

The typification of *Mimosa senegal*

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ABSTRACT

Analysis of the protologue of *Mimosa senegal* L. in Species Plantarum ed. 1: 521 (1753) indicated that it embraced two different elements. The absence of a type specimen or the existence of an illustration from which Linnaeus could have drawn up his diagnostic phrase-name necessitated the selection of a neotype to preserve the application of the name *M. senegal*.

The protologue of *Mimosa senegal* L., Sp. Pl. ed. 1: 521 (1753), the basionym of *Acacia senegal* (L.) Willd. in L., Sp. Pl. ed. 4, 4: 1077 (1806), is as follows:

"29. MIMOSA spinis ternis: intermedio reflexo, *Senegal.* foliis bipinnatis, floribus spicatis.

Mimosa aculeata, floribus polyandris spicatis, legumine compresso laevi elliptico. *Adanson, ex B. Jussieu.*

Mimosa spinis geminis distinctis, foliis duplicato-pinnatis: partialibus utrinque quino-pluribus. *Hort. cliff.* 209. *Hort. ups.* 146. *Roy. lugdb.* 471 (sphalm. 411). *Mat. med.* 261.

Acacia. Bauh. pin. 392. *Alp. aegypt.* 9. t. 9.

Acacia altera vera, siliqua longa villosa, cortice candicante donata. *Pluk. alm.* 3. p. 251. f. 1.

Habitat in Arabia.

Cortice albo distinguatur haec species primo intuitu.

Spinae ad folii exortum tres."

The reference in the diagnostic phrase-name to a plant armed with three spines,† with the central one recurved, and in the synonymy to a plant with paired spines, makes it manifestly clear that Linnaeus's concept of *M. senegal* in the Species Plantarum embraced two quite different elements.

The diagnostic phrase-name, namely, "MIMOSA spinis ternis: intermedio reflexo, foliis bipinnatis, floribus spicatis", together with the Adanson synonymy, namely, "*Mimosa aculeata*, floribus polyandris spicatis, legumine compresso laevi elliptico. *Adanson, ex B. Jussieu*", appear for the first time in the Species Plantarum and did not originate in any of Linnaeus's earlier works. Much of the synonymy, however, originated in and was taken in a modified form from Hortus Cliffortianus: 209 (1738). It is quite clear therefore that to his earlier basic concept of a species armed with paired spines in Hortus Cliffortianus, Linnaeus subsequently added in the Species Plantarum the diagnostic phrase-name of a species armed with three spines. The description in Hortus Cliffortianus is as follows:

"10. MIMOSA spinis geminatis, foliis duplicato-pinnatis.

Acacia altera vera f. *Spina mazcatensis* vel *arabica*, foliis angustioribus, flore albo, siliqua longa villosa plurimis isthmis & cortice candicantibus donata. *Pluk. alm.* 3. t. 251. f. 1.

Acacia, Sant & Akakia. Alp. aegypt. 6. t. 6.

Acacia vera. Bauh. hist. 1. p. 429.

Crescit in Arabia forte et ad Caput bonae spei, unde semina habuimus varia et hanc iis immixtam; enata etiam fuit e seminibus virginianis per D. Gronovium communicatis.

Folia quatuor, quinque vel sex paria singulo petiolo communi insident pinnatim, singulapinnata numerosis pinnis: ad exortum petioli communis spinae duae oppositae.

Differt a 5 ta specie, cum qua confunditur a plurimis spinis in hac minoribus minusque rigidis, et foliis partialibus quam quinque paribus."

Plukenet's excellent illustration in Almagestum Botanicum 4: t.251 fig. 1 to which Linnaeus referred depicts a plant armed with paired stipular spines, with bipinnate leaves, flowers in round heads and distinctly moniliform pods. This illustration makes it perfectly clear that the plant Linnaeus had in mind in Hortus Cliffortianus was *Mimosa nilotica* [*Acacia nilotica* (L.) Willd. ex Del.]. The descriptive phrase in Hortus Cliffortianus, namely, "*Acacia altera vera* f. *Spina . . .*", was copied by Linnaeus, without additional information, from Plukenet's Almagestum Botanicum 2: 3 (1696). It is most unlikely that Linnaeus saw the actual specimen drawn, but although he gives a diagnostic phrase, there is nothing in it that could not have been obtained from a study of Plukenet's figure. The plant described and illustrated by Alpini, referred to by Linnaeus in his synonymy in Hortus Cliffortianus, is *Acacia nilotica*, as is the plant described by Bauhin in his Hist. Plant. 1: 429.

Analysis of the protologue of *M. senegal* in the Species Plantarum reveals that the third descriptive phrase, namely, "*Mimosa spinis geminis . . .*", is based on the diagnostic phrase-name in Hortus Cliffortianus. This descriptive phrase, together with the additional synonymy (with the exception of the Adanson synonymy) cited by Linnaeus in Species Plantarum, refers to *Acacia nilotica*. Therefore, with the exception of the diagnostic phrase-name and the Adanson synonymy, all of the protologue of *Mimosa senegal* in Species Plantarum refers to *Acacia nilotica*.

For the purpose of the typification of *M. senegal* the diagnostic phrase-name is the most important of the constituent elements in Linnaeus's protologue. Analysis of this diagnostic phrase-name indicates that Linnaeus had before him a specimen armed with three spines, the central one of which was recurved, and bearing bipinnate leaves and flowers in spikes. The assumption that Linnaeus had before him a specimen and not an illustration is based on the fact that no illustration of such a plant was published prior to 1753, or for many years subsequently. Unfortunately, however, there is no specimen of *M. senegal* preserved in the Linnaean Herbarium in London, or in the Linnaean collections in Stockholm.

It seems almost certain that Linnaeus based the diagnostic phrase-name of *M. senegal* on a specimen collection by Michel Adanson in Senegal between 1749 and 1753. Bentham, in his revision of the Mimoseae in Trans. Linn. Soc. Lond. 30: 516 (1875), was of the same opinion: "It appears to me evident that Linnaeus, in characterizing his *M. senegal*, had in view the plant brought by Adanson from Senegal, as furnishing the best gum arabic of commerce, and which also constituted the *M. senegalensis* of Lamarck. Linnaeus's reference to Adanson and to the three spines, with the central one recurved, identify the species, notwithstanding the confusion thrown on it by the various synonyms applying to almost as many different plants, and his note that it was easily known by its white bark, which has induced the false reference to *A. albidia*."

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† In *Mimosa senegal* the plants are actually armed with prickles and not with stipular spines. However, for the purpose of this discussion the term spine is retained to obviate any confusion which might arise from a change in terminology.



FIG. 1.—Photograph of the Adanson specimen (Herb. Adanson No. 16899) in the Paris Herbarium selected as the neotype of *Mimosa senegal*.

Linnaeus was a correspondent of B. Jussieu, but not of Adanson, and it is quite possible that B. Jussieu sent Linnaeus some notes and a specimen of *M. senegal* that he had received from Adanson. Lamarck, *Encycl. Méth. Bot.* 1: 19 (1783), gives all of the credit for this species to Adanson, mentioning that the latter had provided the only good description of this interesting plant, and that Linnaeus had wrongly added other discordant elements to Adanson's good description.

As the specimen on which Linnaeus based his diagnostic phrase-name of *M. senegal* is no longer extant, and as there is no illustration from which Linnaeus could have drawn up this phrase-name, the selection of a suitable specimen (neotype) to preserve the application of the name is desirable. In searching for a representative specimen of *M. senegal* it was considered desirable to select a specimen collected in Senegal, and, if possible, by Adanson. Fortunately an excellent specimen of *M. senegal* collected by Adanson (No. 59c) in Senegal in 1749 is preserved in the Adanson Herbarium (No. 16899) in Paris

(see Fig. 1), together with several duplicates of the same gathering.

This Adanson specimen shows quite clearly the three spines with the central one recurved, the bipinnate leaves, and the spicate inflorescence to which Linnaeus referred in the diagnostic phrase-name of *M. senegal* in the *Species Plantarum*. The leaves have up to 5 pinnae pairs. This excellent specimen (Herb. Adanson No. 16899), which will preserve the traditional and current application of the name *M. senegal*, is now selected as the neotype of *M. senegal*.

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