

## Systematics value of stomata in some Nigerian hardwood species of *Fabaceae*

M. IDU, D.I. OLORUNFEMI and A.C. OMONHINMIN

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**ABSTRACT** - Epidermal morphology, and the structure and development of stomata in 10 species of *Fabaceae* are described. The epidermal cells varied from irregular to straight-walled and in some taxa sinuous patterns were observed. The leaves are hypostomatic. Anomocytic stomata follow an aogenous ontogenetic pathway, while paracytic stomata are eumesogenously derived. These stomatal features are considered to be of systematic value in delimiting hardwood species in this family.

**KEY WORDS** - Stomatal distribution, Nigerian hardwoods, *Fabaceae*

The *Fabaceae* comprise 600 genera and 12000 species, and are cosmopolitan in distribution. They are the third largest family of flowering plants. Some, like the *Mimosoideae* and *Caesalpinoideae*, are mostly found in the tropics. However, *Papilionoideae* are both tropical and temperate in distribution (WILLIS & AIRY-SHAW, 1973).

The importance of stomatal features and ontogeny as taxonomic criteria at various levels of the systematic hierarchy is well established in comparative anatomical, phylogenetic and paleo-botanical studies (METCALFE & CHALK, 1950; TATEOKA *et al.*, 1959; STACE, 1965; METCALFE, 1969; VAN-COTTHEM, 1973; VAN WYK *et al.*, 1982; GILL & KARATELA, 1983;

KARATELA & GILL, 1984; NYAWUAME & GILL, 1990, 1991, 1993).

In spite of the importance of the stomatal apparatus in physiology and taxonomy, information on its structure, distribution and size in tropical trees is lacking. Earlier contributions on the ontogeny of stomata of leguminous plants are by MISRA *et al.* (1968), SHAH (1969a, 1969b), SHAH & GOPPAL (1971), GILL & KARATELA (1986), and NYAWUAME & GILL (1990).

Since no comprehensive account exists on the epidermal morphology and ontogeny of tropical trees, the present study was undertaken. This paper describes stomatal types and ontogeny of stomata in ten taxa of Nigerian *Fabaceae*.

