The Phenomenon of Leaf-Forking in a Few Dicotyledonous Plants

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The forking of the simple entire leaf into two lobes at its apex is a phenomenon not commonly met with in plants. It is only in some of the ornamental foliage plants as the *Codiaeum* spp., this occurs frequently. However, instances of leaf forking has been recorded in a few plants.

Sabnis (1931) has recorded the forking of leaves in *Michelia champaca* and *Anacardium occidentale* both having alternate leaves. The same author (1934) noted the fission in the leaflets of *Phaseolus radiatus* and *Phaseolus mungo*. Leaf forking in other plants which have alternate leaf arrangement has been noted in *Aralia guilfuylei* (Saran 1934) and *Olax wightiana* (Govindu et al 1946). In plants with opposite leaves as *Tabernaemontana coronaria* (Rao 1934), *Eranthemum atropurpureum* (Singh 1935), *Psidium guava* and *Memecylon umbellatum* (Govindu et al. 1946) also the phenomenon has been noted.

In this note the forking of leaves and leaflets in seven species is recorded.

Species With Alternate Phyllotaxy:

1. *Plumeria acutifolia* Poir Apocynaceae (Fig. 4)
2. *Cordia subcordata* Linn Boraginaceae (Fig. 2)

Species With Opposite Phyllotaxy:

3. *Nyctanthus arbor-tristis* L Verbenaceae (formerly of Oleaceae vide Kew Bull. No. 2, 1952) (Fig. 5)
4. *Jasminum sambac* Ait. Oleaceae (Fig. 7)
5. *Banisteria laurifolia*—Malpighiaceae (Fig. 3)

Leaflets:

6. *Azadirachta indica*—A. Juss.—Meliaccae (Fig. 6)
7. *Clausena heptaphylla* W. and A. Rutaceae (Fig. 6)

Worsdell (1915) considers this phenomenon as due to a kind of hypertrophy and an attempt on the part of the organ to reproduce itself. He has also stated that forked leaves occur perhaps most commonly in plants with their leaves arranged in an opposite decussate manner. He

drew this observation from the case of *Lonicera periclymenum* of the family Caprifoliaceae with opposite leaves described by Celakovsky (1893) and those of *Dipsacus* and *Chimonanthus fragrans* both with opposite leaves recorded by him.

From the observations recorded in this note and from the review of other workers, we find that the forking in leaves and leaflets occurs in plants regardless of their phyllotaxy. Arber (1950) cites the instances of *Humulus lupulus* L and *Parthenocissus tricuspidata* Planch, where a simple leaf forks into a ternately lobed or divided leaf. While expounding the new theory that the 'leaf is a partial shoot, arising laterally from a parent whole shoot', she adds support from these and other instances and states that it is a case of "repetitive branching" of not only the shoot as a whole, but also of the partial-shoot which forms the leaf, where it results in a phyllome, branched in various degrees."

The exact causes whether due to repetitive branching as per Arber's theory or hypertrophy or the simple accidental splitting of the leaf primordia at its apex resulting in the forked lamina or any other cause, are not known.

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