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ADDITIONAL NOTES ON ETHIOPIAN ADENIA (PASSIFLORACEAE)

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SUMMARY

In Ethiopia the occurrence of 6 species of *Adenia* is established. One new combination, *Adenia inermis* (de Wilde) de Wilde, is proposed. Key to the species. Illustrations.

Since the publication of my monograph of the genus *Adenia* in Meded. Landbouwhogeschool Wageningen 71–18, 1971, a few noteworthy additional facts on some species from Ethiopia have become known. This was mainly on account of intensive field observations and the collections made of both herbarium and living specimens of *Adenia* by my brother J. J. F. E. de Wilde in 1970 and 1971, and also by the results of the cultivation of some material collected by myself in Ethiopia in 1965 and 1966. The living material was cultivated in the greenhouses of the Laboratory for Plant Taxonomy of the Agricultural University at Wageningen.

In the "Enumeratio Plantarum Ethiopiae Spermatophyta" by CUFODONTIS, Bull. Jard. Bot. État Bruxelles XXIX, Suppl. Sept. (1959) 599–600, there are 7 species listed for NE. Africa, of which 2 species, viz. *A. ellenbeckii* and *A. venenata* for Ethiopia proper. In my monograph 5 species for Ethiopia were accepted.

Through new evidence it became clear that one taxon placed in a subspecific rank under *A. aculeata* in my monograph, namely *A. aculeata* ssp. *inermis*, deserves specific rank. Some notes regarding other Ethiopian *Adenias*, with reference to my monograph, are also given.

At present the following 6 species are known for Ethiopia:

KEY TO THE SPECIES

1. Sepals and petals free.
   2. Glands at blade- base 2(–4) . . . . . 1. *A. gedoensis*
   2. Gland at blade-base 1.
      3. Stem prickly . . . . . 2. *A. aculeata*
      3. Stem unarmed.
         4. Leaves entire. Flowers up to 11 mm long. Tuber, but no swollen main stem . . . . . 3. *A. inermis*
         4. Leaves 3–5(–7)-lobed. Flowers more than 15 mm long. Conspicuously swollen main stem . . . . . 4. *A. venenata*
1. Sepals partially united into a tube.

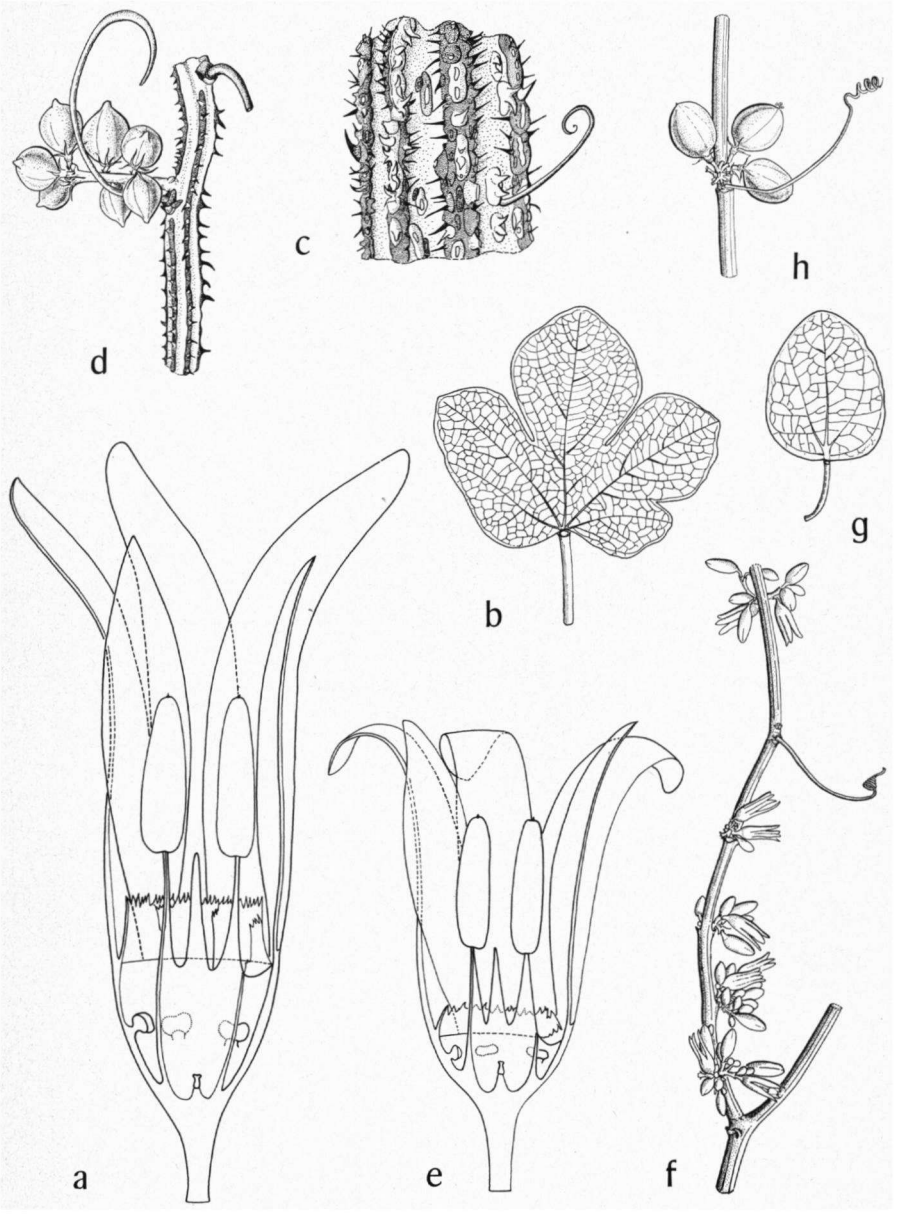
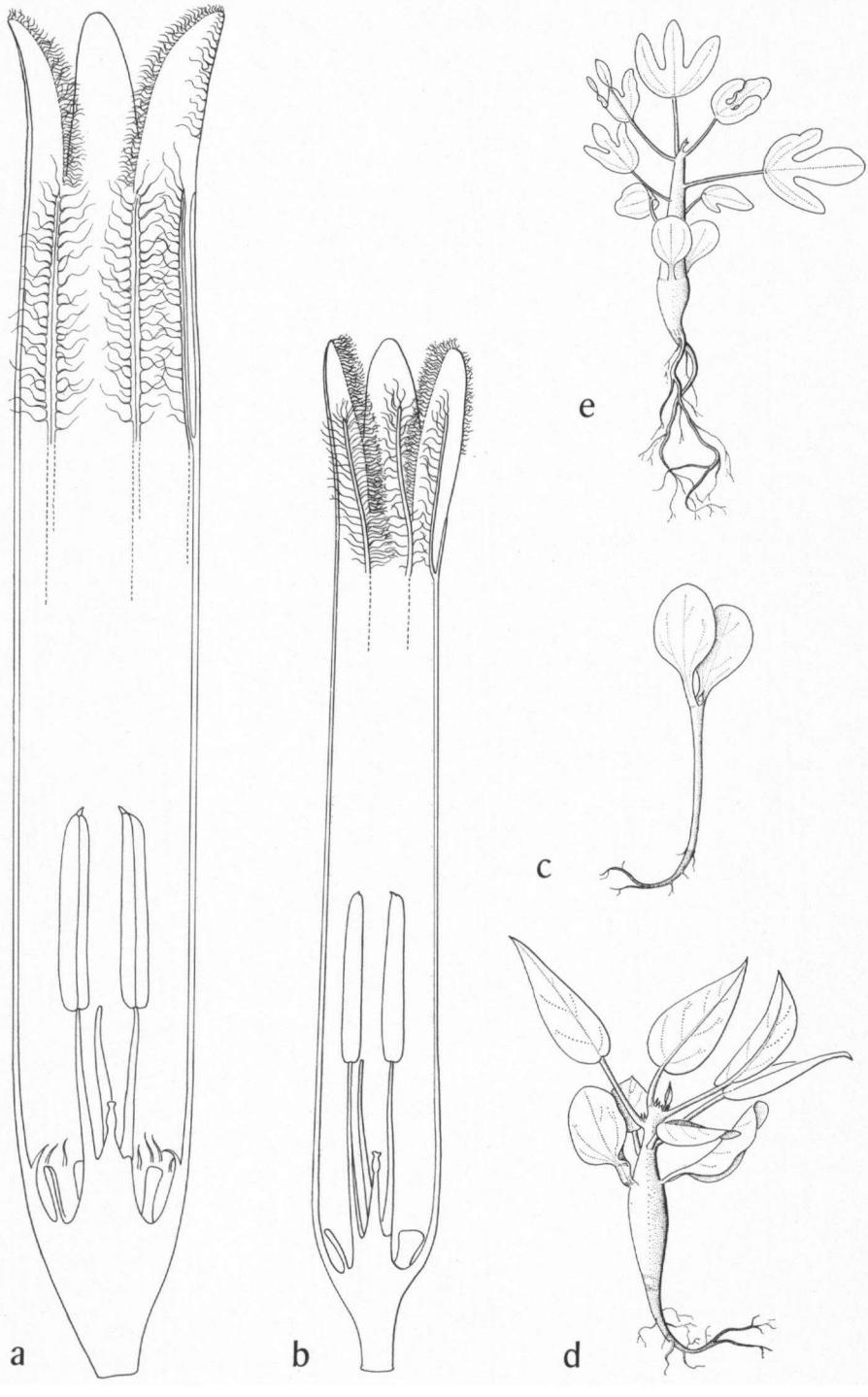


Fig. 1. — *Adenia aculeata* ssp. *aculeata*: a. longitudinal section of ♂ flower, ×5 (*de Wilde 7374*); b. leaf seen from above, ×½ (*de Wilde 7192*); c. old stem, ×½ (*de Wilde 7192*); d. infructescence, ×½ (*de Wilde 7373*) — *Adenia inermis*: e. longitudinal section of ♂ flower, ×5 (*de Wilde 7321*, type); f. habit of branch with ♂ inflorescences, ×½ (*de Wilde 7321*, type); g. leaf seen from above, ×½ (from a cultivated specimen); h. infructescence, ×½ (*de Wilde 7319*). All drawn from spirit material collected by J.J.F.E. de Wilde.


a
b
c
d
e

5. Large climber. Glands at blade-base on two distinct auricles. Flowers broadly urceolate . . . . . 5. *A. rumicifolia*
5. Herb with erect or low climbing branches up to 70 cm. Glands at blade-base sessile. Flowers narrowly tubiform. . . . . 6. *A. ellenbeckii*

1. **Adenia gedoensis** de Wilde, Meded. Landbouwhogeschool Wageningen 71–18 (1971) 62 — *Fig. 3c.*

This species is only known from a cultivated female specimen originating from cuttings collected by me from a sterile specimen growing in a patch of riverine forest some kilometres West of Gedo, Shoa Province, at c. 2000 m altitude. It thrives fairly well in a temperate greenhouse, especially in spring and summer, when it regularly produces greenish flowers with mostly 5-merous pistil with peculiar cauliflower-like stigmas. Though, in the absence of pollination, the flowers usually fade after a few days, in 1970 some produced distinctly enlarged 5-ribbed ovaries before the flowers falled off. (*Fig. 3c*).

2. **Adenia aculeata** (Oliv.) Engl., Bot. Jahrb. 14 (1891) 375; Cufodontis, Bull. Jard. Bot. État Bruxelles, XXIX, Suppl. Sept. (1959) 599; de Wilde, Meded. Landbouwhogeschool Wageningen 71–18 (1971) 65 — *Modecca aculeata* Oliv. in Hook. f., Ic. Pl. 14 (1880) 11, tab. 1317. — *Fig. 1a–d, 3d–e.*

In my monograph *A. aculeata* was subdivided into three subspecies. Because ssp. *inermis* should be accepted as a separate species, only ssp. *aculeata* occurs in Ethiopia. The other subspecies, ssp. *manganiana*, is endemic in S. Somalia and NE. Kenya.

3. **Adenia inermis** (de Wilde) de Wilde, *comb. nov.* — *Adenia aculeata* (Oliv.) Engl. ssp. *inermis* de Wilde, Meded. Landbouwhogeschool Wageningen 71–18 (1971) 69. — *Fig. 1e–h.*

As mentioned in a note under the original description of ssp. *inermis* this taxon was regarded as specifically distinct from the type-subspecies of *A. aculeata* by J. J. F. E. de Wilde who found several specimens of both taxa growing close together in a dry vegetation on limestone at c. 1000 to 1300 m altitude in Bale Province, Ethiopia.

When I described the new subspecies, the material at hand showed in the male flowers a very close similarity to the male flowers of ssp. *aculeata*, apparently only essentially differing in size.

The observation of the two taxa in the field and the study of abundant additional material, both dry and in spirit, revealed that, in spite of the great similarity in the male flowers, two different species are involved. The differences

Fig. 2. — *Adenia ellenbeckii*: a. longitudinal section of ♂ flower, ×4 (a coarse erect specimen, spirit material *de Wilde 6410*); b. longitudinal section of ♂ flower, ×4 (*Gillett 4202*, type *A. vitifolia*); c–d. two stages of seedlings, ×½ (cultivated at Wageningen from seeds of specimen collected as *de Wilde 7385*) — *Adenia venenata*: e. seedling, ×½ (cultivated at Wageningen from seeds of specimen collected as *de Wilde 7384*).

mainly relate to overall habit, the shape of the leaves, the architecture of the inflorescences, and the shape of the fresh fruits. These characters were further stressed by the cultivation of both species in the greenhouse.

The differences elucidated by *fig. 1* and the photographs *fig. 3d–e*, can be summarized as follows:

Adenia aculeata	*Adenia inermis*
Large liana with strong, densely prickly stems up to 8 cm thick. Very young twigs without spines. No tuber.	*Slender climber* with thin, terete, not spiny stems but a few metres long, growing from a subterranean napiform tuber.
Leaves suborbicular to ovate, 3–7-lobed, 2–7(–16) by 2–7½(–11) cm, mostly scabrous beneath. Blade with submarginal glands on the lower surface.	*Leaves* ovate-elliptic, entire, 3–6 by 2–4 cm, not scabrous. Leaf blade without glands.
Inflorescences generally grouped in fascicles along short shoots of 1–10 cm, rarely (in *de Wilde 7374*) pedunculate and along normal shoots.	*Inflorescences* in fascicles along the shoots, not on special inflorescences-bearing short shoots.
Flowers: ♂ flowers incl. stipe 11–18 mm, ♀ flowers 8–12 mm long.	*Flowers:* ♂ flowers incl. stipe 10–11 mm, ♀ flowers 5–6 mm long.
Fruit broadly ellipsoid, distinctly apiculate, 1–1½ by 0.8–1.3 cm. Seeds 3½–4 mm diam.	*Fruit* subglobular, not apiculate, 1–1½ by 0.8–1.3 cm. Seeds 4–5 mm diam.

4. **Adenia venenata** Forsk., Fl. Aegypt. – Arab. (1775) 77; Cufodontis, Bull. Jard. Bot. État Bruxelles XXIX, Suppl. Sept. (1959) 600; de Wilde, Meded. Landbouwhogeschool Wageningen 71–18 (1971) 133 — *Modecca abyssinica* Hochst. ex A. Rich., Tent. Fl. Abyss. 1 (1847) 297 — *Fig. 2e, 3a–b.*

This is a well-known species with a large area in NE. and Central Africa. The fruits are characteristically showy veined. A seedling cultivated in the greenhouse is depicted in *fig. 2e.*

5. **Adenia rumicifolia** Engl. & Harms, Pfl. welt Afr. 3, 2 (1921) 603, cf. var. **rumicifolia**; de Wilde, Meded. Landbouwhogeschool Wageningen 71–18 (1971) 154.

This species is common in a large area in tropical Africa. From Ethiopia I have seen no herbarium material. In 1965 I observed a sterile specimen climbing c. 10 m high in a riverine forest between Lekemti and Ghimbi in Wollega Province. It was not collected because of the absence of flowers or fruits, but the species was never found again.

6. **Adenia ellenbeckii** Harms in Engl., Pfl. welt Afr. 3, 2 (1921) 606; Cufodontis, Bull. Jard. Bot. État Bruxelles XXIX, Suppl. Sept. (1959) 599; de Wilde, Meded.

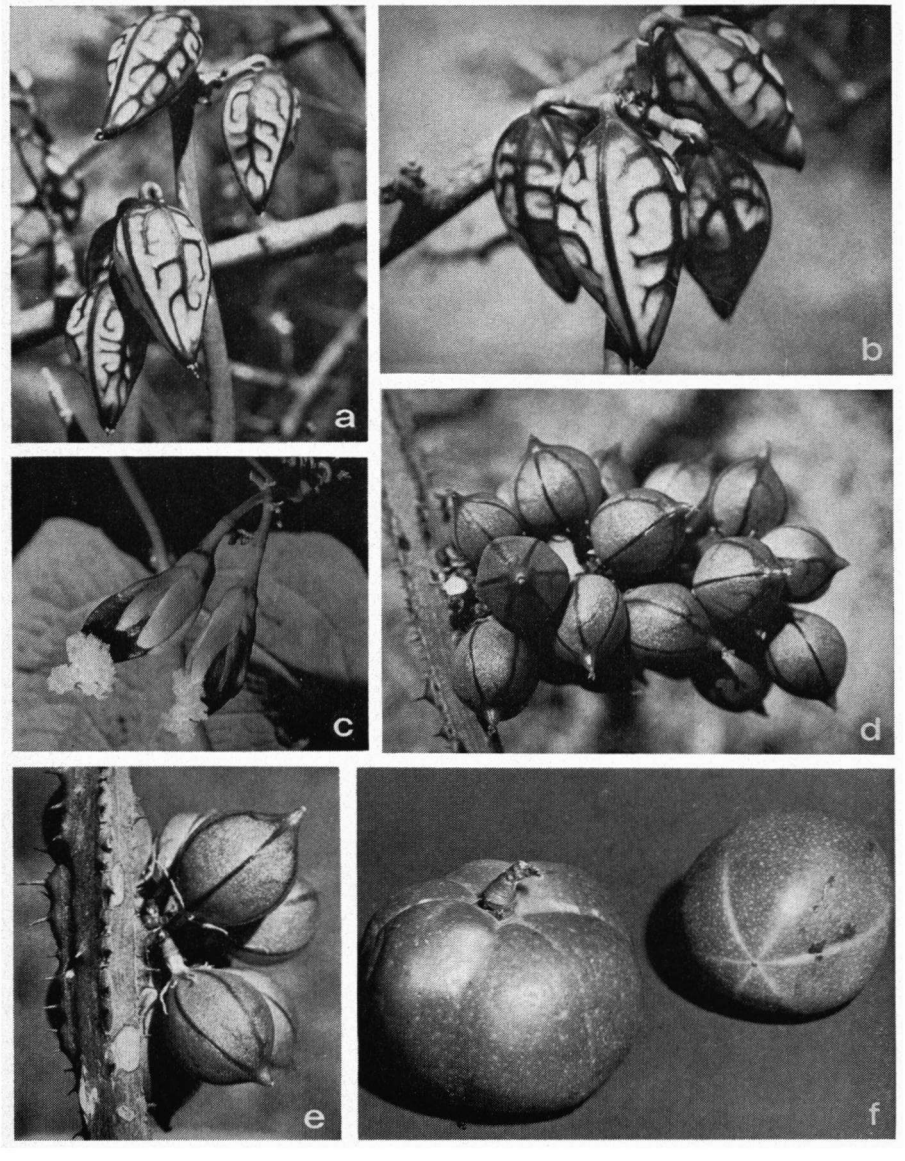


Fig. 3. — Photographs of various *Adenias*: a–b. infructescences of *Adenia venenata*, $\times \frac{1}{2}$ and $\times \frac{3}{4}$ respectively (collected as *de Wilde 7384*); c. ♀ flowers of *Adenia gedoensis*, $\times 1$ (greenhouse Wageningen, 1970); d–e. infructescences of *A. aculeata* ssp. *aculeata*, $\times 1$ and $\times 1\frac{1}{3}$ respectively (collected as *de Wilde 7373*); f. fruits of *A. ellenbeckii*, $\times \frac{2}{3}$ (*de Wilde 6411*).

Landbouwhogeschool Wageningen 71-18 (1971) 178 — *A. toxicaria* Harms, Notizbl. Berl.-Dahl. 13 (1936) 426 — *A. vitifolia* Hutch. & Bruce, Kew Bull. (1941) 98; Cufodontis, Bull. Jard. Bot. État Bruxelles XXIX, Suppl. Sept. (1959) 600 — *Fig. 2a–d, 3f.*

The species as accepted by me in my monograph comprises a wide range of forms, varying from coarse specimens with low erect habit, without or with but a few tendrils, and with more or less entire leaves, to specimens which are much more slender, provided with tendrils and with much more and more deeply dissected leaves. The species as a whole is usually pubescent, but a few specimens from Somalia and N. Tanzania are entirely glabrous. The coarse erect specimens have somewhat larger male flowers with a corona consisting of a few hairs, whereas in most other specimens the corona is absent (*fig. 2a–b*). In the herbarium specimens, which are often poorly preserved, apparently all kinds of intermediates can be found, so that they were treated all as one single species, *A. ellenbeckii*. The types of *A. ellenbeckii* (type a ♀ specimen), and the types of the synonyms *A. toxicaria* (ex descriptione; flowers incompletely known) and *A. vitifolia* (a slender form, type a ♂ specimen; *fig. 2b*) are all provided with tendrils and evidently belong to one single taxon.

The coarse erect specimens as mentioned above, collected in Ethiopia and also represented by some other collections (e.g. *J. J. F. E. de Wilde 6410* and *6411* in WAG, from E. Ethiopia; *Bally 7308*, in K, from British Somaliland; *Paoli 1347*, in FI, from Somaliland) most likely concern only phenotypic variation, possibly also influenced by grazing. Future field study may prove, however, that they represent some distinct form.

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