STUDIES IN THE GESNERIACEAE OF THE OLD WORLD

XXVIII: THE ACQUISITION OF CYRTANDROIDEA

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In 1935 F. Brown, in his Flora of South Eastern Polynesia, described a new genus of Campanulaceae from the Marquesas Islands (Brown, 1935, p. 323). He called it *Cyrtandroidea*. The lobelioid Campanulaceae are, of course, represented by some very remarkable genera in Polynesia: on the Hawaiian islands are *Clermontia*, *Cyanea*, *Brighamia*, *Delessia*, etc., while further south are *Sclerotheca* and *Apetahia* (cf. Rock, 1919; Wimmer, 1957; Carlquist, 1962).

Cyrtandroidea stands alone even amongst these unusual genera, for it has a superior ovary and though the filaments are united into a tube the anthers are free. Lobelioid genera normally have the ovary inferior, the anthers united but the filaments more frequently free. The amazing thing is that Brown recognized and reported the resemblances to *Cyrtandra*, but said, "The long-exserted hairy style, the deeply 2-lobed stigma and especially the staminal tube, however, place the genus definitely in the Campanulaceae." Yet none of these features is characteristically campanulaceous.

The characters recalling *Cyrtandra* are, as reported by Brown, "The opposite leaves, form of the corolla, superior 2-locular ovulary with the peltately attached placentae rolled inwardly at the edge in fruiting, and the berry . . ." As the descriptions he gave have "leaves alternate (?)" we had better ignore that item. It is the ovary that is interesting. In Gesneriaceae the text books say that the ovary is unilocular, but there is a remarkably large number of plants rightly placed in this family which appear to have a bilocular ovary when seen in median transverse section—the condition does not necessarily persist throughout the ovary's length. Much more important are the lamellar placentae turned inwards at the edges: these are absolutely typical of *Cyrtandra* and most Old World Gesneriaceae. To my knowledge they are not found in Lobelioideae, where a solid axile placenta is the most usual condition.

It has already been remarked that free anthers and united filaments are not a character of Lobelioideae, union of filaments being only found where the anthers themselves are united. Is it a feature of Gesneriaceae? No; it is highly anomalous; so, indeed, is the possession of 5 fertile stamens, though that does occur in scattered genera in the family (in *Ramonda*, *Conandron*, *Napeanthus*, *Petrocodon* and *Depanthus* at least). Such an anomaly is, however, by no means unreasonable in the affinity of *Cyrtandra*. It is, however, impossible to avoid wondering, whether the staminal tube of *Cyrtandroidea* may not be an abnormality associated with the occurrence of 5 fertile stamens in an essentially peloriate flower. Peloriate flowers are well-known in *Saintpaulia* and also occur in *Streptocarpus*: in these genera the filaments do not unite, but the idea cannot be dismissed until further flowering material becomes available for examination. Perhaps it would be wise not to ask collectors to look just for a plant with 5 fertile stamens and united filaments.

Through the kindness of Dr. G. W. Gillett (then at the University of Hawaii) and the authorities of the Bernice P. Bishop Museum, I have been lent Brown's very inadequate type specimen of *Cyrtandroidea*. No details can be added to the gross morphology as described by him, but it has seemed worthwhile looking at one other character: the stomata. In *Cyrtandroidea* the lower leaf surface bears numerous scattered anisocytic (cruciferous) stomata. This is the type usually found in Gesneriaceae and it has been checked in the Tahitian *Cyrtandra parksii* Setchell which has very similar leaves. In Campanulaceae, on the other hand, the stomata are usually without definite subsidiary cells: they are anomocytic (ranunculaceous). This has been checked on two species of Hawaiian *Cyanea*. It would be foolish to suggest that this is a diagnostic character when so few species have been examined: it is, however, an indication that *Cyrtandroidea* would be more at home in Gesneriaceae than in Campanulaceae.

In dealing with *Cyrtandroidea* for his account of Lobelioideae in Das Pflanzenreich, F. Wimmer (1957, p. 104) placed it in the Burmeisterinae next to *Pratia*, on account of the baccate fruit. He would, however, have been the first to admit that this had no significance, for he added a note to say that no material was available to him and that the attribution of the genus to Campanulaceae at all was open to doubt. In this he was correct. *Cyrtandroidea* is rightly placed in Gesneriaceae next to *Cyrtandra*, to which it has so strong a superficial resemblance; it may even prove to be an abnormal form of that genus.

References

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