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Notes on African *Acacia* species

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ABSTRACT

Information concerning miscellaneous African *Acacia* species is presented. *A. dekindtiana* A. Chev. and *A. hirtella* E. Mey. var. *inermis* Walp. are relegated to synonymy under *A. karroo* Hayne, the misapplication of the name *A. giraffae* Willd. is discussed, reasons for rejecting the names *Mimosa reticulata* L. and *Mimosa capensis* Burm. f. are elaborated, and the identity of *Mimosa senegalensis* Forsk. is disclosed.

A number of decisions arising from a continuation of studies on the African Acacias require explanation in print. These form the subject of this paper.

ACACIA DEKINDTIANA *A. CHEV.*

A. Chevalier, in Rev. Bot. Appliq. 27: 509 (1947), based his description of *A. dekindtiana* on *Dekindt* 431 from Huila in southern Angola. The holotype, which consists of both flowering and fruiting material, is housed in the Paris Herbarium. The paired stipular spines are straight or almost so, the stems are dark brown with minutely flaking bark, and the young branchlets are sparingly pubescent. The petioles, leaf-rhachides and rhachillae are fairly densely clothed with short spreading hairs and the petioles and rhachides are distincltly sulcate adaxially. The leaves have 2–4 pinnae pairs and there is a slightly columnar gland on the rhachis at the junction of each pinna pair. The pinnae have up to 12 pairs of leaflets which have short marginal cilia. The inflorescences are capitate, on axillary peduncles and fascicled; the peduncles are glandular and fairly densely pubescent; the involucels are ±2 mm long and one-third to halfway up the peduncle. The corolla lobes are slightly reflexed. The pods are reddish-brown, falcate, up to 12 cm long and 7–9 mm wide, irregularly constricted between some of the seeds, longitudinally dehiscent; the valves are brittle, have a fine ±longitudinal venation and very sparse short indumentum. The seeds are elliptic, ±7,5×5 mm.

Dekindt 431 matches several specimens of *A. karroo* Hayne from Botswana, South West Africa and southern Angola, for example, *Barbosa* 9727 (K) from the Huila district in Angola. As it is clear that *A. dekindtiana* is not specifically distinct from *A. karroo*, the species is now reduced to synonymy.

Acacia karroo *Hayne*, Arzneyk. Gebr. Gewächse 10: t.33 (1827). Type: South Africa, Cape Province, *Herb. Willdenow* 19184 fol. 2 (B, lecto.).

A. dekindtiana A. Chev. in Rev. Bot. Appliq. 27: 509 (1947); Torre in Consp. Fl. Angol. 2: 285 (1956). Type: Angola, Huila Distr., Huila, *Dekindt* 431 (P, holo.!).

A. robusta sensu Oliv. in Fl. Trop. Afr. 2: 349 (1871), non Burch.; Benth. in Trans. Linn. Soc. Lond. 30: 510 (1875) pro parte quoad specim. *Welwitsch;* Hiern, Cat. Afr. Pl. Welw. 1: 314 (1896); Bak.f., Leg. Trop. Afr. 3: 841 (1930) pro parte quoad specim. Angola.

A. horrida sensu Gossweiler in Agron. Angola 7: 249 (1953), non (L.) Willd.

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ACACIA GIRAFFAE *WILLD.* AND ACACIA ERIOLOBA *E. MEY.*

Willdenow, when describing *Acacia giraffae*, Enum. Hort. Berol.: 1054 (1809), recorded that the species had been discovered in the interior of the Cape Province by the celebrated traveller Lichtenstein who sent him seeds and a dried specimen without flowers. The description of *A. giraffae* was based on a sterile specimen in the Willdenow Herbarium (No. 19171) in Berlin and the name *A. giraffae* has been applied subsequently to one of the dominant and, in many areas, most characteristic trees of the dry interior areas of southern Africa, particularly in the dry Kalahari thornveld.

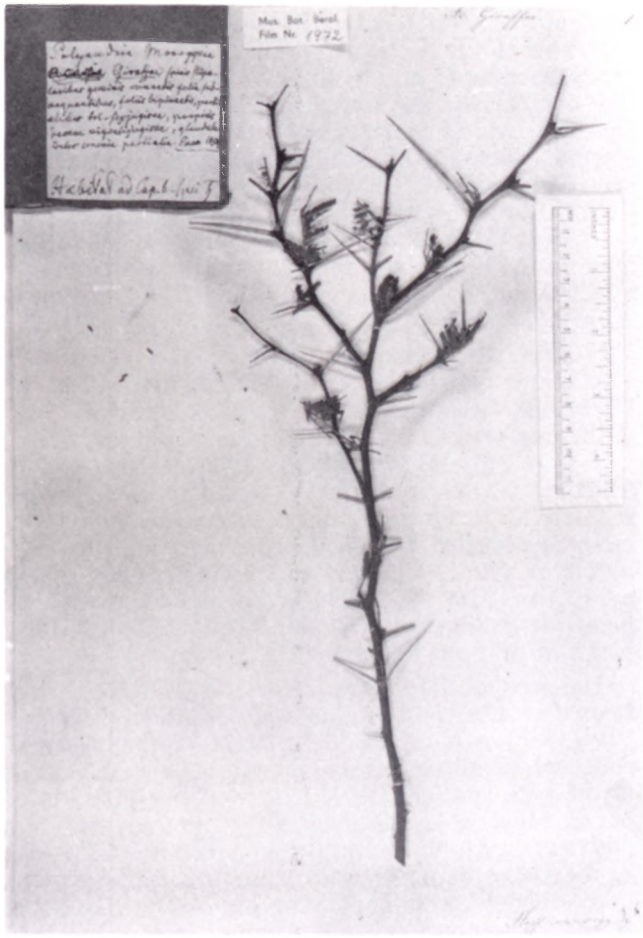

FIG. 1.—The holotype of *Acacia giraffae* Willd. (Wildenow Herbarium No. 19171). Reproduced by permission of the Director of the Botanischer Garten und Botanisches Museum, Berin-Dahlem.

FIG. 2.—Enlargement of portion of the holotype of *Acacia giraffae* Willd. Reproduced by permission of the Director of the Botanischer Garten und Botanisches Museum, Berlin-Dahlem.

Examination on microfiche of the holotype of *A. giraffae* suggested that the name *A. giraffae* had been misapplied as the holotype appeared to differ significantly from the present concept of the species. In response to my request Dr. H. Scholz, Botanischer Garten und Botanisches Museum, Berlin-Dahlem, to whom I am extremely grateful, compared two specimens sent to him with the holotype of *A. giraffae*. The comparison confirmed that the name *A. giraffae* has been widely misapplied as the holotype of *A. giraffae* is actually a specimen of what has until now been called the *A. giraffae* × *A. haematoxylon* hybrid [Ross in Bothalia 10(2): 359–362, 1971]. A sterile twig of *Acocks* 13190 from 9,6 km WSW of Abrahams Dam in the northern Cape Province was pronounced by Dr Scholz to be a good match of the holotype of *A. giraffae*.

It seems extraordinary that Lichtenstein collected a specimen of this convincing *Acacia* hybrid between 1803–1806 because, although relatively widespread in the northern Cape, the hybrid is nowhere common and it is only as recently as 1946 that it was re-collected. The unfortunate consequence of the holotype of *A. giraffae* being a twig of what has until now been called the *A. giraffae* × *A. haematoxylon* hybrid is that the name *A. giraffae* applies to this hybrid and not to the well-known and widespread plant for so long known under this name. The latter plant must now be re-named.

The next available name for the plant previously known as *A. giraffae* is *A. erioloba* E. Mey., Comm. 1: 171 (1836), which was described from a specimen collected in Little Namaqualand. The whereabouts of the type specimen, if it is still extant, is unknown but E. Meyer's description clearly identifies the plant. His reference to the leaves being glabrous is significant as the leaves of the hybrid plants are clothed with a fairly dense grey indumentum. As no type of *A. erioloba* appears to be extant it is considered desirable to select a neotype and so preserve the application of the name. In seeking for a neotype I had hoped to find a fruiting specimen collected in Namaqualand but unfortunately all of the Cape material at present available is either sterile or in flower. Consequently, I now select *Morris* 1042 in the Kew Herbarium from between Kommandodrif and Makwassie in the western Transvaal as the neotype of *A. erioloba*.

The hybrid plants must now be re-named *A. erioloba* × *A. haematoxylon* as it is considered undesirable to use the name *A. giraffae* for them since this may perpetuate some confusion.

The necessary changes in nomenclature are summarized below:

1. **Acacia erioloba** *E. Mey.*, Comm. 1: 171 (1836), non *A. erioloba* Edgw. in J. Asiat. Soc. Beng. 16: 1215 (1847); Harv. in Fl. Cap. 2: 280 (1862); Engl. in Bot. Jahrb. 10: 22 (1888). Type from Namaqualand (whereabouts unknown); Transvaal, 2726 (Odendaalsrust), between Kommandodrif and Makwassie (—AC), *J. W. Morris* 1042 (K, neo.!).

A. giraffae sensu auct. mult., non *A. giraffae* Willd., Enum. Hort. Berol.: 1054 (1809) sensu stricto: Burch., Trav. 2:240 (1824); DC., Prodr. 2: 472 (1825); Harv. in Fl. Cap. 2: 280 (1862); Benth. in Trans. Linn. Soc. Lond. 30: 503 (1875); Marloth in Trans. S. Afr. Phil. Soc. 5: 271 (1889); Schinz in Mém. Herb. Boiss. 1: 108 (1900); Sim, For. Fl. Cape Col.: 213, t.58 (1907); Burtt Davy in Kew Bull. 1908: 157 (1908); Glover in Ann. Bolus Herb. 1: 148, t.18/1 (1915); Harms in Engl., Pflanzenw. Afr. 3 (1): 352 (1915); Dinter in Feddes Repert. 15: 79 (1917); Pole Evans in S. Afr. J. Sci. 17: figs. 35, 36 (1920); Burtt Davy in Kew Bull. 1922: 327 (1922); Marloth, Fl. S. Afr. 2: 54, tt.18D, 19 (1925); Bak.f., Leg. Trop. Afr. 3: 835 (1930); Burtt Davy, Fl. Transv. 2: 340, fig. 59 (1932); Hutch., Botanis, in S. Afr.: 178, 341, 386, 412, 418, 424, 425, 481, 543, 547t cum photogr. (1946); West in Rhod. Agric. J. 47: 206 (1950); O. B. Miller in J. S. Afr. Bot. 18: 21 (1952); Pardy in Rhod. Agric. J. 50: 4 (1953); Torre in Consp. Fl. Angol. 2: 281 (1956); Story, Mem. Bot. Surv. S. Afr. 30: 23 (1958); Leistner in Koedoe 4: 101 (1961); Palmer & Pitman, Trees S. Afr.: 153, tt. vi, 34, 35 (1961); F. White, For. Fl. N. Rhod.: 84, fig. 17L (1962); von Breitenbach, Indig. Trees S. Afr. 2: 292 (1965); De Winter *et al.*, 66 Transv. Trees: 46 (1966); Leistner, Mem. Bot. Surv. S. Afr. 38: 67, 123, tt. 21, 23, 25, 28, 30, 36, 38, 44, 48 (1967); Schreiber in Fl. S.W. Afr. 58: 8 (1967); Brenan in Fl. Zamb. 3,1: 93, t.15/10 (1970); Ross in Bothalia 10(2): 359 (1971); in Bothalia 10(4): 547 (1972); Palmer & Pitman, Trees S. Afr. 2: 769 (1973); Schreiber in Mitt. Bot. Staatssamml. München 11: 117 (1973).

2. **Acacia erioloba** *E. Mey.* × **Acacia haematoxylon** *Willd.*

A. giraffae Willd., Enum. Hort. Berol.: 1054 (1809). Type: Interior of the Cape Province, *Herb. Willdenow* 19171 (B, holo.).

A. giraffae Willd. × *A. haematoxylon* Willd., Leistner, Mem. Bot. Surv. S. Afr. 38: 67, 123, t.24 (1967); Ross in Bothalia 10(2): 359 (1971).

ACACIA HIRTELLA *E. MEY* VAR. INERMIS *WALP.*

Walpers, in Linnaea 13: 542 (1839), based his description of *A. hirtella* var. *inermis* on a specimen collected by Mund somewhere in the Cape Province. Unfortunately the type specimen has not been traced. There is a Mund specimen from the Cape Province in the Kew Herbarium, but, as the flowering branches are armed with paired spines, it is assumed that it cannot be an isotype. *A. hirtella* is, of course, now regarded as a synonym of *A. karroo* Hayne. As flowering twigs of *A. karroo* are fairly often devoid of spines no justification is seen for upholding var. *inermis* and it is now relegated to synonymy.

Acacia karroo *Hayne*, Arzneyk. Gebr. Gewächse 10: t.33 (1827). Type: South Africa, Cape Province, *Herb. Willdenow* 19184 fol. 2 (B, lecto.).

A. hirtella E. Mey. var. *inermis* Walp. in Linnaea 13: 542 (1839). Type: Cape Province, locality unknown, *Mund* (whereabouts unknown).

ACACIA ROBECCHII *PIROTTA*

Mention was made by Pirotta in Bull. Soc. Bot. Ital. 1893: 61 (1893) of some specimens of two species of *Acacia* collected by Robecchi-Bricchetti on his travels in north-east Africa. The first species collected in 1889 on the road from Zeila to Gildessa in the country of the Danakil appeared new and Professor Pirotta called it *A. robecchii*. He failed to provide a description and *A. robecchii* has remained a nomen nudum. The second species was found in the Ogaden and was said to be related to *A. fistula* Schweinf. [*A. seyal* Del. var. *fistula* (Schweinf.) Oliv.], but quite distinct. Both species were said to be armed with swollen spines or "ant-galls".

In an attempt to establish the identity of *A. robecchii* all of the specimens collected by Robecchi-Bricchetti in the above-mentioned localities were received on loan through the courtesy of Prof. Dr C. H. Steinberg, Conservator of the Herbarium Universitatis Florentinae.

Among the specimens received were two collected in 1889 on the road from Zeila to Gildessa. Unfortunately both are appalling specimens. One, *Robecchi-Bricchetti* 266, consists of an almost leafless sterile twig armed with paired straight stipular spines. The absence of a peeling epidermis suggests that the specimen is probably referable to *A. ehrenbergiana* Hayne. The other specimen, *Robecchi-Bricchetti* 269, consists of a sterile young branch. Sterile branches bearing young foliage are extremely difficult to place with certainty but the specimen is probably referable either to *A. edgeworthii* T. Anders. or to *A. tortilis* (Forsk.) Hayne subsp. *spirocarpa* (Hochst. ex A. Rich) Brenan. As all of the paired spines are long and straight, and as there are none of the short recurved spines usually associated with *A. tortilis*, I am inclined to the view that the specimen is referable to *A. edgeworthii* but the material is too poor to come to a definite decision. Neither of these specimens has inflated "ant-galls" and so neither could be the specimen on which the name *A. robecchii* was based. The identity of *A. robecchii* therefore remains unknown.

The second species mentioned by Pirotta is represented by the specimen *Robecchi-Bricchetti* 540 from the Ogaden. The powdery, flaking, yellowish epidermis on the young branch, the deeply bilobed "ant-galls", and leaflet venation indicate that the specimen is referable to *A. zanzibarica* (S. Moore) Taub. var. *microphylla* Brenan.

MIMOSA CAPENSIS *BURM. F.*

Mimosa capensis Burm.f., Prodr. Fl. Cap.: 31 (sphalm. 27) (1768), which was based on a figure published by Plukenet in his Phytographia, t.123 fig. 2 (1692), has previously been rejected as a name of uncertain application as the plant illustrated (see Fig. 3) cannot be positively identified (Verdoorn in Bothalia 6: 411, 1954; Ross in Bothalia 10: 386, 1971). It seems desirable, however, to elaborate on the reason for doing so.

The MS Journal ('Dag Register') of Simon van der Stel's Expedition to Namaqualand in 1685–6 was discovered at Trinity College, Dublin, Ireland, and is thought to be the original by Waterhouse who published a book on it in 1932. The artist Heinrich Claudius accompanied the Simon van der Stel Expedition to Namaqualand and a plant illustrated on that journey (TCD No. 807) is reproduced here in black and white as Fig. 4. A translation of the notes accompanying the drawing TCD No. 807 (Waterhouse, Simon van der Stel's Journal of His Expedition to Namaqualand 1685–6: 166, 1932) reads as follows:—

> "This tree grows in such abundance in Namaqualand that almost all the forests are composed of it. On account of its multitude of hurtful thorns we call it Thorn Tree, whereas the natives call it *Chöe*. It is moderately tall and large but crooked, and it has good, hard, useful wood. It is found only along rivers and brooks. Its flowers have a remarkably pleasant smell and they are followed by a pod containing a few flat seeds, the effects of which are so far unknown."

Along the route followed by the van der Stel expedition Claudius would certainly have encountered the plant that is now known as *Acacia karroo* Hayne. The only other *Acacia* species armed with paired stipular spines and with flowers in round heads that he may possibly have encountered was *A. erioloba* E. Mey. However, the illustration attributed to Claudius (Fig. 4) bears little actual resemblance to *A. karroo*, to *A. erioloba* or to any other South African *Acacia* species. The leaves are shown to be consistently imparipinnately compound whereas in all of the indigenous South African *Acacia* species the leaves are always paripinnately compound, and the pods illustrated are at variance with those of *A. karroo* and of *A. erioloba*. Father Tachard, who visited the Cape in 1685, is quoted by Karsten, The Old Company's Garden: 89 (1951), as having said of Claudius that "He draws and paints animals and plants to perfection." As Claudius was an artist of such high repute it seems odd that his illustration is inaccurate in several obvious and significant respects and bears so little actual resemblance to any of the *Acacia* species. That is, of course, if the painting was executed by Claudius and at present there is no reason to doubt that it was.

Plukenet's t.123 fig. 2, referred to by Burm.f., is almost identical to the illustration executed by Claudius on the Namaqualand expedition. Plukenet's illustration differs chiefly in that it has been reversed from left to right, i.e., the leaves, inflorescences and pods are depicted facing in the other direction. In addition, Plukenet has added a loose inflorescence, a loose pod and two more loose seeds. The Claudius drawings are known to have been copied and the copies copied and a set of drawings was presented to D. H. Compton, the Right Reverend the Bishop of London from 1675–1713, while his lordship was attending a Congress in Amsterdam in 1691. Both Petiver and Plukenet has access to the drawings in

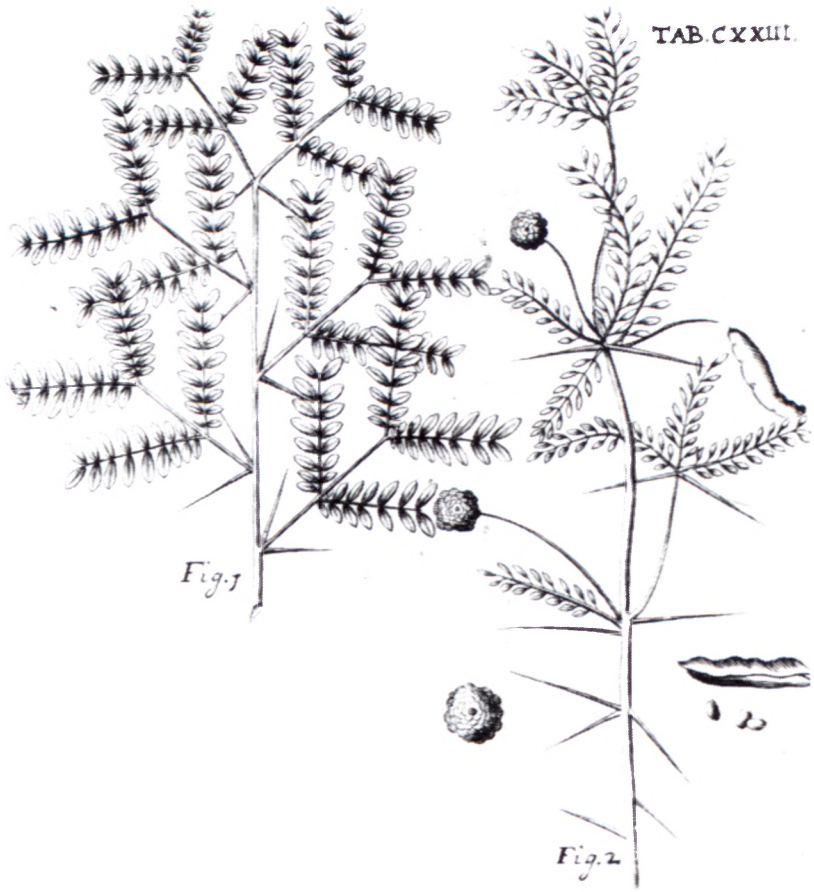

FIG. 3.—Photograph of Plukenet, Phytographia t. 123 figs. 1 and 2 (1692).

Bishop Compton's possession. The close similarity between the Claudius and Plukenet illustrations suggests that Plukenet copied Claudius's drawing: no specimen on which Plukenet could have based the illustration has been located in the Sloane Herbarium in the British Museum (Natural History), although this does not, of course, provide proof that Plukenet copied the Claudius illustration. It does, however, strengthen the argument that Plukenet copied an illustration and not an actual specimen. *Aloe* and *Gladiolus* paintings prepared by Claudius are known to have been copied by Petiver and by Plukenet (Reynolds, Aloes of South Africa: 18, 27, 29, 1950; Lewis et al in J. S. Afr. Bot. Suppl. 10: xxii, 1972) and it is therefore a reasonable assumption that the Plukenet figure reproduced here as Fig. 3 was also copied.

The significance of this is that Plukenet's t.123 fig. 2 is a copy of a painting of a Cape plant. It could perhaps be argued that the plant depicted by Claudius was in all probability the Cape Acacia (*A. karroo*). Indeed, the painting was identified as such in J. S. Afr. Bot. 13: 10 (1947). However, as the illustration cannot be positively identified it seems most undesirable to accept that the plant depicted is the Cape Acacia (*A. karroo*) on the strength of circumstantial evidence alone and thereby supplant the unquestionable *A. karroo*, a species typified by a specimen in the Willdenow Herbarium in Berlin, with the questionable epithet *"capensis"*. *Mimosa capensis*, which was based solely on Plukenet t.123 fig. 2, is therefore rejected as a name of uncertain application.

It is interesting and perhaps significant that the plant depicted by Plukenet in his Phytographia t.123 fig. 1 (see Fig. 3 above) is *A. karroo*. The figure was based on a sterile twig of *A. karroo*, Herb. Sloane Vol. 99, fol. 3 in the British Museum (Natural History), and is a good representation of it. Burm.f., Prodr. Fl. Cap.: 31 (1768), quoted Plukenet t.123 fig. 1 under the name *Mimosa nilotica* but this was an incorrect identification by Burman, and Linnaeus, Sp. Pl. 1: 521 (1753), cited this same Plukenet figure in synonymy under *Mimosa scorpioides*.

MIMOSA RETICULATA *L.*

Analysis of the protologue of *Mimosa reticulata* L., Mant. 1: 129 (1767), indicates that it is based on discordant elements. The diagnostic phrase-name and the fairly comprehensive description that follows were taken from a plant in cultivation in the Botanic Garden in Uppsala but in the synonymy reference is made to Boerhaave and to Plukenet's Phytographia t.123 fig. 2, the latter being the same figure that Burman, Prodr. Fl. Cap.: 31 (1768), referred to under his *Mimosa capensis*. Linnaeus's description of the pod of *M. reticulata* ("Fructus ovalis, palmaris, latitudine semipalmaris, compressus, seminibus sparsis magnis") is altogether at variance with the pod figured by Plukenet and although Linnaeus was under the impression that his living plant and the plant depicted by Plukenet represented the same species this was clearly not the case. Unfortunately no specimen of the plant that Linnaeus had in cultivation in Uppsala appears to be extant and the species cannot be positively identified from the description alone. The name *M. reticulata*, which applies to the plant cultivated in Uppsala, must therefore be rejected as a name of uncertain application. The epithet *"reticulata"* was apparently taken from the description of the pod in the Boerhaave synonymy.

Fig. 4.—Photograph of TCD No. 807 (Reproduced from Waterhouse, Simon van der Stel's Journal of his Expedition to Namaqualand 1685–6).

MIMOSA SENEGALENSIS *FORSK.*

The binomial *Mimosa senegalensis* was first published by Houttuyn, Nat. Hist. 3: 614 (1774). It is not known whether Houttuyn's new binomial, although not indicated as such, was published inadvertently or deliberately, but, as *M. senegalensis* Houtt. was based on *M. senegal* L., Sp. Pl. 1: 521 (1753), the name was superfluous when published and therefore illegitimate. *M. senegalensis* Forsk., Fl. Aegypt. Arab.: 176 (1775), a later homonym of *M. senegalensis* Houtt. and therefore illegitimate, referred to quite a different plant. Owing to its illegitimacy, however, the name *M. senegalensis* Forsk. cannot be taken up and so the correct name for the plant described under this name by Forskal is *Acacia hamulosa* Benth. in Hook., Lond. J. Bot. 1: 509 (1842).

Roberty, in Candollea 11: 120 (1948), discussed the idea of making a new combination with *M. senegalensis* Houtt.:—"L'on peut donc être tenté de créer un nouveau binôme: *Acacia senegalensis* (Houtt.) × . . ., comb. nov. Mais cette solution ne présente aucun avantage pratique et ne correspond guère qu'à unde subtilité, assez vaine, d'érudition." Of course such a new combination would also be illegitimate.