

Notes on *Acacia* Species in Southern Africa: III

J. H. ROSS*

ABSTRACT

Miscellaneous information relating to several of the *Acacia* species in Southern Africa is provided. The identity of *A. petersiana* Bolle is confirmed and a review of *A. sieberana* is given, together with a map showing the distribution of the variants within *A. sieberana*.

ACACIA CAFFRA (THUNB.) WILLD.

Glover, in Ann. Bolus Herb. I; 146 (1915), did not nominate type specimens when describing var. *tomentosa* and var. *transvaalensis* within *A. caffra* (Thunb.) Willd., so all of the specimens of each variety cited must be regarded as syntypes. As thirteen specimens of each variety were cited, it is desirable to select a lectotype for each variety. This is particularly so in the case of var. *tomentosa* as one of the specimens cited, Galpin 564 (GRA), is a mixed gathering of *A. caffra* and of *A. ataxacantha* DC. and another specimen, Burt Davy 1534 (BOL), is *A. hereroensis* Engl.

The relevant syntypes have been assembled and from these specimens I now select Rehmann 4603 (PRE) from Wonderboompoort near Pretoria as the lectotype of var. *transvaalensis* Glover, and Flanagan 302 (BOL) from hillsides near Komgha, October 1891, as the lectotype of var. *tomentosa* Glover. It must be mentioned that there are two sheets of Flanagan 302 in the Bolus Herbarium; the one selected above as lectotype and another from Prospect farm, near Komgha collected in October 1889. The latter specimen is not to be mistaken for the lectotype.

ACACIA DAVYI N.E. BR.

Burt Davy, Fl. Transv. 2: 346 (1932), cited the specimen Houseman 21 as "a co-type" of *A. davyi* N.E. Br. However, this specimen is not a co-type; it was not cited by N. E. Brown in Kew Bull. 1908: 161 (1908) when he described *A. davyi* and it was collected subsequent to the publication of the description. The date 26 July 1908 appears on the specimen while the part of the Kew Bulletin containing the description of *A. davyi* in the Kew library carries the date c. 12 May 1908. Houseman 21 is a very poor sterile specimen and it is perhaps fortunate that it is not a co-type as it is actually a specimen of *Albizia harveyi* Fourn.

ACACIA KARROO HAYNE

In a recent paper on *A. karroo* Hayne (Ross in Bothalia 10 (2): 387, 1971), doubt was cast on the identity of Luderitz 122 as this collection was cited by Schinz in Mem. Herb. Boiss. 1: 113, 115, 116 (1900) under three different taxa. While examining specimens in the Zurich herbarium last year, it was found that there are at least two different specimens collected by Luderitz and bearing the number

122. The specimen of Luderitz 122 cited by Schinz under *A. horrida* is *A. karroo*. However, another specimen of Luderitz 122, cited by Schinz l.c.: 116 under *A. aff. trispinosae*, is *A. erubescens* Welw. ex Oliv. The latter is a flowering specimen without leaves or fruits but, as the inflorescences are spicate, it is unlikely to be confused with the *A. karroo* gathering of Luderitz 122.

ACACIA PERVILLEI BENTH.

Among the Southern African *Acacia* material received on loan from the Trinity College Dublin recently was a very old unnamed specimen allegedly from Delagoa Bay. This specimen proved to be *A. pervillei* Benth., a Madagascan species. Unfortunately the label on the specimen in question is illegible except for the locality "Delagoa Bay" and the fact that it was collected in the early 1800's. The most logical explanation seems to be that the label does not belong to the specimen for there is no other record of *A. pervillei* from the African continent and, if it was collected in the vicinity of Delagoa Bay, it would surely have been collected subsequently. However, before dismissing the specimen outright it is perhaps as well to recall that *A. rosumae* Oliv., a species found along the east coast of Africa, also occurs fairly commonly on the west coast of Madagascar. Pending the discovery of a further specimen of *A. pervillei* from the African continent, it seems unwise at this stage to record the species from Mozambique.

ACACIA PETERSIANA BOLLE

The identity of *A. petersiana* Bolle in Peters, Reise Mossamb. Bot. 1: 4 (1861) has long been in some doubt. Bak. f., Leg. Trop. Afr. 3: 842 (1930), held that *A. petersiana* seemed "nearly allied" to *A. spirocarpa* Hochst. ex A. Rich. As it has usually been assumed that no authentic material of *A. petersiana* had survived, it was of great interest to find an isosytype of *A. petersiana* in the Paris herbarium last year. This specimen was collected by Peters at Sena in 1846 and was subsequently distributed from the Berlin herbarium. The specimen, although armed with short recurved spines only, is undoubtedly conspecific with *A. tortilis* (Forsk.) Hayne. It is unfortunate that the specimen is a flowering one and does not have any fruits, but the indumentum on the young branchlets, petioles, leaf-rachides and peduncles suggest that the specimen would be best placed in subsp. *spirocarpa* (Hochst. ex A. Rich.) Brenan. This confirms that *A. petersiana* is a synonym of *A. tortilis* subsp. *spirocarpa*.

* Botanical Research Institute, Department of Agricultural Technical Services, Private Bag X101, Pretoria.

ACACIA SIEBERANA DC.

Chevalier, in Bull. Soc. Bot. Fr. 74: 959 (1927), was the first to recognize an infraspecific taxon within *A. sieberana* DC. when he described var. *villosa* from Oure in the French Sudan. Keay &

Brenan, in Kew Bull. 5: 364 (1951), in addition to maintaining var. *villosa*, recognized two further varieties, namely, var. *vermoesenii* (De Wild.) Keay & Brenan and var. *woodii* (Burt Davy) Keay & Brenan. The four varieties thus created within *A. sieberana* were distinguished as follows:

- Young branchlets glabrous or nearly so; branches of crown usually ascending.....var. *sieberana*
- Young branchlets \pm hairy, usually densely so; branches of crown usually widely spreading:
 - Indumentum of shoots short and rather downy, usually neither markedly golden nor villous; fruits glabrous or nearly so even when young:
 - Median leaflets of pinnae 2–2.5 mm long, very rarely to 3 mm (West African).....var. *villosa*
 - Median leaflets of pinnae 3–6 mm long (East and Central Africa).....var. *vermoesenii*
 - Indumentum of shoots much coarser, normally villous and markedly golden especially when young; fruits densely pubescent when young and slightly so even when old (Southern Africa).....var. *woodii*

Brenan in Fl. Trop. E. Afr. Legum.—Mimos. 127 (1959) recorded varieties *sieberana*, *vermoesenii* and *woodii* from the area delimited for this Flora. Under var. *woodii* Brenan noted:

“The variations in East Africa of *A. sieberana* seem to fall into two groups, var. *sieberana* in one and vars. *vermoesenii* and *woodii* in the other. . . . As far as can be ascertained the habit and ecology of var. *woodii* are decidedly those of var. *vermoesenii* and not var. *sieberana*. . . . Careful field-work is greatly needed in various parts of the range of *A. sieberana*, which may show that the two groups mentioned in the first sentence are subspecies or even species; . . . At present it seems more prudent to maintain the three recognized varieties, especially because they are all connected by intermediates. These are particularly frequent between vars. *vermoesenii* and *woodii*, and it is hard to refer them either to one or the other.”

The same three varieties were recorded by Brenan in Fl. Zamb. 3, 1: 109 (1970) from the area delimited for Flora Zambesiaca. Once again, Brenan commented: “Indeed the two last-named (varieties *vermoesenii* and *woodii*) are linked by puzzling intermediates.”

Troupin in Bull. Jard. Bot. Brux. 35: 449 (1965) reviewed *A. sieberana* throughout its range in Africa and made certain significant changes to the above treatment of the species. Troupin described a fifth variety, namely, var. *orientale*, and recognized two subspecies within *A. sieberana*, namely, subsp. *sieberana* and subsp. *vermoesenii*. Subspecies *sieberana* included var. *sieberana* and var. *orientale* while subsp. *vermoesenii* included var. *vermoesenii* and var. *woodii*. Although Troupin (l.c.: 451) mentions var. *villosa*, there is no indication to which subspecies this variety would be referred. The two subspecies were distinguished on differences in growth form and on whether or not the stipular spines are persistent. Subspecies *sieberana* was characterized by the ascending branches which form a narrow or rarely rounded crown and the spines being long and persistent, and subsp. *vermoesenii* by the spreading branches and the typically rounded or mushroom-shaped crown and the spines being persistent or not persistent. Within subsp. *sieberana*, var. *orientale* differed from var. *sieberana* in having grey-tomentose young branchlets, different coloured leaflets and in the persistent spines being initially tomentose.

As Troupin's treatment of the species affected the status of the Southern African var. *woodii*, it was necessary to examine the species once more in preparation for the account of *Acacia* being prepared for the Flora of Southern Africa.

It is soon apparent from an examination of material from throughout the distributional range in Africa that *A. sieberana* is an extremely variable species and that the characters on which the infraspecific categories are based are themselves variable and often vary independently. As indicated by Brenan (1959), varieties *sieberana*, *vermoesenii* and *woodii* are all linked by intermediates and these intermediates are particularly frequent between varieties *vermoesenii* and *woodii*. Likewise, var. *villosa* is also linked to the other varieties by intermediates.

Var. *vermoesenii* is distinguished from var. *woodii* essentially on the degree of development and the colour of the indumentum on the young branchlets. A further distinction recorded is that in var. *vermoesenii* the pods are glabrous or almost so, while in var. *woodii* the pods are typically densely golden-pubescent, particularly when young. In var. *woodii*, however, the pods are frequently quite glabrous and are indistinguishable from those of var. *vermoesenii*. The capitula in var. *vermoesenii* are often larger than those in var. *woodii*, but there is a complete overlap and no clear distinction can be drawn on the basis of this character. It is frequently difficult to refer a specimen to one variety or to the other with certainty and it is often a matter of personal opinion as to whether a specimen should be placed in var. *vermoesenii* or in var. *woodii*. Indeed, the same specimen has sometimes been referred to var. *vermoesenii* by one worker and to var. *woodii* by another, while duplicates of the same gathering have been noted as having been referred to different varieties in different herbaria.

In the southern part of the species range typical var. *woodii* occurs and even here considerable variation is encountered. The indumentum on the young branchlets, leaves, peduncles and pods in typical var. *woodii* is villous and distinctly golden, especially when young. However, there is considerable variation in the degree of pubescence and in the colour of the indumentum. The young branchlets vary from glabrous or subglabrous to sparingly or densely pubescent while the indumentum varies in colour from golden to faintly golden or greyish-white. Often in amongst the greyish-white indumentum a faint tinge of gold is visible, especially at the base of the petioles, spines and peduncles. Occasionally the indumentum on the old shoots is greyish-white while on young branchlets from the same plant the indumentum is golden. There is often a difference in the degree of pubescence of different organs on a plant. The golden indumentum tends to be best developed in the southern part of the species range,

but this is only an overall tendency and it is possible to find densely golden pubescent specimens in Uganda.

Growth form varies considerably in Southern Africa and plants with spreading branches and a flattened spreading crown or rounded crown and plants with ascending branches and a narrow crown can be observed in most populations.

The bark in var. *woodii* is typically papery and peels off irregularly (see Fig. 1), whence the common name "paper-bark Acacia". Often, however, the bark does not flake or peel off at all (see Fig. 2). Both forms frequently occur in the same population. There seems to be a tendency for specimens with non-peeling bark to have glabrous or glabrescent branchlets and in Natal these plants are often, but by no means always, confined to the floors of river valleys near the coast. These plants appear to occupy slightly different ecological conditions to those occupied by the densely pubescent specimens with papery peeling bark. These glabrous specimens seem best regarded as \pm glabrous forms of var. *woodii* since they are otherwise indistinguishable from specimens of var. *woodii*.

In view of the nature of the variation within *A. sieberana* and the presence of so many intermediates between each of the varieties, I do not consider the rank of subspecies created by Troupin to be ap-

propriate and, consequently, do not intend to uphold the two subspecies. The typical forms of var. *vermoeseni* and var. *woodii* do appear different, but as they are linked by so many and varied intermediates, and as difficulty is experienced frequently in attempting to refer specimens to one variety or to the other with certainty, it is not considered desirable to maintain both of these varieties. Consequently, it is intended to maintain but one of the varieties, namely, var. *woodii*, and to relegate var. *vermoeseni* to synonymy under var. *woodii*.

Although one of the distinguishing characters of subsp. *sieberana* (which included var. *orientale*) was the presence of long persistent spines, examination of the holotype and two isotypes of var. *orientale* revealed that the holotype and one isotype are devoid of spines while on the other isotype the longest spines are only 0.5 cm long. None of the morphological characters held to typify var. *orientale* is peculiar to this variety alone; all of the characters may be found in numerous specimens in East, Central and Southern Africa. Variety *orientale*, which has no real distinguishing characters, is best regarded as a local variant or ecotype and, when viewed in relation to the range of variation within the species throughout its range, cannot be upheld. Var. *orientale* is likewise reduced to synonymy under var. *woodii*.



FIG. 1.—The typical papery, peeling bark of *Acacia sieberana* var. *woodii*.



FIG. 2.—The variant of *Acacia sieberana* var. *woodii* with non-peeling bark.

As indicated above, the three varieties still recognized within *A. sieberana*, namely, varieties *sieberana*, *villosa* and *woodii*, are linked by numerous inter-

mediates. However, the following key, by relying to some extent on the geographical distributions, should enable the three variants to be identified.

- Young branchlets glabrous or nearly so; branches of crown usually ascending; occurs in West, Central and in East Africa.....var. *sieberana*
- Young branchlets ± hairy, usually densely so, seldom glabrescent; branches of crown typically widely spreading:
 - Indumentum on branchlets short and rather downy; median leaflets of pinnae small, 2–2.5 (very rarely to 3) mm long; West Africa eastwards to the Sudan.....var. *villosa*
 - Indumentum on branchlets usually coarser and often villous, golden to greyish-white, seldom glabrescent; median leaflets of pinnae usually 3–6 mm long; occurs in East, Central and Southern Africa... var. *woodii*

The distribution of the variants of *A. sieberana* in Africa is shown in Fig. 3.

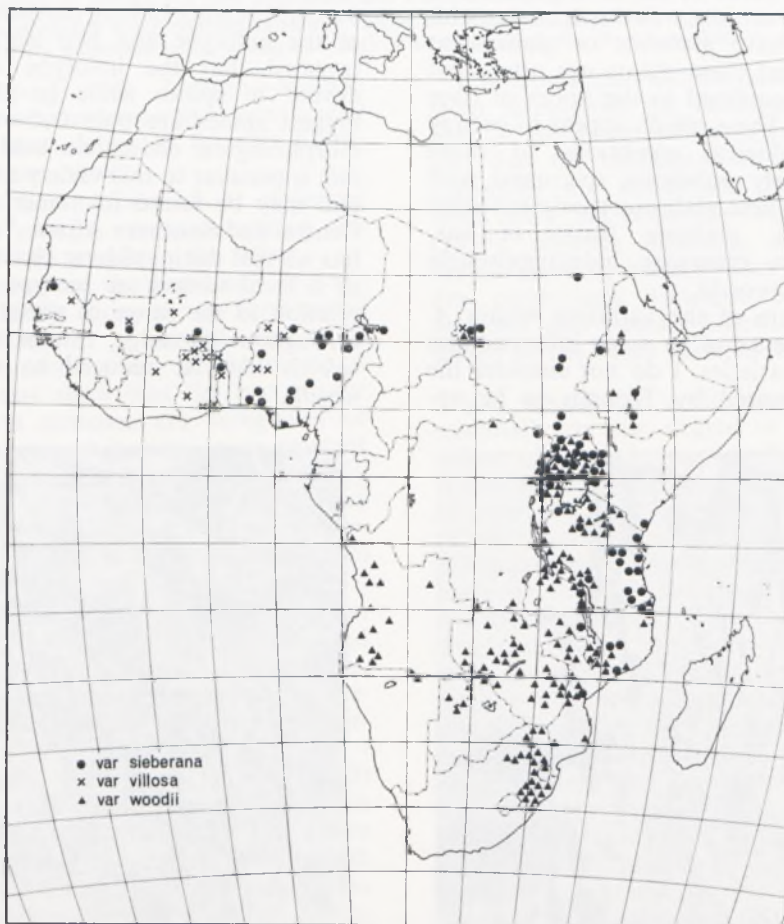


FIG. 3.—The distribution of the variants of *Acacia sieberana* in Africa.

It seems opportune at this juncture to provide a fairly detailed synonymy and literature citation of *A. sieberana*.

Acacia sieberana DC., Prodr. 2: 463 (1825); Oliv. in Fl. Trop. Afr. 2: 347 (1871); Benth. in Trans. Linn. Soc. 30: 503 (1875); Bak. f., Leg. Trop. Afr. 3: 836 (1930); Brenan, Checklist Tang. Terr. 335 (1949); Bogdan in Nature in E. Afr., ser. 2, No. 1: 14 (1949); Eggeling & Dale, Indig. Trees Uganda, ed. 2: 214, fig. 48 i (1952); Gilbert & Boutique in F.C.B. 3: 166 (1952); Brenan in Fl. Trop. E. Afr. Legum. Mimos.: 127, fig. 17/57 (1959); F. White, For. Fl. N. Rhod. 84, fig. 17K (1962); Troupin in Bull. Jard. Bot. Brux. 35: 449 (1965); v. Breitenbach, Indig. Trees S. Afr. 2: 290 (1965); Brenan in Fl. Zamb. 3, 1: 107 (1970). Type: Senegal, *Sieber* 43 (G, holo., K!).

var. sieberana. Keay in Fl. W. Trop. Afr., ed. 2, 1: 499 (1958); Brenan in Fl. Trop. E. Afr. Legum.—Mimos.: 127 (1959); in F.Z. 3, 1: 107 (1970).

A. sieberana DC., Prodr. 2: 463 (1825) sensu stricto; Gilbert & Boutique l.c. 166 (1952), pro parte; Mullenders, Veg. Kania-ma: 462 (1954), pro parte quoad specim. *Mullenders* 1660.

A. sing Guill & Perr., Tent. Fl. Seneg. 1: 251 (1832). Syn-types from Senegal (P!).

A. verrugera Schweinf. in Linnaea 35: 340, t. 9, 10 (1867-8); Oliv. in Fl. Trop. Afr. 2: 354 (1871); Benth. in Trans. Linn. Soc. 30: 510 (1875); Taub. in Engl. Pflanzenw. Ost-Afr. C.: 195 (1895); Harms in Mildbr., Deutsch. Zentr.-Afr. Exped. 2: 235 (1911); R.E. Fr., Schwed. Rhod.-Kongo Exped. 1: 64 (1914); Crowfoot, Flow. Pl. Northern & Central Sudan, fig. 81 (1928). Type: the Sudan, Kassala, by the River Gasch, *Schweinfurth* 1938 (BM!, EA, K!, P! iso.).

A. purpurascens Vatke in Oesterr. Bot. Zeitschr. 30: 277 (1880); Bogdan in Nature in E. Afr., ser. 2, No. 1: 14 (1914); Dale, Trees & Shrubs Kenya: 70 (1936); Brenan, Checklist Tang. Terr.: 335 (1949). Type: Kenya, near Mombasa, *Hildebrandt* 1938 (BM!, K! iso.).

A. blommaertii De Wild., Pl. Bequaet 3: 58 (1925); Type: Zaire, Dungu, *Blommaert* 67 (BR, holo.!).

A. nefasia sensu Lebrun, Veg. Plaine Alluv. Sud Lac Edouard: 290 (1947), pro parte, non (Hochst. ex A. Rich.) Schweinf.

A. sieberana subsp. *sieberana* var. *sieberana*, Troupin in Bull. Jard. Bot. Brux. 35: 453 (1965).

var. *villosa* A. Chev. in Bull. Soc. Bot. France 74: 959 (1927); Keay & Brenan in Kew Bull. 5: 364 (1951); Keay in Fl. W. Trop. Afr., ed 2, 1: 499 (1958). Type: French Soudan, Oure, *Chevalier* 700 (P, holo., K!).

A. rehmanniana sensu Hutch. & Dalz. in Fl. W. Trop. Afr. 1: 361 (1927); A. Chev. in Rev. Bot. Appl. 8: 197 (1928); Bak. f., Leg. Trop. Afr. 3: 838 (1930), pro parte quoad syn. *A. sieberana* var. *villosa*, non Schinz.

A. sieberana var. *rehmanniana* (Schinz) Roberty in Candollea 11: 142 (1948), quoad syn. *A. sieberana* var. *villosa*.

var. *woodii* (Burt Davy) Keay & Brenan in Kew Bull. 5: 364 (1951); Pardy in Rhod. Agric. J. 48: 406 (1951); Wild, S. Rhod. Bot. Dict. 49 (1953); Palgrave, Trees Centr. Afr. 254 (1956); Torre in Consp. Fl. Angol. 2: 281 (1956); Brenan in Fl. Trop. E. Afr. Legum.—Mimos. 128 (1959); Palmer & Pitman, Trees S. Afr. 163, t.x, 45 (1961); v. Breitenbach, Indig. Trees S. Afr. 2: 292 (1965); De Winter et al, Sixty-six Transv. Trees 56 (1966); Brenan in F.Z. 3, 1: 108, t. 16/18 (1970); Ross, Acacia spp. Natal: 40, fig. 2/8 (1971); Flow. Pl. Afr. 40: t. 1653 (1972); Fl. Natal 193 (1973). Type: Natal, between Estcourt and Colenso, *Wood* 3528 (K, holo., NH!).

Inga nefasia Hochst. ex A. Rich., Tent. Fl. Abyss. 1: 237 (1847) sensu stricto. Type: Ethiopia, without locality, *Schimper* 940 (P, holo.; BM!, FI!, K!, P!).

A. nefasia (Hochst. ex A. Rich.) Schweinf. in Bull. Herb. Boiss. 4, app. 2: 209 (1896); Lebrun, Veg. Plaine Alluv. Sud Lac Edouard: 290 (1947), pro parte; Lebrun et al, Contr. Et. Fl. Parc Nat. Kagera: 57 (1948). Type as for *Inga nefasia*.

A. amboensis Schinz in Mem. Herb. Boiss. 1: 105 (1900); Dinter in Feddes Repert. 15: 78 (1917); Bak. f., Leg. Trop. Afr. 3: 838 (1930); O. B. Miller, Checklist Bech. Prot. 16 (1948); J. S. Afr. Bot. 18: 18 (1952). Syntypes: Angola, Omupanda in Uukuanjama, *Wulfhorst* 2 (Z!); precise locality unknown, "Kilevi am Kunene", *Schinz* 763 (Z!).

A. lasiopetala sensu Burt Davy in Kew Bull. 1908: 158 (1908); Glover in Ann. Bolus Herb. 1: 149, t. 19/23 (1915); Bews, Fl. Natal 115 (1921); Henkel, Woody Pl. Natal 226 (1934); Stapleton, Common Transv. Trees 6 (1937); Suesseng. & Merxm. in Proc. & Trans. Rhod. Sci. Ass. 43: 16 (1951), non Oliv.

A. cf. hebeclada sensu Wood in Trans. S. Afr. Phil. Soc. 18: 152 (1908).

A. verrugera Schweinf. f. *latisiliqua* Harms in Zentr. Afr. Exped. 2: 235 (1911). Syntypes, Zaire and Ruanda, *Mildbraed* 587, 1104, 2108 (all B, †); Tanzania, Mwanza and Bukoba, *Holtz* 1551, 1630. A probable but doubtful synonym.

A. katangensis De Wild. in Fedde Repert. 11: 502 (1913); Ann. Mus. Congo Belge Bot., ser. 4, 11: 42 (1913); Contr. Fl. Kat.: 68 (1921). Type: Zaire, Katanga, *Hock* s.n. (BR, holo.!).

A. hebeclada sensu Bews, Fl. Natal: 114 (1921), non DC.

A. woodii Burt Davy in Kew Bull. 1922: 332 (1922); Fl. Transv. 2: 344 (1932); Steedman, Trees etc. S. Rhod. 15 (1933); Hutch., Botanist in S. Afr. 394 (1946); O. B. Miller, Checklist Bech. Prot. 21 (1948); Brenan, Checklist Tang. Terr.: 335 (1949); West in Rhod. Agric. J. 47: 208 (1950); Codd, Trees & Shrubs Kruger Nat. Park 51, figs. 44a, b, 45 (1951); O. B. Miller in J. S. Afr. Bot. 18: 26 (1952). Type as for *A. sieberana* var. *woodii*.

A. monga De Wild., Pl. Bequaert 3: 62 (1925); Contr. Fl. Kat. Suppl. 1: 17 (1927). Type: Zaire, between Albertville and Kongolo, *Delevoy* 356 (BR, holo.!).

A. vermoesonii De Wild., l.c.: 68 (1925); Brenan, Checklist Tang. Terr. 335 (1949). Type: Congo Brazzaville, Boma, *Vermoesenii* 1378 (BR, holo.!).

A. abyssinica sensu Brenan, Checklist Tang. Terr. 335 (1949), non Hochst. ex Benth.

A. sieberana var. *vermoesonii* (De Wild.) Keay & Brenan in Kew Bull. 5: 364 (1951); Pardy in Rhod. Agric. J. 48: 406 (1951); Wild, S. Rhod. Bot. Dict. 49 (1953); Brenan in Fl. Trop. E. Afr. Legum.—Mimos. 128 (1959); in Fl. Zamb. 3, 1: 108 (1970). Type as for *A. vermoesonii*.

A. cf. stolonifera Burch. sensu Torre in Consp. Fl. Angol. 2: 282 (1956) quoad specim. *Gossweiler* 11035 (K), pro parte.

A. sieberana var. *orientale* Troupin in Bull. Jard. Bot. Brux. 35: 454 (1965). Type: Rwanda, Mutara, env. de Mimuri, *Troupin* 3264 (BR, holo., EA, K!, LWO, YB1).

A. sieberana subsp. *vermoesonii* Troupin var. *vermoesonii* (De Wild.) Keay & Brenan, Troupin l.c. 455 (1965); Schreiber in Fl. S.W. Afr. 58: 12 (1967).

A. sieberana subsp. *vermoesonii* Troupin var. *woodii* (Burt Davy) Keay & Brenan, Troupin l.c. 457 (1965).

ACACIA TRISTIS WELW. EX OLIV.

Schreiber, in Mitt. Bot. München 6: 251 (1966), considered that *A. tristis* Welw. ex Oliv. was not specifically distinct from *A. hebeclada* DC. and reduced it to subspecific rank within *A. hebeclada*, citing the new combination as subsp. *tristis* (Welw. ex Oliv.) Schreiber. However, *A. tristis* Welw. ex Oliv. in Fl. Trop. Afr. 2: 349 (1871) is a later homonym of *A. tristis* R. Graham in Bot. Magt. 3420 (1835) and is, therefore, an illegitimate name. Consequently, subsp. *tristis* must be regarded as a *nomen novum* even although based on the same type specimen as *A. tristis* Welw. ex Oliv. and the correct author citation for subsp. *tristis* is subsp. *tristis* Schreiber.