

EUPHORBIACEAE

A NEW SPECIES OF SUCCULENT *EUPHORBIA* FROM SOUTHERN ANGOLA

INTRODUCTION

With over 2 000 species and an almost cosmopolitan distribution, *Euphorbia* L. is the second largest genus of flowering plants and is one of the most taxonomically challenging groups. New taxa come to light regularly. In this paper a new species is described from the relatively little-known coastal desert of southern Angola. It belongs to the very widely distributed group of species that make up subg. *Euphorbia* sect. *Tirucalli* Boiss. Species of this section occur mainly in arid to very arid areas, from Dhofar in Oman on the Arabian Peninsula to the Namib Desert of southern Africa.

Euphorbia chamaeclada Bruyns, sp. nov., a ceteris speciebus sect. *Tirucalli* caulibus patentibus dense ramosisque et parvioribus cyathiis capsulisque differt.

TYPE.—Angola, Namibe Dist., 10 km towards Sao Nicolau, 300 m, January 2006, *Bruyns 10402a* (BOL, holo.; E, MO, iso.).

Sprawling, many-branched, unisexual, spineless, succulent shrub up to 0.2×0.5 –1.5 m, arising from thickened underground stem with fibrous roots. *Branches* \pm prostrate, very densely and alternately rebranched towards tips, terete and not articulated at joints, 150–750

\times 6–15 mm, ultimate branchlets 20–150 \times 3–6 mm, smooth and white-pubescent to tawny-felty near growing tips becoming grey to grey-green with age, tips often dying off later to form slight spikes. *Leaf-rudiments* towards apex of branches, alternate, ovate-lanceolate, 4–10 \times 2–4 mm, very slightly fleshy, ascending, usually slightly longitudinally folded upwards, brownish pubescent, with entire margins, acute, tapering below into slightly swollen base but epetiolate, with small dark brown globular stipules on either side at base, caducous. *Inflorescences* terminal on branchlets, finely pubescent, each of 1–6 clustered unisexual cyathia (in groups of 3–6 in males, solitary in females) on short peduncles 1–2 mm long, each subtended by 2–4 small, scale-like, broadly ovate, pubescent, red to brown bracts, 1–2 \times 1.5–2.0 mm (often with small irregular brown stipules at base). *Cyathia* obconical (nearly cylindrical in females), finely pubescent, 3 mm diam., \pm 2.5 mm long below insertion of glands, with $5 \pm$ semicircular, finely pubescent lobes with deeply incised margins, dull green, finely pubescent outside; *glands* 5, transversely elliptical, 1.5–2.0 mm broad, spreading, yellow-green to reddish green, flat to slightly concave above, widely spaced, outer margin entire, inner margin very slightly raised. *Stamens* with glabrous pedicels, interspersed with filiform to hand-like glabrous bracteoles. *Ovary* nearly spherical, finely

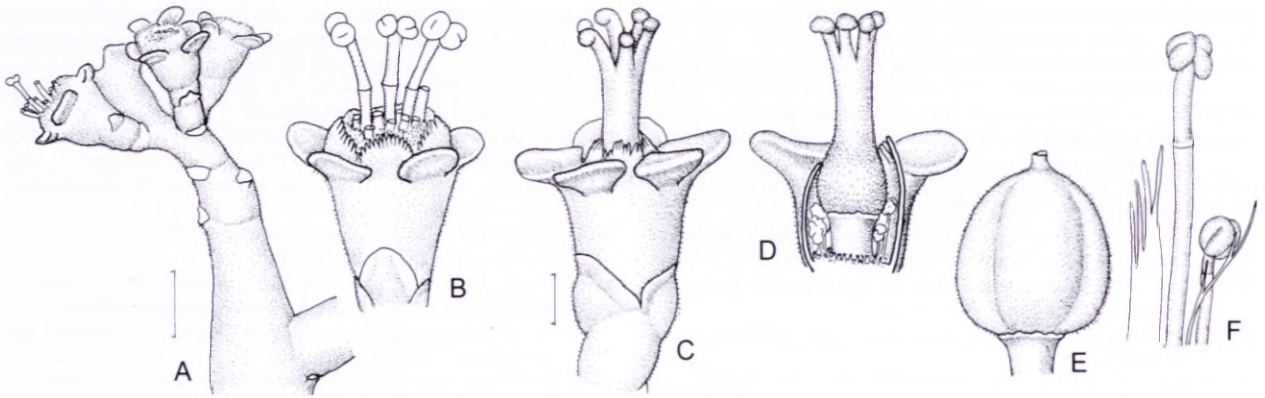


FIGURE 1.—*Euphorbia chamaeclada*, Bruyns 10402a. A, apex of stem with several male cyathia; B, male cyathium; C, female cyathium; D, side view of dissected female cyathium; E, capsule just before dehiscence; F, male florets with bracteoles. Scale bar: A, E, 3 mm (at A); B–D, 1 mm (at C); F, 1 mm (at A). Artist: Peter Bruyns.

pubescent, surrounded by many sterile male florets, raised on stout glabrous pedicel nearly 1 mm long; styles 3 mm long, divided in upper third, initially erect and later becoming horizontally spreading. Capsule obtusely 3-angled, 7–8 mm diam., finely pubescent, slightly exserted from cyathium but remaining erect on glabrous pedicel 1–2 mm long, reddish green. Seeds ellipsoidal, 3 × 2 mm, smooth, grey, with white apical caruncle. Figure 1.

Euphorbia chamaeclada occurs in southern Angola in the so-called 'Moçamedes Desert' to the northeast of Namibe, formerly known as Moçamedes (Figure 2), in gently sloping reddish granitic terrain with isolated low piles of boulders. The vegetation here is sparse and low, mostly not higher than 300 mm, with many lichens hanging from the branches of the more woody shrubs. Succulents achieve a remarkable diversity here. Apart from the new species, these include *Aloe dinteri*, *Euphorbia carunculifera*, *E. indurescens* and *E. subsalsa*, *Kalanchoe scapigera* and a species of *Kleinia*, *Talinum portulacifolium* and various species of *Portulaca*, as well as a wide selection of Apocynaceae, including *Adenium obesum*, *Fockea angustifolia*, *Hoodia currorii*, *H. mossamedensis*, *Huernia lapanthera*, *H. oculata*, *Sarcostemma viminale*, *Stapelia kwebensis*, *S. parvula* and *Tavaresia angolensis*.

That *Euphorbia chamaeclada* belongs to *Euphorbia* subg. *Euphorbia* sect. *Tirucalli* is clear from several facts. The plants are unisexual with alternate, cylindrical branches and felty tips to the young branches. Growing branches bear pubescent, alternating leaf-rudiments as well as terminal, externally pubescent, unisexual cyathia which are densely clustered in the case of the males and solitary in the case of the females. Section *Tirucalli* is most diverse in Madagascar, with a few widely scattered species found outside Madagascar from Oman and southern Yemen (*E. dhofarensis* S.Carter) to Socotra (*E. arbuscula* Balf.f.) and in mainland Africa from Somalia (*E. bariensis* S.Carter), Mozambique (*E. tirucalli* L.), Angola (four species), Namibia (four species) and South Africa (two species). The six species from Angola to South Africa are all associated with the Namib Desert: *E. gregaria* Marloth and *E. gummifera* Boiss. are found in the southern portion bordering on the winter rainfall region of the Richtersveld and the Orange River (northwestern South Africa and southern Namibia); *E. damarana* L.C.Leach occurs from central Namibia to

the southernmost corner of Angola; *E. carunculifera* L.C.Leach and *E. congestiflora* L.C.Leach are more widespread in southern Angola, with *E. congestiflora* just reaching into northern Namibia. *E. chamaeclada* then brings the number of species in southern Angola to four (together with *E. carunculifera*, *E. congestiflora* and *E. damarana*).

Euphorbia chamaeclada is easily separated from all the others in sect. *Tirucalli* by its lowly, sprawling habit with densely branching stems. In habit, it is by far the smallest known member of the section. In this respect, it is easily separated from *E. carunculifera*, which grows nearby and forms very large shrubs up to 2 m tall with considerably thicker branches. In *E. chamaeclada* the above-ground branches are sometimes eaten right off to the thickened underground stem, from which new growth sprouts again readily. At 3 mm diameter, the



FIGURE 2.—Known distribution of *Euphorbia chamaeclada*.

cyathia (Figure 2) are also much smaller than in any of the other species, since they are 5–6 mm broad in *E. congestiflora* and 4.5 mm broad in *E. carunculifera* (Leach 1970). The capsules are of similar dimensions to those of *E. congestiflora* but are smaller than those of *E. carunculifera* (where the capsules are 10 × 8 mm). In *E. carunculifera* the capsules are bright orange and do not dehisce explosively, rather falling apart on drying out, whereas the capsules in *E. chamaeclada* are reddish green and dehisce explosively when ripe.

In respect of its lowly growth, *Euphorbia chamaeclada* bears far more resemblance vegetatively to the sympatric *E. indurescens* L.C. Leach than to any other member of its section. However, *E. indurescens* is not closely related, being a close relative of *E. lignosa* Marloth and a typical member of subg. *Rhizanthium* (Bruyns *et al.* 2006). In these species the leaves are borne on small phyllopodia, the cyathia are solitary at the tips of the branches and are larger and bisexual, with the cyathial glands toothed along their outer margins.

The name *chamaeclada* is derived from the Greek, *chamae*, creeping and *clada*, branch.

Other material examined

ANGOLA.—Near Chapeu Armado, 480 m, *Bruyns 10723* (BOL, K, M).

REFERENCES

- BRUYNIS, P.V., MAPAYA, R.J. & HEDDERSON, T. 2006. A new sub-generic classification for *Euphorbia* (Euphorbiaceae) in southern Africa based on ITS and *psbA-trnH* sequence data. *Taxon* 55: 397–420.
- LEACH, L.C. 1970. Euphorbiae Succulentae Angolenses III. *Boletim da Sociedade Broteriana* 44: 185–206.

P.V. BRUYNIS*

* Bolus Herbarium, University of Cape Town, 7701 Rondebosch, Cape Town.

MS. received: 2008-11-27.