

FURTHER OBSERVATIONS ON POLLEN MORPHOLOGY OF *CASSIA SOPHERA* LINN.

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Abstract

The occurrence of both 3-zonicolporate and syncolpate (3-zonisyncolporate) types of pollen grains in the same anther has been described. It has been observed that syncolpate types of pollen grains are more in frequency of occurrence (72 per cent)/anther than 28 per cent of 3-zonicolporate type.

Introduction

Leguminosae is a large family represented by 600 genera and 12000 species and cosmopolitan in distribution. Pollen morphological studies on Indian Leguminosae have been done in detail by Nair and Sharma (1962), and Vishnu-Mittre and Sharma (1962). Erdtman (1952) has described the pollen morphological features of 14 taxa of Caesalpinioideae. Nair and Sharma (1962) and Vishu-Mittre and Sharma (1962) described pollen morphology of 16 species and 8 species of *Cassia* respectively. All these workers have described pollen apertural type in *Cassia sophera* Linn., as 3-zonicolporate. Our observations, however, are different from those of the previous workers.

Material and methods

Acetolysed preparations from the polliniferous material of unopened flowers of *C. sophera* Linn. was made in order to evaluate the pollen morphological characters. Five anthers from different flowers were taken at random for the preparation of slides.

Observations

It has been observed that out of 100 pollen grains counted and studied 28% show typically 3-zonicolporate condition and 72% with colpi fused (i.e. 3-zonisyncolporate) so as to form syncolpate conditions (Table 1). The term 3-zonisyncolporate has not been indexed in Kremp's (1965) Morphologic Encyclopedia of Palynology. This term has been used by Nair (1962) in describing similar apertural conditions in some other taxa of Caesalpinioideae.

It is evident from the above observations that 2-types of apertural conditions are present within the same anther of *Cassia sophera* Linn. This is probably due to the different level of maturity of pollen grains in anthers. Thus in describing the pollen morphological characters of *Cassia sophera* Linn., one must resort to statistical counting of apertural types in order to determine correctly the range of apertural conditions within the taxon. Therefore the pollen grains of *C. sophera* Linn. should be described as follows:

Cassia sophera Linn.,
(Pl. 1, Figs. 1, 6)

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Pollen grains isopolar; sub-prolate, $P=37=42 \mu\text{m}$, $E=25$ to $30 \mu\text{m}$, mean size 40 to $28 \mu\text{m}$ P/E ; 3-zonicolporate, colpi fused in majority of pollen grains (syncolporate *sensu* Nair), anguloaperturate; intercolpus distance $20 \mu\text{m}$, colpi $36 \mu\text{m}$ is length, $5 \mu\text{m}$ in breadth; ora circular, measuring $6 \mu\text{m}$ in diameter; apocolpium $20 \mu\text{m}$ in diameter; exine differentiated into nexine and sexine; nexine $1 \mu\text{m}$ in thickness and sexine $2 \mu\text{m}$ in thickness, granulate.

Table 1—Showing the average value of percentage composition of 3-zonisyn-colporate and 3-zonicolporate type of pollen grains in *C. sophera*.

Locality	Anther (A)	Syncolporate	Tending to syncol- porate	3-zonicolporate
1	A ₁	59	13	28
	A ₂	56	16	27
	A ₃	62	10	26
	A ₄	58	12	30
	A ₅	60	13	29
Locality 2	A ₁	56	13	30
	A ₂	59	14	26
	A ₃	60	12	31
	A ₄	61	11	28
	A ₅	58	15	25

1. Syncolporate—72%

2. 3-zonicolporate—28%

The values 72% syncolporate in the Table is the average value of the typically syncolporate type of pollen grain and those tending to be syncolporate, whereas 28% 3-zonicolporate is the average value of pollen grains of 10 different anthers in two localities collected at random.

NPC-345 (syncolporate).

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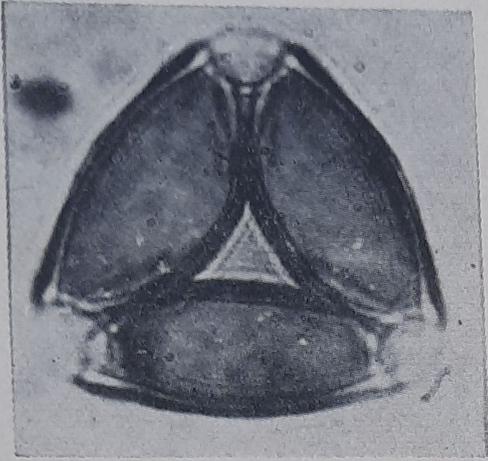
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Explanation of Plate

1. *Cassia sophera* Linn., polar view showing the typical syncolporate condition.
2. *C. sophera* pollen in polar view showing granulate exine.
- 3, 4. *C. sophera* pollen showing apertural condition and granulate exine in equatorial view.
5. Pollen grain of *C. sophera* showing a colpus with a circular ora.
6. *C. sophera* pollen showing 3 zonicolporate condition.



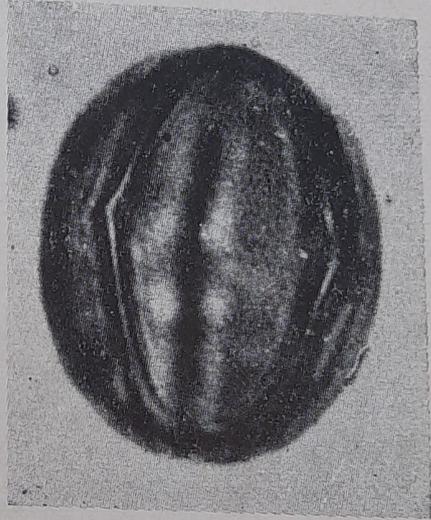
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