TAXONOMIC AND MORPHOLOGICAL NOTES ON CLARISIA (MORAC.)

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SUMMARY

Studies in the *Moraceae* showed that *Acanthinophyllum* should be regarded as congeneric with *Clarisia*, and that *Clarisia spruceana* and *Aliteria sagoti* are conspecific with *Clarisia ilicifolia*. Some characters of the inflorescences and seeds and the position of *Clarisia* and its relationships with *Trophis* and *Sorocea* are discussed.

In a revisional study LANJOUW (1936) recognized 8 species of *Clarisia*: *C. racemosa*, the nearly allied species *C. strepitans* (= *C. ilicifolia*, according to LANJOUW & ROSSBERG, 1936) and *C. spruceana*, and a group of closely related species, comprising *C. biflora*, *C. mattagrossensis*, *C. colombiana*, *C. urophylla* and *C. mexicana*. To these Woodson added in 1960 *C. panamensis*. BURGER (1962) split *Clarisia* in two genera: *Acanthinophyllum*, with *A. ilicifolium* and *A. spruceanum*, and *Clarisia*, with *C. racemosa* and *C. biflora*, under which he placed all other species described in *Clarisia*, except *C. urophylla*, which proved to belong to *Trophis*. The main argument for splitting *Clarisia* seems to be the occurrence of uncinate hairs in the species inserted in *Acanthinophyllum*. *Acanthinophyllum* and *Clarisia* were even placed in different subfamilies.

During the author's studies in the *Moraceae* some facts bearing on the taxonomy of these taxa came to light. A stimulus to study them more intensively was a specimen collected by Karsten in Colombia (Sierra Nevada de Santa Marta), received on loan from the herbarium of Leningrad. This specimen agreed with *Clarisia* (sensu Burger) in the uniflorous pistillate inflorescences, and with *Acanthinophyllum* in the presence of uncinate hairs (see *fig. 1*). At first it was taken for a new species intermediate between *Clarisia* and *Acanthinophyllum*.

Acanthinophyllum spruceanum

This species, only known from the type collection, cannot be distinguished from the very variable *A. ilicifolium* except by its longer staminate inflorescences. Considering the nature of this difference and the variability of *A. ilicifolium* there is no reason for retaining *A. spruceanum* as distinct from *A. ilicifolium*.

Aliteria sagoti

In 1929 Benoist described the genus *Aliteria* with one species: *A. sagoti*. This species turned out to be conspecific with *A. ilicifolium*.

Uncinate hairs

Burger observed uncinate hairs only in *A. ilicifolium*. Detailed examination of *Clarisia* specimens, stimulated by the characters of the Karsten specimen mentioned above, revealed the presence of uncinate hairs also in several specimens of *C. biflora*. In *C. biflora* the uncinate hairs are mostly short and usually confined to the secondary veins of the lower leaf surface, whereas they are more conspicuous and usually also borne on the twigs and peduncles in *A. ilicifolium*.

Consequently the Karsten specimen could be placed in *C. biflora*. It resembles very much the type specimen of *C. colombiana*, collected in the same region of Colombia.

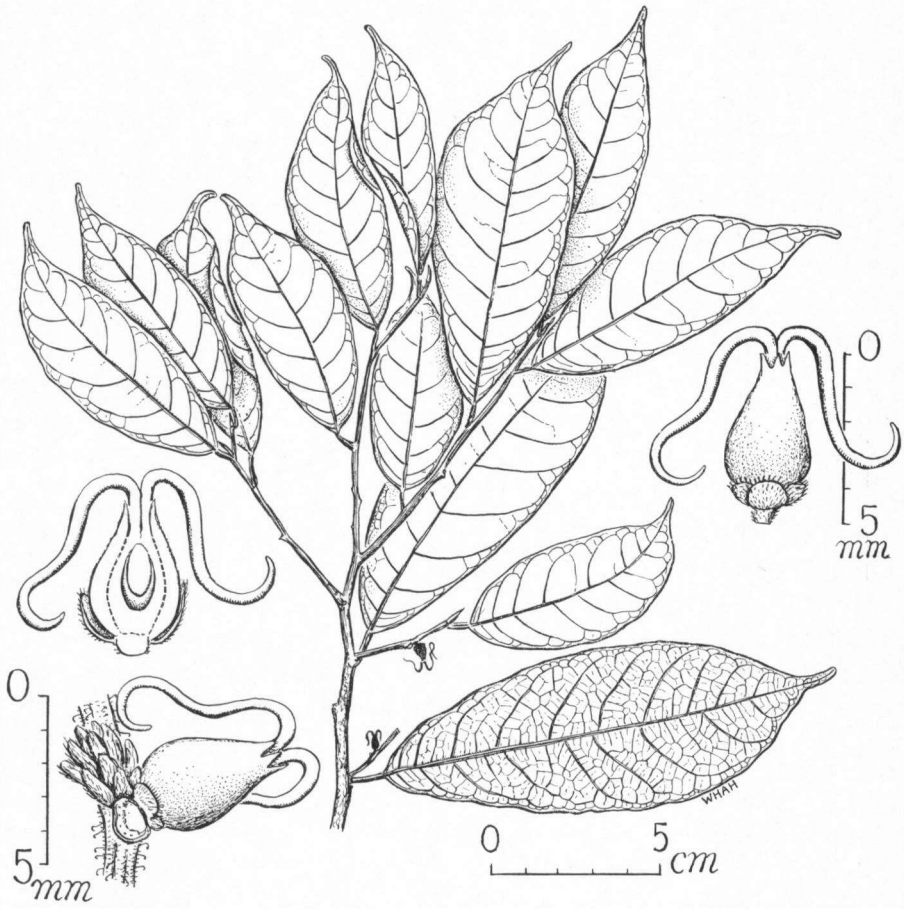

Fig. 1. *Clarisia biflora:* from Karsten s.n., Sierra Nevada de Santa Marta, Colombia.

Staminate inflorescences

The staminate inflorescences and flowers of both genera (sensu Burger) are quite similar and the descriptions are almost identical. Burger ascribed these

striking similarities to a possible parallel evolution. Both Lanjouw and Burger regard the flowers as not definitely organized; the descriptions read, e.g., "free stamens interspersed among numerous bracts". Indeed, at anthesis it is often hardly possible to distinguish separate flowers. Nevertheless, in several cases, especially before anthesis, more or less distinct flowers can be observed. Tepals and true bracts can often be hold apart by their arrangement and differences in shape, texture, and pubescence.

Pistillate inflorescences

According to Burger the pistillate flowers of *Clarisia* may be the result of reduction of the (multiflorous) inflorescences as found in *Acanthinophyllum* (sensu Burger). Thus they can be regarded as uniflorous inflorescences. This is evident in view of the position of the bracts. Therefore it is better to call them pedunculate uniflorous inflorescences instead of pedicellate flowers. Reduction in the number of flowers in the inflorescences is a common phenomenon within the *Moraceae*, and can be demonstrated in several genera (e.g. *Perebea*, *Maquira*, *Helicostylis*, and *Brosimum*).

Seeds

The seeds of the two *Clarisia* species and of *A. ilicifolium* are similar. The embryos are longitudinally aligned and have a short straight apical radicle. The vascularization of the testa is similar in the three species. The author's studies in several groups of the *Moraceae* showed that characters of the seeds and embryos may be of great taxonomic value.

When all characters are taken into account the separation of *Acanthinophyllum* from *Clarisia* proved to be not justified. In this circumscription *Clarisia* comprises three species which can be keyed out as follows:

1 a. Costa of the leaves prominent above; pistillate inflorescences capitate; peduncles usually invested with uncinate hairs.
C. ilicifolia (Spreng.) Lanj. & Rossb.
b. Costa of the leaves plane above; pistillate inflorescences uniflorous; peduncles (always?) without uncinate hairs 2
2 a. Secondary veins ascending . . . . . **C. biflora** R. & P.
b. Secondary veins spreading almost at right angles . .**C. racemosa** R. & P.

Clarisia racemosa is rather uniform. *C. ilicifolia* is very variable, especially in the leaves. Burger distinguished two subspecies of *C. biflora*. I have seen too few specimens for definite conclusions, but there are indications that more infraspecific taxa, either of subspecific or of lower rank, might be distinguished. For example, in the two specimens from the Sierra Nevada de Santa Marta the inflorescences are borne on short shoots, which seems to be distinctive.

Position of Clarisia in the system

WOODSON (1960) considered *Trophis*, *Sorocea*, and *Clarisia* so closely related that they might be regarded as congeneric. Burger tentatively placed *Trophis* and *Clarisia* in the *Moroideae*, and *Sorocea* and *Acanthinophyllum* in the *Artocarpoideae*. CORNER (1962) placed *Trophis*, *Sorocea*, and *Clarisia* in the tribe *Moreae*, one of the six tribes into which Corner subdivided the *Moraceae*. On account of the similarities in the inflorescences it seems indicated to place these three genera in the same infrafamilial taxon.

However, some differences between *Clarisia* on the one side, and *Trophis* and *Sorocea* on the other should be mentioned. The vascularization of the seedcoat of *Trophis* and *Sorocea* species is almost confined to a lateral suborbicular area; the apical radicle is deflexed. The (unequal) cotyledons are free in *Trophis* but fused in *Sorocea*. In *Clarisia* the vascularization of the seedcoat is not confined to a definite area; the apical radicle is straight. The flowers are placed very close together in *Clarisia* but more or less apart in *Trophis* and *Sorocea*. *Sorocea* and *Trophis* lack uncinate hairs, which are present in some *Clarisia* species. Finally, the inflorescences in *Trophis* and *Sorocea* are not borne on short shoots, as in *Clarisia*.

On account of the differences and the resemblances *Trophis* and *Sorocea* can be considered to be very closely related taxa, *Clarisia* being a more distant relative.

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REFERENCES

BENOIST, R. (1929): Moracées nouvelles de la Guyane Française. *Bull. Mus. Hist. Nat. Sér.* **2.** 1: 163.

BURGER, W. C. (1962): Studies in the New World Moraceae: Trophis, Clarisia and Acanthinophyllum. *Ann. Mo. Bot. Gard.* **49**: 1.

CORNER, E. J. H. (1962): The classification of Moraceae. *Gard. Bull. Singapore* **19**: 187.

LANJOUW, J. (1936): Studies in Moraceae II. The genus Clarisia Ruiz et Pavon and its synonyms, with discussion of the generic name. *Rec. Trav. Bot. Néerl.* 33: 254.

LANJOUW, J. & G. ROSSBERG (1936): Studies in Moraceae III. Additional notes on the genus Clarisia Ruiz et Pavon. emend. Lanj.. *Rec. Trav. Bot. Néerl.* 33: 716.