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USE OF STOMATAL COMPLEXES IN THE IDENTIFICATION OF SOME SPECIES OF *AGLAONEMA* OF FAMILY ARACEAE JUSS.

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ABSTRACT

The stomatal cell complex of angiosperms was first studied by in the early nineteenth century. There is less anatomical sotmatal work carried out in Araceae. There are several genera belonging to Araceae whose taxonomic position is not clear. The present work deals with the investigation on the genus *Aglaonema* and 8 species to recognise the systematic value of stomatal complexes. stomatal complexes study was undertaken in the present work to understand the taxonomic position of the members of *Aglaonema* species and also to determine taxonomic utility of anatomical characters. This may throw light on identification of these species of *Aglaonema* belonging to family Araceae.

KEYWORDS: *Aglaonema*, Araceae, stomata, paracyclocytic, paracytic, paratetracytic, brachyparatetracytic & brachyparahexacytic monopolar.

INTRODUCTION

Structure and ontogeny of stomata in monocots received attention as early as 1869 by Strasburger and later by many workers like Campbell (1881), Cuttler (1969), Benecke (1892). Further considerable work has been done by Solereder and Meyer (1930), Stebbins and Jain (1960), Shah and Gopal (1970,1972), Williams (1975), Atwood and Williams (1979). Comprehensive work on the subject has been done by Metcalfe (1961).

Pant and Kidwai (1966) have investigated the ontogeny of stomata pain Spathiflorae. Trivedi and Upadhyay & 1984) observed that in Araceae upper epidermal cells are usually hexagonal or polygonal and smooth walled. Striations are frequent. Lower epidermal cells are polygonal irregular smooth or sinuous. They have studied several species of *Dieffenbachia*. Upadhyay

and Trivedi (1987) noted anomocytic tetracytic, cyclocytic type of stomata in Araceae. Stomatal complexes of 13 species of *Philodendron* have been studied by Vaidya 2015.

MATERIAL AND METHODS

All the specimens required for present study were collected from various localities of Bombay and Maharashtra. The details are as follows.

Sr.No	Genus	Species	Locality
1.	*Aglaonema*	*angustifolium*	Malad
2.	*Aglaonema*	*costatum*	Malad
3.	*Aglaonema*	*maculatum*	Panvel
4.	*Aglaonema*	*oblongifolium*	Malad
5.	*Aglaonema*	*parrot-jungle*	Malad
6.	*Aglaonema*	*roebelinii*	Santacruz
7.	*Aglaonema*	*treubii*	Santacruz
8.	*Aglaonema*	*Pseudobracteatum*	Malad

The identification was confirmed in consultation with Indian National Herbarium and B.S.I. Western circle.

The leaf cuticles were removed by treating with conc. HNO3 followed by 10% KOH for 5-10 minutes each. They were washed with water and stained with 1% saffranine or haematoxylin. The peels were washed again with water and dehydrated through alcohol-Xylol grades and mounted in DPX.

The photographs were taken on Nikon Microphotographic camera at 10x 45X magnification.

The terminology followed is as suggested by Dilcher (1974).

OBSERVATIONS AND RESULTS

1. *Aglaonema angustifolium* (Fig. 1)

Stomata are paracytic. Guard cells are kidney-shaped with thick inner and thin outer ledge. Subsidiary cells are more or less lenticular in shape, stretched at right angles to long axis of guard cells. Epidermal cells vary in shape. They are quadrangular, pentagonal and hexagonal with +- thick walls.

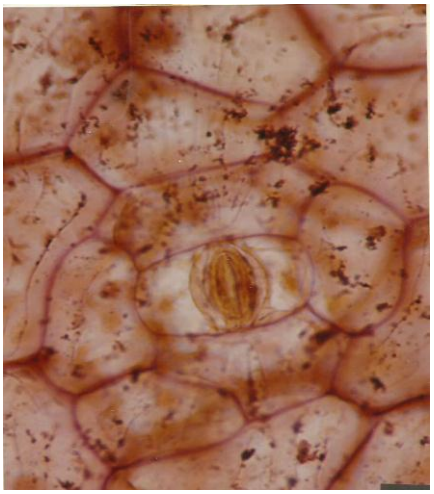

Fig. 1.

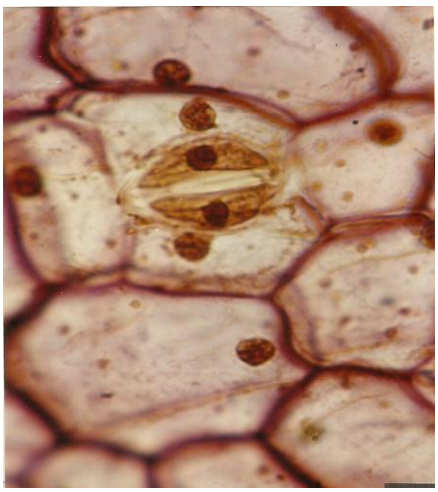

Fig. 2.

2. *Aglaonema costatum* (Fig. 2)

Stomata are brachyparatetracytic and brachyparahexacytic monopolar. Guard cells are kidney-shaped with thick inner and thin outer ledge. Lateral subsidiary cells are almost rectangular and polar cells are quadrangular. Epidermal cells are wavy in outline with thick walls. Cell contents are prominently seen.

3. *Aglaonema marantifolium-maculatum* (Fig.3)

Stomata are paracytic. Guard cells are kidney-shaped with thick inner and thin outer ledge. Subsidiary cells are semicircular in shape. Epidermal cells are quadrangular, pentagonal and hexagonal with thin walls. Cell contents are prominently seen.

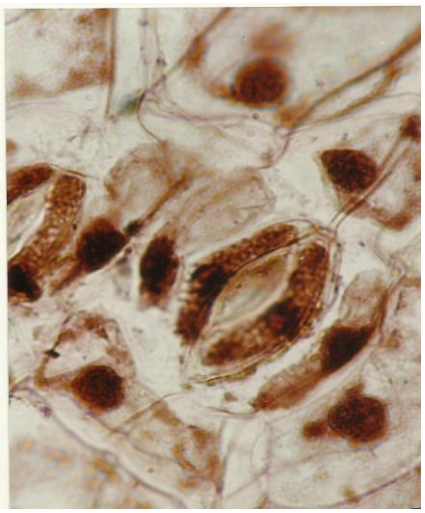

Fig. 3.

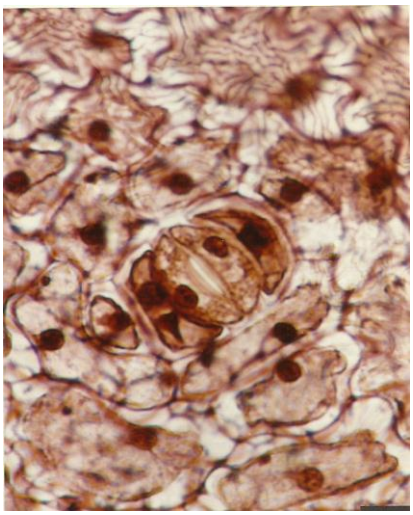

Fig. 4.

4. *Aglaonema oblongifolium* (Fig.4)

Stomata are paracytic. Guard cell are kidney-shaped with thick inner and thin outer ledge. Subsidiary cells are semicircular in shape with darkly stained contents. Epidermal cells are wavy in outline with thin walls and cuticular striations. Cell contents are prominent.

5. *Aglaonema parrot-jungle* (Fig. 5)

Stomata are paratetracytic. Guard cells are kidney-shaped (oblong) with thick inner and thin outer ledge. Lateral subsidiary cells are semiciucular and horizontally extended. Polar subsidiary cells are triangular to quadrangular. Epidermal cells are irregular in shape with +- thick walls.

Fig. 5.

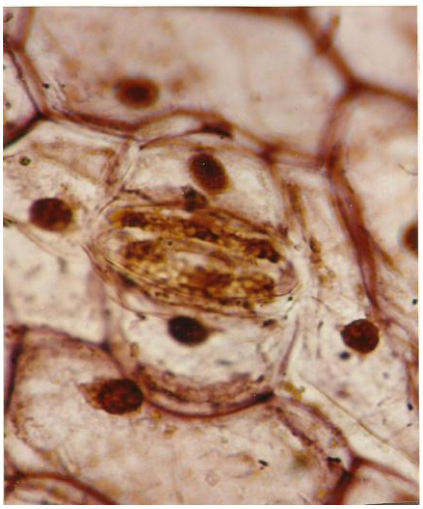

Fig. 6.

6. *Aglaonema pseudobracteatum* (Fig. 6)

Stomata are paratetracytic. Guard cells are kidney-shaped with thick inner and thin outer ledge. Subsidiary cells are +- lenticular with thick walls. Epidermal cells are quaddrangular, pentagonal and hexagonal with thick walls. Cell contents are prominent.

7. *Aglaonema roebelinii* (Fig. 7)

Stomata are paracyclocytic. Guard cells are kidney-shaped with thick inner and thin outer ledge. Subsidiary cells are +- rectangular with thick walls. Outer subsidiary cells are rectangular encircling the paracytic stomata. Epidermal cell are quadrangular, pentagonal and hexagonal with thick walls. Cell contents are prominent.

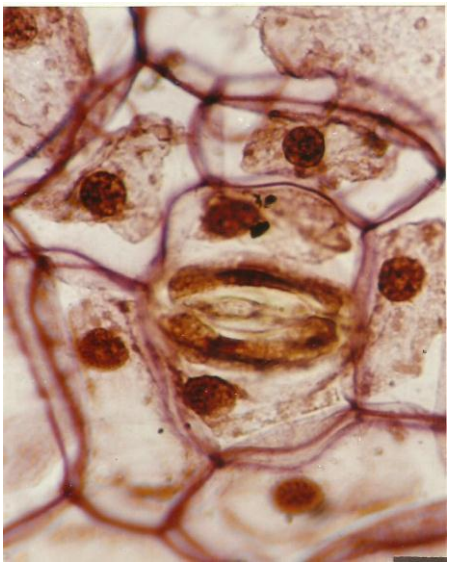

Fig. 7.

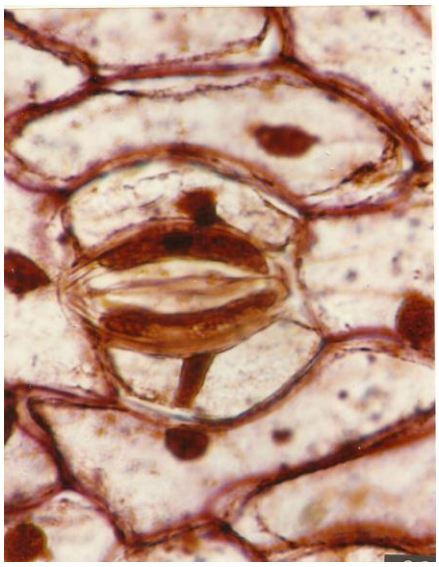

Fig. 8.

8. *Aglaonema treubii* (Fig. 8)

Stomata are paracytic. Guard cells are kidney-shaped with thick inner and thin outer ledge. Subsidiary cells are semicircular in shape with thick walls. Epidermal cells are elongated and angular in shape with thick walls. Cell contents are prominent.

The types of stmata thus found are

In Sub-family: Philodendroideae

Tribe: Aglaonemateae

Genus: *Aglaonema*

A.	*roebelinii*	paracyclocytic
A.	*angustifolium*	paracytic
A.	maculatum	paracytic
A.	*oblongifolium*	paracytic (cuticular striations)
A.	*treubii*	paracytic
A.	*Parrot Jungle*	paratetracytic
A.	*pseudobracheatum*	paratetracytic
A.	*costatum*	brachyparatetracytic & brachyparahexacytic monopolar

CONCLUSION

Sub-family Philodendroideae under tribe Aglaonemateae has the genus *Aglaonema* under it & this genus has possesses paracyclocytic of paracytic, paratetracytic, brachyparatetracytic &

brachyparahexacytic monopolar type of stomata, sometimes certain species showing cuticular striations.

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