The *Acacia senegal* complex

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**ABSTRACT**

A brief account of the present state of knowledge of the species in the *Acacia senegal* complex is given. A short description of each species is provided together with a key to the identification of the species. Attention is drawn to the taxonomic difficulties encountered within the complex.

**INTRODUCTION**

The *Acacia senegal* complex is taken to include all of those *Acacia* species with spicate inflorescences and armed at or near the nodes with prickles either in threes, with the central one typically hooked downwards and the two laterals curved upwards or at times spreading laterally, or else solitary, the two laterals being absent. Occasionally all three prickles may point up or down but the presence of the three prickles at or near the nodes will identify the specimen as a member of this complex. Very rarely and in only one species (*A. ankokih*) are specimens sometimes unarmed. Whether the prickles occur singly or in threes near the nodes in some species appears of no significance as both arrangements may occur on one and the same shoot, although some gatherings may show all or nearly all the prickles arranged singly. The species currently recognized within this taxonomically difficult complex, in chronological order, are: *A. senegal* (L.) Willd., *A. asak* (Forsk.) Willd., *A. hanulosa* Benth., *A. oliveri* Vatke, *A. somalensis* Vatke, *A. hunteri* Oliv., *A. dudgeoni* Craib ex Holl., *A. thomasi* Harms, *A. condyloclada* Chiov., *A. ogadensis* Chiov., *A. caraniana* Chiov., *A. cheilanthis* Chiov., *A. zizyphispina* Chiov. and *A. ankokih* Chiov.

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**KEY TO SPECIES**

All or most leaflets more than 3 mm wide:

Leaves with 1 pinna pair:
- Calyx 3-4 mm long; corolla 4-6 mm long; stamens-filaments 13-18 mm long; slender straggling virgate branched tree; prickles in threes; leaflets (2)3-4 pairs per pinna. ................................................ 12. *A. ogadensis*
- Calyx 1.5-2 mm long; corolla 1.75-2.25 mm long; stamens-filaments up to 5 mm long; shrub or small tree with a rounded crown; prickles solitary or in threes; leaflets 4-9 pairs per pinna. 8. *A. oliveri*

Leaves with 2-6 pinnae pairs:
- Leaflets 1 or 2 pairs per pinna, 8-19 x 5-13 mm, obovate, minutely appressed-puberulous on both surfaces; pods (2)6.3-2.4-8 cm wide. ................................................ 14. *A. zizyphispina*

Leaflets 3-20 pairs per pinna:
- Leaves with 2 pinnae pairs. 8. *A. oliveri*
- Leaves with 3-6 pinnae pairs:
  - Petiole with a large flattened discoid gland 1-3 mm in diameter at the base of the petiole or at the point of attachment of the lowest pinna pair; internodes 5-9 cm long. Petiole 1.3-2.8 cm long, the gland basal; leaflets 3-9 mm wide, minutely appressed-puberulous on both surfaces or the lower only, rarely glabrous; pods 1.8-2.1 cm wide, densely puberulous. 13. *A. condyloclada*
  - Petiole 2.6 mm long, the gland at the point of attachment of the lowest pinna pair; leaflets 3-4 mm wide, glabrous; pods 0.9-1 cm wide, glabrous. 14. *A. caraniana*
  - Petiole with a small slightly raised gland < 1 mm in diameter which is variable in position but seldom situated as above; internodes mostly < 2.5 cm long, seldom up to 4.5 cm long. 7. *A. asak*

All or most leaflets less than 3 mm wide:
All leaves with 1 or 2 pinnae pairs:
- Leaflets 2 (rarely 3) pairs per pinna, glabrous; prickles solitary. 9. *A. somalensis*
- Leaflets 3-15 pairs per pinna, if only 3 pairs present then lower surface fairly densely clothed with appressed hairs and not glabrous as above; prickles solitary or in threes.

Apart from *A. senegal* which is widespread throughout Africa and extends into Arabia, and *A. dudgeoni* which is confined to tropical West Africa, the remaining species in the complex are concentrated in north east tropical Africa and Arabia. The difficulties within this complex are aggravated by the paucity of the material of several of the species and the inadequate field notes on many of the existing specimens. Not only are the limits of some of the species not very clearly defined, but the range of morphological variation within each species is poorly understood. Field studies in north east tropical Africa are essential to clarify many of the problems encountered in this complex.

The aim of this paper is to provide an account of the present state of knowledge of the species in this complex and to draw attention to the gaps in our information in the hope that future collectors will concentrate on gathering the required information and material. A short description of each species is provided and the difficulties within each species are discussed. Only the most important synonyms and brief literature references are included as it is the intention to deal with these in detail elsewhere. As both flowering and fruiting material is often not available, in the key to the identification of the species the dichotomies are based, as far as is possible, on vegetative characters.
Leaflets less than 1 mm wide:
Leaves with 2 pinnae pairs; leaflets 6-8 pairs per pinna; prickles in threes; calyx puberulous; confined to Aden. 1. A. hunteri
Leaves with 1 (rarely 2) pinnae pairs; leaflets 8-15 pairs per pinna; prickles solitary; calyx glabrous; confined to Somalia. 4. A. sp.

Leaves 1.2-3. (3) mm wide:
Calyx 3-4.5 mm long; corolla 6.5-7 mm long; stamen-filaments 13-15 mm long; leaflets 7-15 pairs per pinna; shrub or slender tree with elongate whippy branches. 11. A. thomasii
Calyx 1-2.25 mm long; corolla 1.75-3.25 mm long; stamen-filaments up to 6 mm long; leaflets 3-9 pairs per pinna; shrub or small tree with a rounded crown.

Leaves 3-5 pairs per pinna, the lower surface fairly densely clothed with conspicuous whitish appressed-hairs; inflorescence axis clothed with spreading hairs basally at least; petiole and leaf-rhachis clothed with spreading hairs; leaves with 1 pinna pair. 10. A. sp. near somalensis

Leaflets 4-9 pairs per pinna, glabrous; inflorescence axis sparingly to densely puberulous throughout or basally only; leaves with 1 or 2 pinna pairs. 8. A. oliveri

All or most leaves with 3-16 pinnae pairs:
Leaves with 3-6 pinnae pairs:

Leaf-rhachillae each with a recurved prickle on the lower surface at or just below the apex. 5. A. hamoudosa

Leaf-rhachillae without a recurved prickle on the lower surface but sometimes with a prickle terminating the leaf-rhachis:

Pinnacles with 3-4 (rarely 5) pairs of leaflets. 6. A. cheianthifolia

All or most with 5-25 pairs of leaflets:

Leaves very small, petiole and rhachis together < 1 cm long. 1. A. hunteri
Leaves larger than above, petiole and rhachis together >1 cm long:

Calyx 6.5-7 mm long; calyx 4.5-5 mm long; stamen-filaments 13-15 mm long; shrub or slender tree with elongate whippy branches; leaves with 3 pinnae pairs. 11. A. thomasii
Calyx 1.5-4 mm long; calyx 1.35 mm long; stamen-filaments up to 8 mm long; leaves with 3-6 pinnae pairs:

Petiole with a large flattened discoid gland 1-3 mm in diameter at the point of attachment of the lowest pinna pair; leaves with 3 pinnae pairs; internodes 5-8.5 cm long; pods 0.9-1 cm wide, glabrous. 14. A. caraniana

Petiole with a small often slightly raised gland < 1 mm in diameter which is variable in position but seldom situated as above, or eglandular; leaves with 3-6 pinnae pairs; internodes mostly <4.5 cm long:

Bark on young branchlets greyish, the outer layer flaking away to expose a papery peeling yellowish inner layer; prickles often absent; leaflets 4(6)9 pairs per pinna, glaucous, minutely puberulous on both surfaces; corolla 1.5-2 mm long; pods 0.9-1 cm wide; confined to Somalia A. ankohib

Epidermis of young branchlets not flaking away to reveal a papery peeling yellowish inner layer; prickles invariably present; leaflets 3(7) 25 pairs per pinna, not minutely puberulous on both surfaces; corolla 2.5-4 mm long; pods (0.9)1.1-3.4 cm wide:

Leaves 1.25-3 mm wide, glaucous, mostly glabrous throughout or sometimes with a small basal tuft of hairs on the lower surface; pinnae widely spaced; (5)7 mm apart giving the leaf an "open" look; petiole and leaf-rhachis glabrous or sparsely puberulous but hairs not spreading conspicuously; pods (0.9)1.1-1.5(1.8) cm wide, glabrous; confined to Ethiopia, Sudan and Arabia. A. asiak

Leaves 0.5-1.75 mm wide, very rarely wider, densely appressed-puberulous beneath, with or without spreading marginal cilia; pinna usually <5 mm apart; petiole and leaf-rhachis mostly sparingly to densely clothed with spreading hairs; pods (1.2)1.5-3.4 cm wide, sparingly to densely appressed puberulous or pubescent, seldom glabrous; widespread. 3. A. senegal

Leaves with 7-16 pinnae pairs:

Leaves with 7-16 pinnae pairs; pods almost glabrous when mature; confined to tropical West Africa. 2. A. dudgeoni

Leaves with 7-10(12) pinnae pairs; pods sparingly appressed-puberulous or pubescent when mature; absent from tropical West Africa. 3. A. senegal


Small shrub; young branchlets greyish, as though whitewashed over a purplish background. Prickles in threes, all three pointing upwards. Leaves very small; petiole up to 4 mm long, pubescent; rhachis up to 6 mm long, pubescent; pinnae 2-3 pairs; rhachillae up to 8 mm long; leaflets 4-8 pairs per pinna, up to 2x0.75 mm, glabrous. Inflorescence axis up to 1.5 cm long, pubescent. Calyx 1.5 mm long, puberulous. Corolla 2 mm long. Pods yellowish- or reddish-brown, up to 3 x 0.9 cm, compressed, valves brittle, inconspicuously venose, sparsely pubescent throughout or on margins and stipe only.

A. hunteri is known only from the type collection. It differs from A. senegal in being very small in all of its parts and the suggestion has been advanced that perhaps A. hunteri is no more than a diminutive variant of A. senegal. More material is desired.


A. senegal subsp. senegalensis (Houtt.) Roberth var. samarvavora (A. Chev.) Robert in Candollea 11: 157 (1948). Type as above.

Shrub or small tree to 4 m high, seldom up to 8 m high; bark grey or brown, rough; young branchlets brown or reddish-brown, densely pubescent, bark on older branches grey, to yellowish-brown or brown. Flaking minutely. Prickles in threes, the central one hooked downwards and the two laterals curved upwards, or occasionally solitary. Leaves petioles, rhachides and rhachillae densely clothed with spreading hairs; petiole 0.4-1.5 cm long, glabular;
rhachis 2.2-5.5 cm long, usually with a small gland at the junction of the top 1-3 pinnae pairs, often with scattered recurved prickles on the lower surface; pinnae 7-16 pairs; rhachillae 1-2 cm long; leaflets 13-25 pairs per pinna, 1.5-5.0-5.1 mm, linear-oblong, oblong or slightly broader apically, apices rounded, glabrous or with marginal cilia. Inflorescence axis densely pubescent, up to 9 cm long. Calyx 1.7-1.75 mm long, glabrous to fairly densely pubescent. Corolla 1.5-2.75 mm long, glabrous. Stamen-filaments up to 6 mm long. Pods yellowish-brown or brown, 5-10 x 1.7-2.5 cm, straight or slightly curved, rounded to acute apically, venose, glabrous when mature.

Found in Mali, Ivory Coast, Ghana, Dahomey and Nigeria. Occurs in moist regions than A. senegal.

The following is a selection of specimens examined in the Kew Herbarium:

Ivy Coast: Bouma Wildlife Reserve, 43 km east of Ouangoletini on road to Bouma, Wilde & Leeuwenberg 4947.


In tropical West Africa A. dudgeonii is distinguished from A. senegal in having 7-16 pinnae pairs per leaf and 13-25 pairs of leaflets per pinna as opposed to the 9-13 pinnae pairs and 8-15 pairs of leaflets of A. senegal. The pinnae tend to be more crowded on the rachis in A. dudgeonii giving the leaf a somewhat different "look" to the leaves of A. senegal.

In southern Africa (Natal), however, A. senegal sometimes has up to 12 pinnae pairs per leaf and up to 24 pairs of leaflets per pinna so that when viewed on a continental basis the difference in the number of pinna and leaflet pairs provides no clear discontinuity between A. dudgeonii and A. senegal. In Natal the greater number of pinnae and leaflet pairs are recorded from plants in more mesic habitats which is interesting because in West Africa A. dudgeonii grows in moister habitats than does A. senegal. However, whereas the largest leaflets in Natal are found on plants in mesic habitats, in West Africa A. dudgeonii tends to have smaller leaflets than A. senegal.

The geographical distributions of A. dudgeonii and A. senegal in West Africa were reported to be quite distinct and were plotted by Aubreville, Fl. Forest. Soudano-Guinéen: 255, t.23 (1950). Recently, however, A. dudgeonii has been recorded from Senegal (Berhaut, Fl. Senegal, ed. 2: 46, 1967). I have not seen a specimen of A. dudgeonii from Senegal and have been unable to substantiate this reported occurrence of the species in Senegal. Confirmation of the existence of A. dudgeonii in Senegal is desired.


Shrub or tree to 15 m high with a slightly rounded crown and 1-3 pinnae pairs per leaf, or with scattered recurved prickles on the lower surface; pinnae (2)-3-8(12) pairs; rhachillae 0.5-4.5 cm long; leaflets 7-25 pairs per pinna, 1.5-8.0-9.1 mm, linear to elliptic-oblong, sparingly pubescent-pubescent on both surfaces, or glabrous. Inflorescence axis densely pubescent or glabrous, up to 12 cm long. Calyx 2.2-2.75(3.5) mm long, glabrous or subglabrous; inflorescence axes olive-green; flowers usually produced after the leaves. A. leiyraulis (a) var. senegal. Inflorescence axis sparingly to densely pubescent: pod yellowish-brown or greyish-brown to brown, 1.8-4 x 1.2-3.4 cm, rounded to acuminate apically, venose, sparsely to densely pubescent-pubescent or puberulous.

A. senegal is widespread in tropical Africa from Senegal in the west to Ethiopia and Somalia in the north-east, southwards to the Transvaal, Swaziland and Natal, and it extends to India. The most widespread and unquestionably the most variable and taxonomically difficult species within the entire complex.

The present delimitation of infraspecific taxa within A. senegal, which of necessity relies partly on growth form, is most unsatisfactory as numerous specimens cannot be referred to a particular taxon with certainty. This is largely the result of inadequate information concerning the nature of the morphological variation in parts of the species range, particularly in north-east tropical Africa. When more information is available the varietal limits may need to be re-defined. Until such time it is hoped that the accompanying key to the currently recognized varieties will enable most specimens to be identified.

Key to varieties

Inflorescence axis glabrous throughout or sometimes with some basal hairs:

- Slender spindly tree with irregular straggling branches or a well-grown tree with a rounded crown; bark yellow, papery and peeling; young branchlets glabrous or subglabrous; inflorescence axes olive-green; flowers often produced before or with the young leaves; Apex of pod usually strongly acuminate or rostrate (a) var. senegal

- Tree with a flattened and spreading or lax rounded crown; bark not papery and peeling; young branchlets sparingly to densely pubescent; inflorescence axes olive-green; flowers usually produced after the leaves; Apex of pod usually strongly acuminate or rostrate (b) var. rostrata

The four varieties currently recognized within A. senegal and the difficulties encountered are discussed below.

(a) var. senegal

Var. *kerensis*, as delimited at present, accommodates a heterogeneous assemblage of shrubs and does not appear to represent a good taxon. As the only available syntype of var. *kerensis* has large pods with acute or acuminate apices, it is proposed that those plants in north-east Africa with rostrate pod apices should be referred to var. *rostrata* Brenan. As mentioned above, the necessity to distinguish var. *kerensis* from var. *senegal* on growth form alone is unsatisfactory because, in the absence of field notes, it is often not possible to refer a specimen to either variety with certainty. Var. *kerensis* does often have smaller leaves than in var. *senegal*, but this is an inconsistent tendency on which no great reliance can be placed. Until the nature of the variation in north-east Africa is carefully investigated in the field and properly understood this unsatisfactory situation will prevail. The significance of growth form as a means of delimiting infraspecific categories within *A. senegal* requires critical evaluation and it would be interesting to know whether var. *senegal* ever grows as a shrub. The effect on plants of tapping for gum is not clear.

Var. *kerensis* is recorded from Ethiopia, Somalia, Uganda, Kenya and Tanzania.


Var. *leiorhachis* grows either as a slender spindly tree with irregular straggling branches or as a well-grown tree with a rounded crown, and the bark is usually yellow, papery and peeling. The inflorescence axes are normally glabrous apart from some basal hairs or glabrous throughout, and the pods have rounded or acute apices and are several times longer than they are broad. The glabrous inflorescence axes distinguish var. *leiorhachis* from the other varieties of *A. senegal*. Moreover, it is of interest to bear in mind that occasional specimens of var. *senegal* have glabrous inflorescence axes. Indeed, the possibility exists that the type specimen of var. *leiorhachis* is an atypical specimen of var. *senegal* with glabrous inflorescence axes.

In the southern part of the range of distribution of var. *leiorhachis* the slender irregular straggling growth form is sufficient, in many instances, to distinguish it in the field from the other varieties of *A. senegal*. However, in Kenya the situation is more complicated because var. *leiorhachis* embraces two quite different growth forms. In addition to the slender straggling growth form reminiscent of *A. thomasi*, there is a form with non-virgate branching which grows into a substantial tree with a rounded crown (*A. circummarginata*). Although the two growth forms are strikingly different in the field, herbarium specimens are extremely difficult to separate. The decision to include these two different growth forms in var. *leiorhachis* was taken because of the inability to find any constant distinguishing morphological characters. Field observations on the variation in habit assumed by var. *leiorhachis* in Kenya, together with notes on ecological preferences,
would be welcome. It may ultimately be found desirable in the light of new evidence to accord the two different growth forms separate status.

The slender straggling growth form of some specimens of var. leiorhachis is reminiscent of that exhibited by A. thomasi and by A. ogadensis. Both A. thomasi and A. ogadensis differ in having larger flowers and, in addition, A. ogadensis differs in having leaves with only 1 pinna pair and (2)–4 pairs of large leaflets per pinna.

Var. leiorhachis occurs in Ethiopia, Kenya, Tanzania, Zambia, Rhodesia, Mozambique and the Transvaal.


A. oxypyrion Chiov. var. oxypyrion, fl. Somalia 2: 188, fig. 115 (1932). Type: Somalia, Pozzi di El Megheft, Sim 833 (H, holo.!).

A. volkii Chiov. var. oxypyrion, fl. Somalia 2: 188, fig. 115 (1932). Type: Somalia, Pozzi di El Megheft, Sim 833 (H, holo.!).


A. oxypyrion Chiov. var. oxypyrion, fl. Somalia 2: 188, fig. 115 (1932). Type: Somalia, Pozzi di El Megheft, Sim 833 (H, holo.!).

A. volkii Chiov. var. oxypyrion, fl. Somalia 2: 188, fig. 115 (1932). Type: Somalia, Pozzi di El Megheft, Sim 833 (H, holo.!).

A. oxypyrion Chiov. var. oxypyrion is regarded as a synonym of var. rostrata, but the identity of A. oxypyrion var. pubescens Chiov. remains in doubt. Unfortunately, Guidotti 21, the type of var. pubescens has not been traced. From the description, var. pubescens apparently differs from var. oxypyrion solely in having a denser indumentum. If this is indeed so, then there is a distinct possibility that var. pubescens belongs to the same taxon as A. senegal var. rostrata in which case the varietal epithet pubescens would have to be adopted.

Chiovenda described several other taxa, which are very closely related to or conspecific with A. senegal, which is unfortunate as it has only served to complicate an already confused situation. Acacia Chiov., in Miss. Biol. Borama Racc. Bot. 4: 55, fig. 5 (1939), from Ethiopia is conspecific with A. senegal but, owing to the absence of pods and field notes, it has not been possible to assign it to a particular variety. The densely pubescent inflorescence axes exclude it from var. leiorhachis.

Chiovenda based his description of A. senegal var. pseudoglabrocorypha, in Stefanni-Paoli Miss. Somal.: 72 (1916), on six syntypes from Somalia. As discussed in Bothalia II: 302 (1974) these syntypes belong to three different taxa. As Chiovenda apparently had no clear concept of his var. pseudoglabrocorypha, and as uncertainty over its circumscription remains, it seems desirable to select one of the specimens as the lectotype of the variety. I now select Paoli 83 from Mogadiscio as the lectotype of var. pseudoglabrocorypha. Paoli 83 is a fruiting specimen with glabrous or subglabrous inflorescence axes and puberulous pods up to 8,3 cm with rounded or subacute apices. The leaf-rachides and rhachillae are glabrous or almost so and the leaflets are dark on the upper surface and pale beneath. The decision to be taken when more information is available is whether Paoli 83 represents a distinct variety within A. senegal or whether, as intimated in Bothalia I.e., var. pseudoglabrocorypha should be assimilated into var. senegal.

Several other flowering specimens with glabrous inflorescence axes and discolorous leaflets from Somalia in the Kew Herbarium, namely, Gillett 4396 from Duwi [10°5'N-44°15'E], Drake-Brockman 51, Thomson 27, may possibly belong to the same taxon as Paoli 83 but this requires investigation.

In addition, there remain a few other specimens from Somalia and Ethiopia that cannot be satisfactorily placed. At present the status of these specimens is not clear. It is not known whether they represent distinct local races or whether they represent the response to unusual or extreme habitats.

4. A. sp.
Represented in the Kew Herbarium by Itranside Wood S/73/46 from Hudiso near Sheikh in Somalia. This may well prove to be only a variant of A. senegal but, until more material is available, it seems prudent to keep it separate. It differs from A. senegal in having only 1 pinna pair per leaf although the occasional leaf sometimes has 2 pinnae pairs. The 8–15 pairs of leaflets per pinna are up to 4 × 1 mm. The prickles are solitary, the inflorescence axes are very sparingly pubescent, and the immature pods are acute apically. The 1 pinna pair per leaf gives the specimen quite a different face to the material of A. senegal.

Gillett 4427 pro parte (one twig of Gillett 4427 is referable to A. sp. near somalensis) from Duwi in Somalia probably also belongs here.

5. Acacia hamulosa Benth. in Hook., Lond. J. Bot. 1: 509 (1842); in Trans. Linn. Soc. Lond. 30: 516 (1875) pro parte excl. ref. Mimosa asak et Acacia asak; Breman in Kew Bull. 8: 100 (1953); Ross in Bothalia II: 310 (1974). Type: Arabia, hills near Gedda, S. Fischer 72 (K, holo.!).


Acacia asak sensu auct. mult., non (Forsk.) Willd.
Shrub to 2.75 m high: young branchlets whitish, grey or grey-brown to purplish, sometimes as though whitewashed over a purplish background, glabrous or sparingly pubescent at first but becoming glabrous later.

**Prickles** in threes, the central one slightly hooked downwards and the two laterals curved upwards. **Leaves** glabrous; petiole 0.3–1.3(2) cm long; rachis 0.6–1.5(2.5) cm long; pinnae 3–4 pairs; rachillae 0.3–1 cm long, with a recurved prickles on the lower surface either at or just below the apex; leaflets (3)5–8 pairs per pinna, 2.5–5 x 0.75–2 mm in Africa (up to 10 x 3,25 mm in Arabia), glabrous. **Inflorescence** axis up to 4 cm long, glabrous or pubescent. **Corolla** 1.5–2.5 mm long, glabrous or sparingly pubescent. **Pods** 0.3–1 cm long, with a recurved prickles on the lower surface of each rhachilla. There is sometimes a recurved prickles terminating the rachis in some of the other species in the complex but never the rachis.

*Acacia cheilanthifolia* is endemic to Somalia. Young branchlets, petioles, rachides, rachillae, leaflets, inflorcescence axes and calyces glabrous to sparingly pubescent. **(a) var. cheilanthifolia**

Young branchlets, petioles, rachides, rachillae, leaflets, inflorcescence axes and calyces densely pubescent. **(b) var. hirtella**

Known only from the type collection.

*Acacia cheilanthifolia* is closely related to *A. senegal* and to *A. hamulosa*. It differs from *A. senegal* in having 3–4 (rarely 5) pairs of leaflets per pinna and narrow pods, and from *A. hamulosa* in lacking a recurved prickles at or near the apex on the lower surface of each rachis, and in having narrow pods. More material of both varieties of *A. cheilanthifolia* is desired.

7. *Acacia asak* (Forsk.) Willd. in L., Sp. pl. ed. 4, 4: 1077 (1806), non aut. al., qua = *A. hamulosa* Benth.: Brennan in Kew Bull. 8: 97 (1953). Type: Arabia, Forskal (C. holotype). More material of both varieties of *A. cheilanthifolia* is desired.

Cited from both Somalia and Kenya. Found in Ethiopia, Somalia, Kenya (Northern Frontier Province) and Arabia. Appears to occupy a diverse range of habitats.

A. *hamulosa* is readily distinguished from all of the other species in this complex by the presence of a recurved prickles either at or near the apex on the lower surface of each rachilla. There is sometimes a recurved prickles terminating the rachis in some of the other species in the complex but never the rachis.


**Acacia cheilanthifolia** is closely related to *A. senegal* and to *A. hamulosa*. It differs from *A. senegal* in having 3–4 (rarely 5) pairs of leaflets per pinna and narrow pods, and from *A. hamulosa* in lacking a recurved prickles at or near the apex on the lower surface of each rachis, and in having narrow pods. More material of both varieties of *A. cheilanthifolia* is desired.


*Acacia tsuchanaka* Hochst. ex A. Rich., Tent. Fl. Abyss. 1: 244 (1847). Type: Ethiopia, Modat. Schimper 1746 (P. holotype). More material of both varieties of *A. cheilanthifolia* is desired.

Shrub to 10 m high: bark on young stems yellow, papery and peeling, on older stems dark grey and deeply fissured; young branchlets dark grey or reddish-brown to purplish, lenticellate, glabrous or sparsely puberulous; internodes mostly 2–2.5 cm long but occasionally up to 4.5 cm long. **Prickles** solitary or in threes, the central one slightly hooked downwards, the laterals spreading almost at right angles to the stem or pointing slightly upwards. **Leaves** glabrous throughout or sparingly pubescent: petiole 0.4–2.4(4.4) cm long, with a small slightly raised gland <1 mm in diameter which is variable in position; rachis 0.9–5.5 cm long; pinnae 3–6 pairs; rachillae 0.8–4.5(6.8) cm long; leaflets (3)7 pairs per pinna, 3–9 x 1.25–3.75 mm, glaucous, glabrous throughout or lower surface sparingly pubescent, sometimes with a small basal tuft of hairs to one side of the midrib on the lower surface, inconspicuous marginal cilia sometimes present. **Inflorcescence** axis up to 11 cm long, glabrous or very sparingly pubescent. **Corolla** 1.5–2 mm long, glabrous. **Pods** 2.5–3.5 mm long. **Stamen-filaments** up to 5 mm long. **Pods** brown or reddish-brown to purplish. (2,83), 8–12–0.9, 1.5(1.8) cm, straight or almost so, compressed, inconspicuously venose, glabrous.

Found in the Sudan, Ethiopia and in Arabia. Occurs in rocky areas and on stream banks.

The following is a selection of the specimens examined in the Kew Herbarium:

**Sudan**: Kassala. Brown 1097. Karota Hills, Crowfoot s.n. between Suakin and Berber. Schwenkforth 89.
Acacia oliveri (Forsk.) Willd. var. unispinosa Fiori in Agric. Colon. 5: 93; fig. 67 (1911). Type: Ethiopia, Samhar, Uakiro, 7 Feb. 1899, Fiori 135b (F, lecto.).

4. unispinosa (Fiori) Chiov. in Agric. Colon. 5: 93; fig. 67 (1911). Type: Ethiopia, Samhar, Uakiro, 7 Feb. 1899, Fiori 135b (F, lecto.).

5. unispinosa var. unispinosa (Fiori) Chiov. in Agric. Colon. 5: 93; fig. 67 (1911). Type: Ethiopia, Samhar, Uakiro, 7 Feb. 1899, Fiori 135b (F, lecto.).


Shrub or small tree to 4 m high with a rounded crown; young branchlets reddish-brown, glabrous or sparingly pubescent; older stems greyish or grey-brown to purplish-grey; internodes 0.8–2.5 cm long. Prickles solitary or in threes, recurved. Leaves: petiole 2.5–10 mm long, sparingly to densely pubescent; pinnae 1–2 pairs; rhachillae 0.5–1.5 (2.5) cm long, glabrous to densely pubescent; leaflets 4–9 pairs per pinna, 3.5(9) × 1.25–1.75(3.75) mm, oblong or obovate-oblong, glaucous, glabrous. Inflorescence axis sparingly to densely pubescent throughout or basally only. Calyx 1.5–4.5 mm long. Flowers 3.5(5) × 1.5–1.8 cm, 1–3-seeded, compressed; valves thin, venose, glabrous.

4. somalensis is endemic in Somalia. Found mostly at low altitudes near the coast on gravel, rocky stony plains or hillsides.

In addition to the isotype, the following specimens have been examined:

Somalia. Here, a few kilometres along the coast from Mejd, Glover & Gilliland 711 (BM, K); Matt, Bally 11231 (K); near Matt, Popov GP 577 (BM, K); 57 km from ERigavo to Matt, 17 km from Matt, Hemming 2040 (K); coast east of Berbera, Popov 1183 (K), Popov 1184 (BM).

A distinctive species which is usually easily recognized by the solitary prickles, leaves with 1 pinna pair, and the 2 (rarely 3) pairs of glabrous leaflets per pinna.

10. Acacia sp. near somalensis.

Superficially very similar to A. somalensis with which it agrees in habit, in the prickles being solitary, ± straight and ascending or recurved, and in the leaves having only 1 pinna pair. It differs from A. somalensis, however, in the following characters:

1. the young extremities are fairly densely pubescent;
2. the petioles and leaf-rhachillae are clothed with spreading hairs;
3. the rhachillae are 4–9 mm long;
4. there are 3–5 pairs of leaflets per pinna;
5. the leaflets are 3–5 × 1.2–2.5 mm, linear-oblong to obovate-oblong, fairly densely clothed with conspicuous whitish-appressed hairs on the lower surface;
6. the inflorescence axes are clothed with spreading hairs basally at least.

This taxon is endemic in Somalia. It is represented in the Kew Herbarium by the following specimens:

Somalia. 112 km from Borama, Durkahamaya in Marable Hills, Glover & Gilliland 877; Alard, Gillett 4458; Duwi, Gillett 4427 / pro parte; near Bulhar, Drake-Brockman 669.

With the exception of the last specimen, the species were all collected at considerably higher altitudes than the specimens of A. somalensis.

The sheet of Gillett 4427 in the Kew Herbarium consists of mixed gathering and it is not possible to establish whether the collector’s notes refer to the specimen of this taxon mounted in the upper left hand corner of the sheet or to the other entity (4. sp.) mounted on the sheet. The capsule above the collector’s label contains loose pods, but, once again, it is not possible to establish with certainty to which taxon they belong although it seems probable that they belong to the other entity (4. sp.). It would be reassuring to have confirmation that the loose pods in the capsule mounted above the collector’s label of Gillett 4458 definitely belong to A. sp. near somalensis.

In Glover & Gilliland 877 the bark on the trunk is yellowish and flakes off to reveal a greenish-yellow inner layer, and that of Gillett 4458 is described as “yellow scaling off”. No details concerning the bark of A. somalensis are available but there may well be a difference between the bark of this taxon and that of A. somalensis. Field observations are required to establish whether any such difference does exist.

The pubescent young branchlets, petioles, leaf-rhachillae and inflorescence axes, and the more numerous pairs of leaflets of densely appressed-pubescent lower surfaces are sufficiently distinctive
to indicate that this taxon almost certainly requires formal taxonomic recognition. However, as the available material is rather inadequate, and as there is an element of doubt whether the loose pods of the two Gillett specimens actually belong, it is considered premature to decide precisely what rank should be accorded to this taxon. The decision on whether to give this taxon infraspecific status within *A. somalensis* or specific status must wait until more material, particularly fruits and material, is available for examination.

*A. oliveri* is readily distinguished by its glabrous leaflets from specimens of this taxon.


Straggling shrub with elongate branches or slender virgately branched tree up to 7(12) m high; young branchlets usually grey- or yellowish-brown, sometimes as though whitewashed over a darker background, densely pubescent; internodes 1,2-4 cm long. *Prickles* in threes, the central one hooked downwards and the laterals curved upwards or sometimes nearly straight, or occasionally prickles solitary. *Leaves*: petiole 0,2-1,2 cm long, glandular; rhachis 0-0,8 cm long, pubescent; pinnae 1-2(3) pairs; rhachillae (1)1,5-4 cm long; leaflets 7-15 pairs per pinna, 3-9 x 1,5-3,3 cm, oblong, pubescent with few hairs, venose, puberulous. *Seeds* ± subcircular-lenticular, 10-12 mm in diam.

*A. thomasi* is confined to Kenya.

The following is a selection of specimens examined in the Kew Herbarium:

**Kenya.—Northern Frontier Province, 66 km east of Isiolo near the end of the Nyambari Range, Bally & Smith B14459.** Machakos district, mile 138 and 129 from Mombasa on the main Nairobi road, near Kenani, Verdoort 2590; Masai district, Ngeri River, Leje-Fitzgerald 29; Tetta district, Voi-Mwatate road, Drummond & Hemsl 4281.

The distinctive growth form and large flowers distinguish *A. thomasi* from all of the other species in this complex except *A. ogadensis*. It differs from *A. ogadensis* in having more numerous pairs of narrower leaflets per pinna, and a different range of distribution.

12. **Acacia ogadensis** *Chiov.* in Ann. Bot., Roma 13: 393 (1915); Fl. Somalia 1: 167 (1929). Syntypes: Somalia, Ogaden, Robechi Brucchetti 594 (FL); between Bardera and Marda, Paoli 811 (FL); Paoli 812 (FL!).


Slender virgately branched straggly tree up to 5 m high, sometimes (Rde *Glover & Gilliland* 1037) with two tiers of foliage, one at ± 1 m high through which the stem grows to produce a second tier at 2,75-5 m; young branchlets grey or reddish-brown, thickened in threes, sometimes as though whitewashed over a purplish background. *Prickles* in threes, the central one hooked downwards and the two laterals spreading almost at right angles to the stem or sometimes also slightly hooked downwards. *Leaves*: petiole up to 4 mm long, glandular; pinna 1 pair; rhachillae 0,8-2 cm long; leaflets (2)4 pairs per pinna, 5-15: (2)5-9 mm, oblong, ovate-oblong or obovate, glabrous or minutely appressed-pubescent on lower surface. *Inflorescence* axis puberulous or glabrous, up to 5 cm long. *Calyx* 3-4 mm long, pubescent or glabrous. *Corolla* 4-6 mm long. *Stamen-filaments* up to 18 mm long, lilac. *Pods* olive- or yellowish-brown, 6-7 x 1,3-1,9 cm, compressed. acutely apically, venose, densely puberulous.

*A. ogadensis* is endemic in Somalia, where it apparently favours limestone outcrops.

*A. ogadensis* is represented in the Kew Herbarium by the following specimens:

**Somalia.—South border at Dalaliso, Glover & Gilliland 1037; 104 km south of Belet Wein, Hemming C93 49; Galkayu Plains, Bally 9606; 100,8 km north of Dusa Mareh, Bally 9574; 49,6 km north of Gardo, Hemming 1579.**

All three syntypes are leafless flowering specimens in which the inflorescence axes are puberulous and the calyces fairly densely pubescent. The flowering specimens in the Kew Herbarium cited above agree with the syntypes in flower size and in overall facies both in having glabrous inflorescence axes and calyces. The taxonomic significance of the presence or absence of the indumentum is not clear and requires investigation.

The slender straggling virgate growth form of *A. ogadensis* is reminiscent of *A. thomasi* and of *A. senegal var. leiorhachis*. *A. ogadensis* differs from both *A. thomasi* and *A. senegal var. leiorhachis*, however, in having fewer pairs of broader leaflets per pinna. The large flowers also help to distinguish *A. ogadensis* from all of the other species in the complex except *A. thomasi*. *A. ogadensis* appears to be most closely related to *A. thomasi*.

Flower colour in *A. ogadensis* needs clarification: it is not clear whether the stamen-filaments alone are lilac or whether the corolla too is lilac.


Tree 2-11 m high with white or yellow peeling bark; young branchlets reddish-brown, purplish or blackish-puberulous; internodes 5,5-9 cm long, often enlarged towards the apex. *Prickles* solitary or in threes, slightly hooked or ± straight and spreading. *Leaves*: petiole 1,3-2,8 cm long, with a large flattened ± discoid gland 1,5-3 mm in diameter near the base; rhachis 3-6,5 cm long, glandular, puberulous; pinnae 2 pairs; rhachillae 2,7-5 cm long; leaflets 6-9 pairs per pinna, 9-20 x 3-5,9 mm, oblong to slightly ovate or obovate, rounded apically, puberulous above and below. *Inflorescence* axis glabrous, up to 13 cm long. *Calyx* ± 2,5-2,75 mm long, glabrous, with a dark stripe running from the base of the calyx to the apex of each lobe. *Corolla* ± 3,5 mm long, glabrous. *Pods* brown or reddish-brown, 6-10,5 x 1,8-2,1 cm, straight, rounded or apiculate apically, venose, densely puberulous.


The following specimens have been examined:

**Somalia.—Bughunheh, Peck YI02 (K).**

**Kenya.—Northern Frontier Province, Lag Ola, 45 km west of Ramu on Banessa road, Gillett 13279 (K).**
Burger 3396(K) and 3397(K), a sterile and a flowering specimen respectively, from limestone slopes west of Daletti above the Gobelli river valley in the Harar Province of Ethiopia [42°7′E 8°32′N] are almost certainly referable to *A. condyloclada*. Unfortunately there is very little material of *A. condyloclada* available for comparison, but the two above specimens have the overall facies of this species. They agree in having smooth white peeling bark, puberulous purplish to blackish young branchlets with long internodes, a large gland at the base of the petiole, elangulard rachides, 3-5 pinnae pairs, 6-12 pairs of mostly puberulous large leaflets per pinna, glabrous inflorescence axes, and sessile flowers with glabrous calyces and corollas. However, one twig of *Burger 3397* is unusual in having two leaves with slightly smaller leaflets (6-2 mm), although the other twig has the typical larger leaflets (up to 10-4.5 mm). Some of the leaflets are glabrous. In addition, the flowers tend to be slightly smaller than in the other flowering specimen examined, i.e. the calyx is = 2 mm long as opposed to 2.5-2.75 mm. As in *A. condyloclada*, in many of the flowers a dark stripe is evident running up each calyx-lobes. These two specimens clearly match *A. condyloclada* more closely than any other species and the present circumscription of the species could easily be amended to make provision for the slight differences noted above. More material is required.

The white peeling bark, long internodes, large basal petiolar gland, and few pairs of large leaflets per pinna distinguish *A. condyloclada* from the other species in this complex.

14. Acacia caraniana Chiov., Fl. Somal 1: 166, t.18 (1929). Type: Somalia, Miguri, Behen, Puccioni & Stefanini 704 (FI, hol.). Slender tree to 7 m high with pale grey or whitish bark; young branchlets reddish-brown to puberulous or as though whitewashed over a reddish or purplish bark; young branchlets glabrous or very sparingly puberulous, dark reddish-brown, becoming dark grey-brown to purplish, sometimes as though whitewashed over a purplish background. Prickles in threes, the central one strongly hooked downwards, the two laterals strongly curved upwards. Leaves: petiole 0.6-1.8 cm long; rachis 0.7-2.5 cm long; pinnae 2-3 pairs; rachillae 0.3-1.3 cm long; leaflets 0 or 2 pairs per pinna, 8-19 x 5.13 mm, obovate, asymmetrical basally, minutely appressed-puberulous on both surfaces. Inflor- escences axis glabrous, up to 4 cm long. Calyx up to 2.5 mm long, glabrous. Corolla up to 4 mm long. Stamens filaments up to 7 mm long. Pods yellowish to brown or reddish-brown to purplish, 4-5.9-3.2 x 4.8 cm, rounded apically, compressed, valves thin, venose, glabrous.

Found in Ethiopia and Somalia. Ecological preferences not clear.

The following is a selection of specimens examined in the Kew Herbarium:

**Ethiopia.**— Ogaden, near Wardere, Popov 1124; 25.6 km east of Wardere, Hemming 1463; 82 km east of Wardere, Hemming 1514.

**Somalia.**— 27 km north of Guale, Hemming CFH/11.28.8 km south of Ghehmos, Hemming 1429.


Shrub to 2.75 m high, often with a short trunk 0.3-0.6 m high and then branchling to give a flattened or rounded crown; young branchlets glabrous or very sparingly puberulous, dark reddish-brown, becoming dark grey-brown to purplish, sometimes as though whitewashed over a purplish background. Prickles in threes, the central one strongly hooked downwards, the two laterals strongly curved upwards. Leaves: petiole 0.6-1.8 cm long; rachis 0.7-2.5 cm long; pinnae 2-3 pairs; rachillae 0.3-1.3 cm long; leaflets 0 or 2 pairs per pinna, 8-19 x 5.13 mm, obovate, asymmetrical basally, minutely appressed-puberulous on both surfaces. Inflor- escences axis glabrous, up to 4 cm long. Calyx up to 2.5 mm long, glabrous. Corolla up to 4 mm long. Stamens filaments up to 7 mm long. Pods yellowish-brown, brown or reddish-brown to purplish, 4.5-5.9-3.2 x 4.8 cm, rounded apically, compressed, valves thin, venose, glabrous.

A distinctive species, which is easily distinguished by the 1 or 2 pairs of large leaflets per pinna, 2 or 3 pinnae pairs per leaf, and the broad thin-valved pods.


Tree to 6 m high, sometimes several-stemmed from the base; bark yellowish, papery, peeling off in large thin pieces; very young branchlets greyish or reddish-brown, fairly densely puberulous at first but becoming glabrous, the greyish epidermis on older branchlets peeling off to expose a papery yellowish inner layer. Prickles present or often absent (see note below). Leaves: petiole 0.6-1.9 cm long, with a small slightly raised gland which is variable in position; rachis 2-5 cm long; pinnae (2)-3-6 pairs; rachillae 1.2-3.2 cm long; leaflets (4)-9 pairs per pinna, 4.10 x 0.75-1.75(2.5) mm, linear-oblong or oblong, obtuse apically, distinctly petiolute, often bent basally so that the apex of the leaflet tends to point upwards towards the apex of the pinna, glaucous, minutely puberulous on both surfaces. Inflor- escence axis minutely puberulous, up to 6 cm long. Calyx 1.1-5.5 mm long, glabrous or almost so. Corolla 1.5-2 cm long. Stamens filaments up to 4 mm long. Pods brown, 4.5-7.5 x 0.9-1 cm, compressed, acute apically, inconspicuously venose, minutely puberulous.

A. ankokib is endemic in Somalia. Ecological preferences unknown.

The following specimens have been examined:

**Somalia.**—Mujieen, Everard 1 (BM); 64 km from Scuciuban on El Gal road, Hemming 1771 (K); El Gal, Popov GP5.57.25 (K).

The true nature of the armature in *A. ankokib* is not clear and requires clarification. In *Robecchi-Bricchetti 529* the prickles are mostly paired with a small, sharp or blunt outgrowth in the position
normally occupied by the third prickle, while occasion­
ally a well-developed third prickle is present but
situated some distance below the paired prickles. It
is not clear whether the outgrowths are reduced
prickles or whether they merely simulate prickles.
Guidotti 35, the other syntype, was said by Chiovenda
to be unarmed, and all of the specimens cited above
are unarmed. Until it has been established con­
clusively whether the prickles are basically paired or
in threes, it is uncertain whether A. ankokib is a
member of the A. senegal complex or whether it
should be excluded.

A. ankokib is readily distinguished by the yellowish
papery bark on the bole which peels off in large pieces,
the greyish epidermis on the older branchlets which
peels away to expose a papery yellowish inner layer,
the few pairs of distinctly petiolulate, glaucous,
minutely puberulous leaflets, and the narrow pods.