharam na flora cabo-verdiana não tivessem notado a existência do novo taxon a que nos vamos referir.

Assim, resolvemos fazer uma revisão dos espécimes pertencentes àquele género existentes nos herbários do Instituto Botânico de Coimbra, Instituto Botânico de Lisboa e Centro de Botânica da Junta de Investigações Científicas do Ultramar. Pela bibliografia consultada, admitimos também que *Sida cordifolia* L. var. *angustifolia* P. Cout. pudesse condizer com os caracteres do taxon em questão. Estudando os síntipos de *S. cordifolia* L. var. *angustifolia* P. Cout., não tivemos dúvidas de que se tratava do mesmo taxon. No entanto, CHEVALIER (1935) inclui na sinonímia de *S. alba* L. aquela variedade de P. COUTINHO (1914).

Não podemos concordar de modo nenhum com o ponto de vista de CHEVALIER, pois o taxon é bastante diferente de *S. alba* L., bastando para o distinguir a presença de pêlos retrorsos nas aristas dos mericarpos e não patentes ou antrorsos, como em *S. alba* L., e ainda os mesmos serem deiscentes no cimo, e não na base, como em *S. alba* L. A deiscência basilar dos mericarpos distingue *S. alba* L. de qualquer das outras espécies de *Sida* L. da flora de Cabo Verde.

Também não podemos seguir o critério de P. COUTINHO, considerando o taxon como uma variedade de *S. cordifolia* L., pois as folhas são elípticas a linear-oblongas e obtusas a truncado-arredondadas na base, e não largamente ovadas a suborbiculares e de base cordada a arredondada; e ainda por o tamanho e número dos

órgãos florais ser completamente diferente. É certo que *S. cordifolia* L. se distinguia de todas as outras espécies do género em Cabo Verde por ser a única que apresentava pêlos retrorsos nas aristas dos mericarpos, carácter presente também em *S. cordifolia* L. var *angustifolia* P. Cout. Talvez tivesse sido essa a razão que levou aquele ilustre professor a considerar o referido taxon como uma variedade de *S. cordifolia* L.

Infelizmente, não nos é possível utilizar como restritivo específico o epíteto *angustifolia,* publicado por P. COUTINHO como variedade de *S. cordifolia* L. A escolha de outro epíteto é forçada pelas regras internacionais de nomenclatura, pois aquele restritivo já foi utilizado para espécies de *Sida* L. (*S. angustifolia* Lam.; *S. angustifolia* Medic.; *S. angustifolia* Mill.). Na impossibilidade de utilizarmos o epíteto publicado por P. COUTINHO, resolvemos, em homenagem ao autor da variedade, dedicar-lhe a espécie que designamos como *S. coutinhoi* J. Paiva & I. Nogueira. Mais adiante apresentamos uma descrição latina da espécie como complemento da restrita descrição da variedade apresentada por P. COUTINHO (1914).

Dissemos já quais os caracteres fundamentais que distinguem as três espécies *S. alba* L., *S. cordifolia* L. e *S. coutinhoi* J. Paiva & I. Nogueira. Para melhor comparação, apresentamos no quadro seguinte os seus caracteres diferenciais mais salientes:

Caracteres	*S. alba* L.	*S. cordifolia* L.	*S. coutinhoi* J. Paiva & I. Nogueira
Limbo foliar	1.4-4.6 × 0.4-1.8 cm; ovado ou oblongo-lanceolado a ovado-lanceolado; ápice ± subagudo a subarredondado; margem regularmente serrada; base truncada a arredondada ou muito raramente subcordada; página superior verde-escura, estrelado-pubescente a glabrescente; página inferior mais clara, densamente estrelado-pubescente a tomentosa; peninérveo e com 5-6 nervuras na base.	1.5-7 × 1-5.5 cm; largamente ovado a suborbicular; ápice obtuso a subagudo; margem ±irregularmente crenada; base cordada a arredondada; densamente estrelado-pubescente em ambas as páginas; mas a inferior mais clara e tomentosa, com longos pêlos patentes adicionais; peninérveo e com 5-9 nervuras na base.	2-5 × 0.3-1 cm; elíptico a linear-oblongo; ápice obtuso; margem regularmente crenado-serrada; base obtusa ou truncado-arredondada; página superior pubescente; página inferior com indumento mais denso e verde-amarelado; peninérveo e com 3-5 nervuras na base.
Pecíolo	Até ca. de 2 cm longo, com 1-2 calosidades na base.	Até 4 cm longo, sem calosidades na base.	Até 3 cm longo, sem calosidades na base.
Pedicelo	Até ca. 12 (15) mm longo, articulado.	Até 18 mm longo, por vezes articulado.	Até 10 mm longo, não articulado.
Cálice frutífero ...	4-6 mm longo, cupuliforme, 10-costado, estrelado-tomentoso, lobos deltóide-triangulares ± agudos mucronado-apiculados.	7-8 mm longo, campanulado-cupuliforme, densamente tomentoso, 10-costado, lobos triangulares, agudos.	Até 5.5 mm longo, campanulado, ligeiramente 10-costado, lobos deltóides, acentuadamente agudos.
Pétalas	Até 6 mm longas.	Até 9 mm longas.	Até 6 mm longas.
Mericarpos	5, não rugosos no dorso, 4-5 mm longos (incluindo a arista); pêlos da arista antrorso ou patentes; deiscentes pela base.	9-10, transversalmente rugosos no dorso, c. 7 mm longos (incluindo a arista); pêlos da arista retrorsos; não deiscentes pela base.	7-8, transversalmente rugosos no dorso, até 4.5 mm longos (incluindo a arista); pêlos da arista retrorsos; não deiscentes pela base.

Finalmente apresentamos descrições do género e das seis espécies inventariadas até à data para a flora de Cabo Verde, estas antecedidas de chaves dicotómicas, que permitirão a sua fácil identificação:

SIDA L.

Sida L., Sp. Pl. 2: 687 (1753); Gen. Pl., ed. 5: 306 (1754).

Ervas anuais ou perenes ou subarbustos (raramente arbustos fora da área), erectos ou prostrados, pubescentes a densamente tomentosos, mais raramente glabros. Folhas com estípulas geralmente caducas, simples, serradas ou crenado-serradas (muitas vezes trilobadas ou trifoliadas fora da área), cordadas a acunheadas na base, pecioladas. Flores pediceladas ou subsésseis, solitárias ou fasciculadas na axila das folhas, ou em cachos, por vezes subespiciformes. Epicálice ausente. Cálice campanulado a cupuliforme persistente e por vezes acrescente; lobos 5, ovados a triangulares, agudos ou acuminados. Pétalas 5, sésseis, geralmente pouco maiores que o cálice, usualmente cremes a alaranjadas, ± unidas na base e ao tubo estaminal. Estames unidos em tubo dilatado na base, sendo a parte livre dos filamentos relativamente muito curta. Ovário de 5-∞ carpelos, uniovulados; estiletes em número igual ao dos carpelos, ± cilíndricos; estigmas capitados ou truncados. Fruto de 5-∞ mericarpos, separáveis no fim da maturação, deiscentes pelo ápice ou, raramente, pela base, ou indeiscentes, em geral transversalmente rugosos, agudos, múticos ou mucronados a aristados, glabros ou pilosos. Sementes cuneiformes; cotilédones conduplicados; endosperma exíguo ou ausente.

Género cosmopolita das regiões tropicais e temperadas, constituído por ca. 200 espécies, sobretudo americanas.

Plantas com indumento de longos pêlos simples, patentes; mericarpos curtamente mucronados ou múticos ... ... 1. *S. urens*

Plantas com indumento de pêlos estrelados, sem ou com raros pêlos simples e patentes; mericarpos rostrados ou aristados:

Mericarpos biaristados; aristas piloso-híspidas; flores em fascículos axilares, raramente solitárias ou em glomérulos subespiciformes:

Mericarpos 5, deiscentes pela base; aristas com pêlos antrorsos ou patentes ... ... 2. *S. alba*

Mericarpos 7-10, não deiscentes pela base; aristas com pêlos retrorsos:

Mericarpos 7-8; limbo foliar 3-10 mm de largura, elíptico a linear-oblongo, obtuso ou truncado-arredondado na base e com 3 nervuras (excepcionalmente 5) na base ... ... 3. *S. coutinhoi*

Mericarpos 9-10 (12); limbo foliar 15-50 (70) mm de largura ovado a suborbicular, arredondado a cordado na base e com 5-9 nervuras na base ... ... 4. *S. cordifolia*

Mericarpos birrostrados; rostos esparsamente estrelado-pubescentes a glabrescentes e ± conniventes até à maturação; flores axilares, solitárias ou geminadas:

Pedicelos frutíferos até 35 mm longos; flores solitárias; mericarpos 8-12; limbo foliar densamente estrelado-tomentoso na página inferior ... ... 5. *S. rhombifolia*

Pedicelos frutíferos até 10 (12) mm longos; flores solitárias ou geminadas; mericarpos (5) 6-9 (10); limbo foliar ± esparsamente estrelado-pubescente na página inferior ... ... 6. *S. acuta*

1. **Sida urens** L., Syst. Nat., ed. 10, 2: 1145 1759. — Webb in Hook., Niger Fl.: 108 (1849). — Schmidt, Beitr. Fl. Cap Verd. Ins.: 288 (1852). — Mast. in Oliv., Fl. Trop. Afr. 1: 179 (1868). — P. Cout. in Arq. Univ. Lisboa, 1: 297 (1914); *op. cit.* 2: 41 (1915). — Chev. in Rev. Bot. Appl. 15: 946 (1935). — Keay in Fl. West Trop. Afr., ed. 2, 1: 339 (1958). — Sunding, Check-list Vasc. Pl. Cap. Verd. Is.: 18 (1973).

Erva vivaz até ca. 0.5 m de altura, ramosa desde a base, provida de longos pêlos simples, ca. 1.5 mm longos, patentes. Folhas com estípulas, ca. 3 mm longas, filiformes; pecíolo 1-1.5 (3) mm longo, cilíndrico com longos pêlos simples patentes; limbo (1.5) 3-5.5 (7) × (1.3) 2-4 (4.5) cm, ovado-cordado, oblongo-cordado a cordado-suborbicular, membranáceo, acuminado ou atenuado no ápice, serrado na margem, largamente cordado na base, peninérvio mas com 5-7 nervuras basilares, ± estrelado-pubescente em ambas as páginas. Flores amareladas, fasciculadas ou subcapitadas num pedúnculo comum, por vezes subsésseis; pedicelos até ca. 10 mm longos, com longos pêlos patentes. Cálice 5-7 mm longo, campanulado, lobado, segmentos ca. 3 mm longos, triangulares, atenuado-aristados, com longos pêlos simples. Pétalas 6-9 mm longas, obovadas, 5-nérvias, ± emarginadas. Tubo estaminal ca. 1.5 mm longo. Ovário 5-lobado; ramos do estilete ca. 2.5 mm longos. Mericarpos 5, inclusos no cálice, ca. 2.5 mm longos, tríquetros, faces laterais membranosas ± reticuladas, ± lisos e não reticulados dorsalmente, curtamente mucronados ou múticos, por vezes pubescentes no ápice. Sementes ca. 1.5 mm longas, ovóides, cuneiformes, lisas.

SANTO ANTÃO: Astraga, fl. & fr. 6-IV-1956, *G. Barbosa* 7151 [C. E. C. V. (1); LISC]; Ribeira da Janela, fl. & fr. V-1892, *Cardoso* s.n. (LISU); s. loc., fl. & fr. IX-XI-1893, *Cardoso* s.n. COI; LISU); Monte Jelho, XII-1893, *Cardoso* s.n. (LISU); Mato Estreito, 15 e 20-VI-1887, *Cardoso* 55 (COI); Boca do Pinhão, fl. & fr. VI-1887, *Cardoso* 165 (COI).

S. NICOLAU: Babosa, fl. & fr. 21-IV-1956, *G. Barbosa* 7275 (C. E. C. V.; LISC); Monte Gordo, fl. & fr. III-1893, *Cardoso* s.n. (COI); s. loc., fl. & fr. XII-1893, *Cardoso* 43 (LISU); s. loc., fl. & fr. XI-1893, *Cardoso* s.n. (LISC); idem, *Cardoso* 200 (LISU).

SANTIAGO: Caminho da Ribeira de S. Francisco, Achada da Água Funda, fl. & fr. 30-XI-1955, *G. Barbosa* 5802 (C. E. C. V.; LISC); entre Mato Brasil e Achada Lagoa, fl. & fr. 19-XII-1955, *G. Barbosa* 6020 (C. E. C. V.; COI; LISC); Os Órgãos, fl. & fr. III-1864 *Lowe* s.n. (LISU); Trindade fl. 16-XI-1908, *Herb. Miss. E. Agr.* (2) 36 (LISU).

BRAVA: De Pedra de Água para Nova Sintra, fl. & fr. 10-II-1956, *G. Barbosa* 6610 (C. E. C. V.; LISC).

Amplamente espalhada pelas regiões tropicais e subtropicais.

Nom. vern.: «Lolo» (*G. Barbosa* 5802); «Lolo de cachorro» (*G. Barbosa* 6610 e 7151); «Que-sapo» (*Cardoso* 55).

2. **Sida alba** L., Sp. Pl., ed. 2: 960 (1763). — Chev. in Rev. Bot. Appl. 15: 947 (1935), pro parte excl. *S. cordifolia* L. var. *angustifolia* P. Cout. — Keay in Fl. West. Trop. Afr., ed. 2, 1: 339 (1958). — Sunding, Check-list Vasc. Pl. Cap. Verd. Is.: 18 (1973), pro parte — TAB. I, fig. C.

Sida spinosa L., Sp. Pl.: 683 (1753), pro parte. — Webb in Hook., Niger Fl.: 107 (1849). — Mast in Oliv., Fl. Trop. Afr. 1: 180 (1868). — Henriq. in Bol. Soc. Brot. 13: 142 (1896). — P. Cout. in Arq. Univ. Lisboa, 1: 297 (1914).

Sida affinis Schmidt, Beitr. Fl. Cap Verd. Ins.: 285 (1852).

Erva anual ou vivaz (subarbusto muito ramificado, fora da área) 30-50 cm de altura, densamente estrelado-pubescente, por vezes com raros pêlos simples, patentes adicionais. Folhas com estípulas 6-10 mm longos, filiformes, ± persistentes; pecíolo até 2 cm longo, cilíndrico, estrelado-pubescente com 1-2 calosidades na base, por vezes subespinescentes; limbo (1.2) 1.4-4.6 (5) × × 0.4-1.8 (3) cm, ovado ou oblongo-lanceolado a ovado-lanceolado, subagudo a subarredondado no

(1) Centro de Estudos de Cabo Verde da Junta de Investigações Científicas do Ultramar, Cidade da Praia, Santiago, Cabo Verde.

(2) A Missão de Estudos Agronómicos a Cabo Verde em 1908 foi constituída por Pinto de Lemos, Pereira da Cunha Capitato e A. da Costa Andrade.

ápice, regularmente serrado na margem, truncado a arredondado ou muito raramente subcordado na base, peninérvio, mas com 5-6 nervuras basilares, verde-escuro e estrelado-pubescente a glabrescente na página superior, verde-esbranquiçado e densamente estrelado-pubescente a tomentoso na página inferior. Flores brancas ou amarelas, axilares fasciculadas ou mais raramente solitárias; pedicelo até ca. 12 (15) mm longo, filiforme, estrelado-tomentoso, articulado na metade superior. Cálice 4-6 mm longo, cupuliforme, 10-costado, estrelado-tomentoso, lobado, segmentos 1.5-2 × 2-3 mm, deltóide-triangulares, ± agudos, mucronado-apiculados. Pétalas 5-6 (8) mm longas, obovadas. Tubo estaminal ca. 1.5 mm longo, parte livre dos filetes ca. 2 mm longa. Ovário 5-carpelar; estilete dividido em 5 ramos ca. 4 mm longos. Mericarpos 5, inclusos no cálice, 4-5 mm longos, tríquetros, biaristados (aristas ca. 1.5 mm longas, com pêlos antrorsos ou patentes); faces laterais membranosas, deiscentes ± irregularmente pela base. Sementes ca. 1.5 mm de diâmetro, cuneiformes.

SANTO ANTÃO: s. loc., fl. & fr. VI-1893, *Cardoso* s.n. (LISU); Caminho de Monte Jelho, fl. & fr. 1893, *Cardoso* s.n. (LISU).

S. VICENTE: De Ribeira de Mato Inglês para o Mindelo, fl. & fr. 19-II-1956, *G. Barbosa* 6673 (C. E. C. V.; LISC); Maderal, s.d., *Bolle* s.n. (COI); Monte Verde, fl. & fr. IX-1934, *Chevalier* 45 741 (COI; LISC).

S. NICOLAU: s. loc., fl. & fr. X-1892, s. col., s.n. (COI); Monte Gordo, fl. & fr. XI-XII-1893, *Cardoso* s.n. (LISU); s. loc., fl. & fr. X-1893, *Cardoso* 159 (LISU).

SANTIAGO: s. loc., fr. 1885, *Cardoso* s.n. (COI); 100 m depois do cruzamento Tarrafal-Praia de Baixo, fl. 29-XI-1955, *G. Barbosa* 5777 (C. E. C. V.; LISC); a 3,2 km do cruzamento de Trás-os-Montes, na estrada Tarrafal-Calheta, fl. & fr. 16-XII-1955, *G. Barbosa* 5982A (COI; LISC).

Largamente dispersa pelas regiões tropicais da África e América.

Nom. vern.: «Lolo» (*G. Barbosa* 6673).

3. **Sida coutinhoi** J. Paiva & I. Nogueira, *nom. nov. et. sat. nov.* — TAB. I, fig. A.

Sida cordifolia L. var. *angustifolia* P. Cout. in Arq. Univ. Lisboa, 1: 298 (1914).

Sida alba sensu Chev. in Rev. Bot. Appl. 15: 947 (1935), pro parte quoad *S. cordifolia* L. var. *angustifolia* P. Cout. — Sunding, Check-list Vasc. Pl. Cap. Verd. Is.: 18 (1973), pro parte.

Herba annua vel perennis, usque ad 25 cm alta, caulibus teretibus, simplex vel basi ramosa et ramis prostrato-adscendentibus, dense stellato-pubescentibus. *Folia* stipulata, stipulis ca. 3 mm longis, filiformibus, stellato-tomentellis, caducis; petiolata, petiolo ad. ca. 3 cm longo, terete, stellato-pubescenti; lamina 2-5 × 0.3-1 cm, elliptica vel lineari-oblonga, apice obtusa, margine crenato-serrata, basi obtusa vel truncato-rotundata, 3-5 nervis, supra viridis stellato-pubescente, subtus viridi-subflava, stellato-tomentosa. *Flores* lutei, axilares, fasciculati vel rarius solitarii; pedicello ad 10 mm longo, filiformi, tomentoso. *Calyx* usque ad 5.5 mm longus, campanulatus, breviter 10-costatus, stellato-tomentosus, lobis ca. 2.5 mm diam., deltoideis, acutis. *Petala* ad 6 mm longa, ± obovata, *Stamina* ∞, tubo staminео ca. 1.5 mm longo. *Ovarium* 7-8 carpellis; styli ramis 7-8, 3-4 mm longis. *Mericarpia* 7-8, ca. 4.5 mm longa, 2 aristis ± 2 mm longis, ovata, apice retrorso-hispida. *Semina* ca. 2 mm diam., basi rotundata; apice depressa, burneo-rubescentia, hilo aurantiaco.

SANTO ANTÃO: s. loc., s.d., *Cardoso* s.n. (COI); Porta do Sol IX-1893, *Cardoso* s.n. (LISU, lectotypus) s. loc., fl. & fr. 1894, *Cardoso* s.n. (LISU); Ribeira da Graça, fl. & fr. XI-1894, *Cardoso* s.n. (LISC; LISU).

SANTIAGO: Entre a Praia e a Trindade a 4 km da Praia, fl. & fr. 22-XI-1955, *G. Barbosa* 5583 (COI; LISC; MO); entre o Tarrafal e a Colónia Penal, fl. & fr. 17-XII-1955, *G. Barbosa* 6002 (C. E. C. V.; K; LISC; MO).

FOGO: De Cova Figueira para S. Filipe, povoação do Patim, fl. & fr. 9-I-1956, *G. Barbosa* 6209 (C. E. C. V.; LISC).

BRAVA: No Favatal, fl. & fr. 7-II-1956, *G. Barbosa* 6577 (C. E. C. V.; LISC).

Endémica.

Nom. vern.: «Lolo» (*G. Barbosa* 6577); «Lolo branco» (*G. Barbosa* 5583); «Lolo fino» (*G. Barbosa* 6002); «Lolo preto» (*G. Barbosa* 6209).

Serve para fazer vassouras (*G. Barbosa* 5583) e cordas para sacos (*G. Barbosa* 6209).

4. **Sida cordifolia** L., Sp. Pl. 684 (1753). — Webb in Hook., Niger, Fl.: 108 (1849). — Schmidt, Beitr. Fl. Cap Verd. Ins.: 287 (1852). — Mast in Oliv., Fl. Trop. Afr. 1: 181 (1868) — Henriq. in Bol. Soc. Brot.

13: 142 (1896). — P. Cout. in Arq. Univ. Lisboa, 1: 298 (1914); *op. cit.* 2: 42 (1915). — Béguinot in Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, 8: 37 (1917). — Chev. in Rev. Bot. Appl. 15: 947 (1935). — Keay in Fl. West Trop. Afr., ed. 2, 1: 339 (1958). — Sunding, Check-list Vasc. Pl. Cap. Verd. Is.: 18 (1973). — TAB. I, fig. B.

Erva anual ou vivaz erecta ou subarbusto 0.5-1 (2.5) m de altura, densamente estrelado-pubescente, tornando-se glabrescente, com alguns pêlos simples patentes (ca. 3 mm longos). Folhas com estípulas ca. 5 mm longas, filiformes, estrelado-tomentosas, caducas; pecíolo até 4 cm longo, cilíndrico, estrelado-tomentoso, por vezes com raros pêlos adicionais simples e patentes; limbo 1.5-7 (10) × 1-5.5 (7) cm, largamente ovado a suborbicular, obtuso a subagudo no ápice, ± irregularmente crenado na margem, cordado ou raramente arredondado na base, peninérvio mas com 5-9 nervuras basilares proeminentes na página inferior, densamente estrelado-pubescente em ambas as páginas, mas a inferior mais clara e tomentosa com longos pêlos patentes adicionais, e a superior tornando-se, por vezes, glabrescente. Flores amareladas, solitárias e axilares, ou mais frequentemente fasciculadas, formando por vezes glomérulos subespiciformes terminais; pedicelos 4-18 (20) mm longos, cilíndricos, tomentosos, os maiores por vezes articulados. Cálice 7-8 mm longo, campanulado-cupuliforme, 10-costado, densamente tomentoso, lobado, segmentos ca. 3 mm longos, triangulares agudos. Pétalas 7-9 (10) mm longas, obovadas. Tubo estaminal ca. 4 mm longo. Ovário globoso 9-10 carpelar; estilete dividido quase desde a base em 9-10 ramos ca. 5 mm longos. Mericarpos 9-10 (12), inclusos no cálice, ca. 7 mm longos, biaristados [aristas 3-4 (6) mm longas, retrorso-híspidas], faces laterais ± plissadas, transversalmente rugosos no dorso. Sementes ca. 2 mm de diâmetro, cuneiforme-ovóides, lisas, glabras mas com alguma pubescência junto do hilo.

SANTO ANTÃO: Ribeira de Paul, XII-1852, *Bolle* s.n. (COI); Cabo da Ribeira, Paul, fl. & fr. 1890, *Cardoso* s.n. (LISU); s. loc., fl. & fr. X-1893, *Cardoso* s.n. (COI); s. loc., XII-1887, *Cardoso* 229 (COI); Monte Joane, fl. & fr. II-III-1894, *Cardoso* s.n. (LISU); Ribeira do Corvo e Fontainhas, fl. & fr. II-III e X-1894, *Cardoso* s.n. (LISC; LISU).

S. NICOLAU: Ribeira Brava, fl. & fr. IX-1891, *Cardoso* 20 (COI).

BOA VISTA: Portal Esteves, fl. & fr. 4-V-1956, *G. Barbosa* 7361 (C. E. C. V.; LISC).

SANTIAGO: Da Praia para Milho Branco, a 8 km da Praia, alt. 190, fl. 29-XI-1955, *G. Barbosa* 5751 (C. E. C. V.; LISC); Entre Pedra Badejo e Calheta, Vale dos Flamengos, fl. & fr. 9-XII-1955, *G. Barbosa* 5900 (LISC; MO); Entre a Ribeira de S. Miguel e Ribeireta, arred. de Calheta, fl. & fr. 15-XII-1955, *G. Barbosa* 5962 (LISC); s. loc., s. d., *Bolle* s.n. (COI); Trindade, fl. e fr. 27-II-1908, *Herb. Miss. E. Agr.* 91 (LISU).

FOGO: Daca, Balaio, fl. & fr. 9-X-1908, *Herb. Miss. E. Agr.* 61 (LISU).

Largamente dispersa pelas regiões tropicais e subtropicais.

Nom. vern.: «Altea» (*Cardoso* 229); «Lôlo» (*G. Barbosa* 5751); «Lôlo branco» (*G. Barbosa* 5900); «Malva» (*G. Barbosa* 7361); «Malvisco» (*Cardoso* 229).

5. **Sida rhombifolia** L., Sp. Pl. 2: 684 (1753). — Webb in Hook., Niger Fl.: 108 (1849). — Schmidt, Beitr. Fl. Cap Verd. Ins.: 287 (1852). — Mast in Oliv. Fl. Trop. Afr. 1: 181 (1868). — Henriq. in Bol. Soc. Brot. 13: 142 (1896). — P. Cout. in Arq. Univ. Lisboa, 1: 298 (1914). — Béguinot in Ann. Mus. Civ. Stor. Nat. Genova, ser. 3, 8: 37 (1917). — Chev. in Rev. Bot. Appl., 15: 946 (1935). — Keay in Fl. West. Trop. Afr., ed. 2, 1: 339 (1958). — Petterson in Comm. Biol. Soc. Sc. Fenn. 22, 9: 29 (1960). — Sunding, Check-list Vasc. Pl. Cap. Verd. Is.: 18 (1973).

Erva anual ou vivaz ou subarbusto até 1 (1.5) m de altura, erecta ou erecto-prostrada, não muito ramificada; ramos cilíndricos, estrelado-pubescentes tornando-se glabrescentes. Folhas com estípulas 5-6 mm longas, aciculares, pubescentes; pecíolo 3-5 mm longo, pubescente; limbo (1) 1.5-5 (6) × 0.5-1.5 (3) cm, obovado-oblongo a oblongo-lanceolado, arredondado a obtuso no ápice, crenado ou crenado-serrado na margem, largamente acunheado a arredondado na base, peninérveo mas com 3 nervuras basilares, verde-escuro e esparsamente pubescente ou quase glabro na página superior, glauco e estrelado-tomentoso na inferior. Flores amarelas ou creme, axilares, solitárias; pedicelos 1.5-2 cm longo até 3.5 cm na frutificação, cilíndricos, glabrescentes muitas vezes articulado no terço superior. Cálice 4-5 mm longo, cupuliforme, 10-costado, estrelado-pubescente a glabrescente,

lobado, segmentos 2-3 mm de diâmetro, triangulares, acuminados. Pétalas 7-8 mm longas. Tubo estaminal ca. 2 mm longo; glabro ou esparsamente glandular-papiloso. Ovário 8-12 carpelar; estilete dividido quase desde a base em 8-12 ramos. Mericarpos 8-12, inclusos no cálice, 3.5-5 mm longos, birrostrados (rostos 0.5-1.0 mm longos, esparsamente estrelado-pubescentes, coniventes até à deiscência do fruto); faces laterais e dorsal ± reticuladas, deiscentes pelo ápice. Sementes 2.5 × 2 mm, tríquetras, lisas, glabras mas com alguma pubescência junto do hilo.

SANTO ANTÃO: Nas margens da ribeira das Fontainhas, fl. & fr. 5-IV-1956, *G. Barbosa* 7134 (C. E. C. V.; LISC); Ribeira de João Afonso, fl. 26-VI-1892, *Cardoso* s.n. (LISU); s. loc., fl. & fr. X-1893, *Cardoso* s.n. (COI); s. loc., fl. & fr. IX e XI-1893, *Cardoso* s.n. (LISU); Monte Jelho, fl. & fr. XII-1893, *Cardoso* s.n. (LISU).

S. NICOLAU: s. loc., fl. & fr. III-1887, *Cardoso* 25 (COI); s. loc., fl. & fr. XI-1893, *Cardoso* s.n. (LISU).

SANTIAGO: Entre Trindade e o Curralinho, a 6.6 km da Trindade, alt. 660 m, fl. & fr. 24-XI-1955, *G. Barbosa* 5671 (C. E. C. V.; LISC; MO); Portal, fl. & fr. 15-XII-1955, G. *Barbosa* 5971 (C. E. C. V.; LISC; MO); Serra da Malagueta fl. 27-XII-1955, *G. Barbosa* 6094 (C. E. C. V.; COI; LISC); entre Caniche e S. João Baptista, fl. & fr. 21-III-1961, *G. Barbosa* 9212 (COI; LISC; MO); s. loc., fl. & fr. 1885, *Cardoso* s.n. (COI).

FOGO: Ponta do Ilhéu, fl. & fr. 23-I-1956, *G. Barbosa* 6418 (C. E. C. V.; LISC).

Pantropical.

Nom. vern.: «Ló-ló» (*Cardoso* 25); «Lolo» (*G. Barbosa* 6094, 6418, 9212); «Lolo fino» (*G. Barbosa* 7134); «Lolo preto grande» (*G. Barbosa* 5971); «Loulo» (*G. Barbosa* 5671).

6. **Sida acuta** Burm. f., Fl. Ind.: 147 (1768). — P. Cout. in Arq. Univ. Lisboa, 1: 297 (1914); *op. cit.* 2: 41 (1915). — Chev. in Rev. Bot. Appl. 15: 946 (1935). — Keay in Fl. West. Trop. Afr., ed. 2, 1: 339 (1958). — Sunding, Check-list Vasc. Pl. Cap. Verd. Is.: 18 (1973).

Sida stipulata sensu Webb in Hook., Niger Fl.: 108 (1849). — Schmidt, Beitr. Fl. Cap Verd. Ins.: 286 (1852). — non Cav.

Erva anual ou vivaz ou subarbusto erecto de 0.5-1.5 (3) m de altura ramificado desde a base, esparsamente estrelado-pubescente e com raros pêlos adicionais, simples e patentes ou mais frequentemente glabro. Folhas com estípulas, 4-8 mm longas, linear-agudas, 1-3-nérveas, esparsamente pubescentes ou glabras; pecíolo 2.5-5 mm longo, esparsamente estrelado-pubescente; limbo 2-7 (10) × 0.5-3 (4) cm, estreitamente elíptico, subovado, lanceolado ou linear-lanceolado, agudo no ápice, dentado-serrado na margem, obtuso a arredondado, raramente acunheado na base, peninérveo mas com 3 nervuras basilares, concolor, esparsamente estrelado-pubescente em ambas as páginas, mas mais denso na inferior, e com longos pêlos simples, particularmente na margem. Flores amarelas, axilares, geralmente geminadas ou solitárias; pedicelo 4-10 (12) mm longo, estrelado-pubescente. Cálice 6-8 mm longo, cupuliforme membranáceo, 10-costado, glabro ou com raros longos pêlos simples nas nervuras, lobado, segmentos 3-4 × × 2-2.5 mm deltóides, cordado-acuminados. Pétalas 6-7 (8) mm longas, ciliadas. Tubo estaminal ca. 2 mm longo, com a parte livre dos filetes ca. 2 mm longa. Ovário (5)-6-9 (10) carpelar; estilete dividido desde a base em (5) 6-9 (10) ramos ca. 3 mm longos. Mericarpos (5) 6-9 (10), inclusos no cálice 2.5-4 mm longo, birrostrados (rostos ca. 1 mm longos, glabrescentes e ± coniventes até à maturação), faces laterais e dorsal reticulado-rugosas, deiscentes pelo ápice. Sementes ca. 3 mm longas, tríquetras, lisas e glabras mas por vezes com alguma pubescência junto do hilo.

SANTO ANTÃO: Cabo da Ribeira, Paul, fl. & fr. 1890, *Cardoso* s.n. (LISU); Monte Jelho, fl. & fr. V-1893, *Cardoso* s.n. (LISU); s. loc., fl. & fr. XI-1893, *Cardoso* s.n. (COI).

S. NICOLAU: s. loc., fl. & fr. XI-1893, *Cardoso* s.n. (LISU); Monte Gordo, fl. & fr. 23-X-1891, *Cardoso* s.n. (COI); Penafel e Monte Gordo, fl. & fr. IX-1891, *Cardoso* 27 e 32 (COI); Caminho da Caldeira, fl. & fr. 22-II-1864, *Lowe* s.n. (LISU).

SANTIAGO: 3.2 km do cruzamento de Trás-os-Montes, na estrada Tarrafal-Calheta, fl. & fr. 16-XII-1955, *G. Barbosa* 5982 (LISC; MO); Os Órgãos, fl. & fr. 18-III-1864, *Lowe* s.n. (LISU); Vale da Trindade, fl. & fr. 12-XI-1908, *Herb. Miss. E. Agr.* 1 (LISU).

FOGO: Cerrado, fl. 17-X-1908, *Herb. Miss. E.* Agr. 56 (LISU).

Largamente espalhada pelos trópicos.

Nom. vern.: «Loló» (*Cardoso* 27).

A — **Sida coutinhoi**, *Cardoso* s.n. (lectotypus): A_1, planta (×1/2); A_2, folha (×1); A_3, corola (×3); A_4, cálice frutífero (×3); A_5, cálice com mericarpos destacados (×3); A_6, mericarpo (×3)

B — **S. cordifolia**, *Barbosa* 5900: B_1, folha (×1); B_2, corola (×3); B_3, cálice frutífero (×3); B_4, cálice frutífero com mericarpos destacados (×3); B_5, mericarpo (×3)

C — **S. alba**, *Barbosa* 6673: C_1, folha (×1); C_2, corola (×3); C_3, cálice frutífero (×3); C_4, cálice frutífero com mericarpos destacados (×3); C_5, mericarpo (×3)


B2
B5
C5
C2
B4
C4
B1
B3
C3
C1
A6
A3
A5
A2
A1
A4


MUSEU NACIONAL
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TECNICA

CDU 582.35/.9:581.9(665.8)

SUNDING, Per — **Adições à flora vascular das ilhas de Cabo Verde**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 5-30

Referem-se para o arquipélago de Cabo Verde 217 taxa de plantas vasculares, sendo 8 deles novidades para o arquipélago, a saber: *Apium graveolens, Beta patellaris, Boussingaultia cordifolia, Cuscuta approximata, Cyperus longus, Hyptis pectinata, Oenothera rosea* e *Plantago lagopus*. Indicam-se, para cada uma das ilhas, as adições registadas para as respectivas floras. Realça-se o interesse das colheitas de *Cuscuta approximata, Limonium jovi-barba* e *Sideroxylon marmulano*. Propõem-se as seguintes combinações novas ou nomes novos (basiónimos entre parênteses): *Erysimum caboverdeanum (Matthiola caboverdeana), Desmodium tortuosum* var. *ospriostreblum (D. ospriostreblum), Lotus coronillaefolius* var. *argenteus (L. bollei* var. *argenteus), Kickxia brunneri* var. *glaberrima (Linaria brunneri* var. *glaberrima), Kickxia dichondraefolia (Linaria dichondraefolia)* e *Kickxia webbiana (Linaria webbiana)*.

CDU 582.35/.9:581.9(665.8)

SUNDING, Per — **Additions to the vascular flora of the Cape Verde islands**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 5-30

217 taxa of vascular plants are reported from the archipelago of the Cape Verde islands. Of these, 8 are new to the archipelago, viz. *Apium graveolens, Beta patellaris, Boussingaultia cordifolia, Cuscuta approximata, Cyperus longus, Hyptis pectinata, Oenothera rosea,* and *Plantago lagopus*. Several additions are reported to the floras of the single islands. Interesting findings of *Cuscuta approximata, Limonium jovi-barba,* and *Sideroxylon marmulano* are discussed. The following new combinations or new names are proposed (basionyms given in parentheses): *Erysimum caboverdeanum (Matthiola caboverdeana), Desmodium tortuosum* var. *ospriostreblum (D. ospriostreblum), Lotus coronillaefolius* var. *argenteus (L. bollei* var. *argenteus), Kickxia brunneri* var. *glaberrima (Linaria brunneri* var. *glaberrima), Kickxia dichondraefolia (Linaria dichondraefolia)* and *Kickxia webbiana (Linaria webbiana)*.

CDU 582.757.2(673)

LEACH, L. C. — **Eufórbias suculentas angolanas: IV**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 31-54

Estabelecem-se a validade do nome e a identidade de *Euphorbia candelabrum* Welw., tombando na sua sinonímia *E. conspicua* N. E. Br.; discute-se o âmbito e apresenta-se uma descrição ampliada desta espécie. Descrevem-se três novas espécies arbóreas da mesma afinidade e apresenta-se um mapa da distribuição destas três, da primeira referida e de *E. eduardoi* Leach, e uma chave para a identificação das cinco espécies em referência. Tecem-se considerações sobre o provável pano de fundo evolutivo os prováveis antecedentes evolutivos deste grupo de espécies. Discute-se também a identidade de *E. hermentiana* Lem. e de *E. negromontana* N. E. Br. Descrevem-se ainda quatro outros novos taxa.

CDU 582.757.2(673)

LEACH, L. C. — **Succulent Angolan Euphorbiae: IV**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 31-54

The validity of the name and the identity of *Euphorbia candelabrum* Welw. are established and *E. conspicua* N. E. Br. reduced to synonymy; the circumscription of the species is discussed and an amplified description drawn up. Three new associated tree species are described and a map showing the known distributions of the foregoing and including also that of *E. eduardoi* Leach, is provided, together with a key to the identification of the five species involved. Some aspects of the possible evolutionary background of the group are also considered. The identities of *E. hermentiana* Lem. and *E. negromontana* N. E. Br. are also discussed and four other new taxa described.

CDU 582.35/.9:581.9(665.8)

SUNDING, Per — **Adições à flora vascular das ilhas de Cabo Verde**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 5-30

Referem-se para o arquipélago de Cabo Verde 217 taxa de plantas vasculares, sendo 8 deles novidades para o arquipélago, a saber: *Apium graveolens, Beta patellaris, Boussingaultia cordifolia, Cuscuta approximata, Cyperus longus, Hyptis pectinata, Oenothera rosea* e *Plantago lagopus*. Indicam-se, para cada uma das ilhas, as adições registadas para as respectivas floras. Realça-se o interesse das colheitas de *Cuscuta approximata, Limonium jovi-barba* e *Sideroxylon marmulano*. Propõem-se as seguintes combinações novas ou nomes novos (basiónimos entre parênteses): *Erysimum caboverdeanum (Matthiola caboverdeana), Desmodium tortuosum* var. *ospriostreblum (D. ospriostreblum), Lotus coronillaefolius* var. *argenteus (L. bollei* var. *argenteus), Kickxia brunneri* var. *glaberrima (Linaria brunneri* var. *glaberrima), Kickxia dichondraefolia (Linaria dichondraefolia)* e *Kickxia webbiana (Linaria webbiana)*.

CDU 582.35/.9:581.9(665.8)

SUNDING, Per — **Additions to the vascular flora of the Cape Verde islands**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 5-30

217 taxa of vascular plants are reported from the archipelago of the Cape Verde islands. Of these, 8 are new to the archipelago, viz. *Apium graveolens, Beta patellaris, Boussingaultia cordifolia, Cuscuta approximata, Cyperus longus, Hyptis pectinata, Oenothera rosea,* and *Plantago lagopus*. Several additions are reported to the floras of the single islands. Interesting findings of *Cuscuta approximata, Limonium jovi-barba,* and *Sideroxylon marmulano* are discussed. The following new combinations or new names are proposed (basionyms given in parentheses): *Erysimum caboverdeanum (Matthiola caboverdeana), Desmodium tortuosum* var. *ospriostreblum (D. ospriostreblum), Lotus coronillaefolius* var. *argenteus (L. bollei* var. *argenteus), Kickxia brunneri* var. *glaberrima (Linaria brunneri* var. *glaberrima), Kickxia dichondraefolia (Linaria dichondraefolia)* and *Kickxia webbiana (Linaria webbiana)*.

CDU 582.757.2(673)

LEACH, L. C. — **Eufórbias suculentas angolanas: IV**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 31-54

Estabelecem-se a validade do nome e a identidade de *Euphorbia candelabrum* Welw., tombando na sua sinonímia *E. conspicua* N. E. Br.; discute-se o âmbito e apresenta-se uma descrição ampliada desta espécie. Descrevem-se três novas espécies arbóreas da mesma afinidade e apresenta-se um mapa da distribuição destas três, da primeira referida e de *E. eduardoi* Leach, e uma chave para a identificação das cinco espécies em referência. Tecem-se considerações sobre o provável pano de fundo evolutivo os prováveis antecedentes evolutivos deste grupo de espécies. Discute-se também a identidade de *E. hermentiana* Lem. e de *E. negromontana* N. E. Br. Descrevem-se ainda quatro outros novos taxa.

CDU 582.757.2(673)

LEACH, L. C. — **Succulent Angolan Euphorbiae: IV**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 31-54

The validity of the name and the identity of *Euphorbia candelabrum* Welw. are established and *E. conspicua* N. E. Br. reduced to synonymy; the circumscription of the species is discussed and an amplified description drawn up. Three new associated tree species are described and a map showing the known distributions of the foregoing and including also that of *E. eduardoi* Leach, is provided, together with a key to the identification of the five species involved. Some aspects of the possible evolutionary background of the group are also considered. The identities of *E. hermentiana* Lem. and *E. negromontana* N. E. Br. are also discussed and four other new taxa described.

CDU 582.884(679)

FERNANDES, A. & R. — **«Memecylon sessilicarpum», sp. nov. («Melastomataceae»)**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 55-56

Descreve-se *Memecylon sessilicarpum*, espécie nova proveniente das proximidades de António Enes, da região costeira de Moçambique. A nova espécie é afim de *M. sansibaricum* Taub. e de *M. sousae* A. & R. Fernandes, dos quais difere principalmente por possuir folhas menores e laxamente reticuladas, bem como flores e frutos sésseis.

CDU 582.884(679)

FERNANDES, A. & R. — **«Memecylon sessilicarpum», sp. nov. («Melastomataceae»)**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 55-56

The new species *Memecylon sessilicarpum*, collected near António Enes, in the coastal region of Mozambique, is described. The new species is akin of *M. sansibaricum* Taub. and of *M. sousae* A. & R. Fernandes from which it differs in having smaller and loosely reticulate leaves, and by its sessile flowers and fruits.

CDU 582.998(673)

TORRE, A. R. — **Taxa angolanos novos ou pouco conhecidos — VII**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 57-58

Descrição e fotografia de *Senecio gossweileri*, nova espécie de *Compositae* (Tribus *Senecioneae*), de Angola.

CDU 582.998(673)

TORRE, A. R. — **New or little known Angolan taxa — VII**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 57-58

Description and photograph of *Senecio gossweileri*, a new species of *Compositae* (Tribus *Senecioneae*), from Angola.

CDU 582.669.2(673)
582.831.2(673)

NOGUEIRA, Isabel — **Aditamentos à flora de Angola — I**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 59-62

Referem-se pela primeira vez para Angola um género e duas espécies: *Spergularia media* (L.) Presl e *Bergia ammannioides* Heyne ex Roth, e alarga-se a área de distribuição em Angola de outras quatro.

CDU 582.669.2(673)
582.831.2(673)

NOGUEIRA, Isabel — **Additaments to the flora of Angola — I**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 59-62

First notification is given of the occurrence in Angola of one genus and two species: *Spergularia media* (L.) Presl and *Bergia ammannioides* Heyne ex Roth, and the range of four other species is enlarged.

CDU 582.796(665.8)

PAIVA, J. A. R.
NOGUEIRA, Isabel — **O género «Sida» L. no arquipélago de Cabo Verde**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 63-70

Reabilita-se *Sida cordifolia* L. var. *angustifolia* P. Cout., mas considerando-a como espécie independente — *S. coutinhoi* J. Paiva & I. Nogueira, *nom. nov. et stat. nov.* Em quadro apresentam-se os caracteres diferenciais mais nítidos entre a nova espécie e as duas mais próximas (*S. alba* L. e *S. cordifolia* L.). Faz-se também a revisão do género *Sida* L. no arquipélago de Cabo Verde, com chaves para a identificação das seis espécies reconhecidas e descrições do género e das espécies.

CDU 582.796(665.8)

PAIVA, J. A. R.
NOGUEIRA, Isabel — **The genus «Sida» L. in the Cape Verde archipelago**

Garcia de Orta, Sér. Bot., Lisboa, 2 (1) 1974, p. 63-70

Sida cordifolia L. var. *angustifolia* P. Cout. is rehabilitated, but considered as an independent species — *S. coutinhoi* J. Paiva & I. Nogueira, *nom. nov. et stat. nov.* A table is given presenting the more striking differential characters between the new species and both *S. alba* L. and *S. cordifolia* L., the nearest ones. A revision of genus *Sida* L. from Cape Verde islands is also presented, including a key for the identification of the six species recognized in the archipelago; descriptions of the genus and the six species are also given.

SUMÁRIO

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