



DAVANAGERE UNIVERSITY



S.J.M COLLEGE OF ARTS, SCIENCE AND COMMERCE CHANDRAVALLI CHITRADURGA

SUBJECT : BOTANY

PLANT ANATOMY AND DEVELOPMENT BIOLOGY

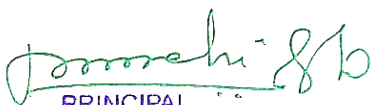
PROJECT WORK ON :

STUDY OF POLLEN GRAINS IN DIFFERENT FLOWERS



2022-23

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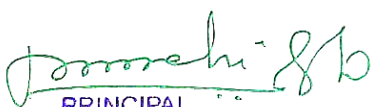
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INTRODUCTION:



The Study of pollen grains called Palynology the number position and Shape of pollen grain are produced during microsporogenesis which takes place inside the Anther in pollen grains chamber.

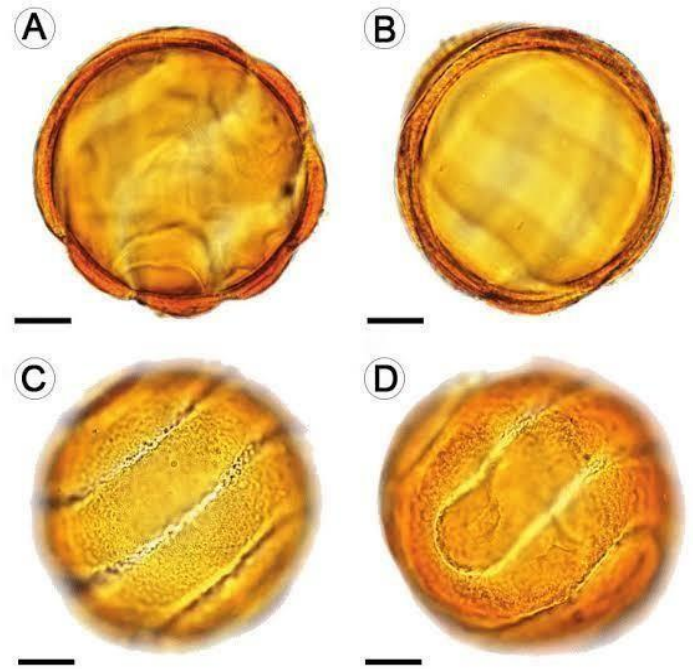
Different pollen grain show different Sculpture on the morphological Structure each pollen grain Show an outer wall called exine and inner wall called intine the Exine produce different sculpture fine smooth, rough Spains and denote.


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CHARACTERISTICS OF DIFFERENT POLLEN GRAINS

1. THUNBERGIA ERECTA:

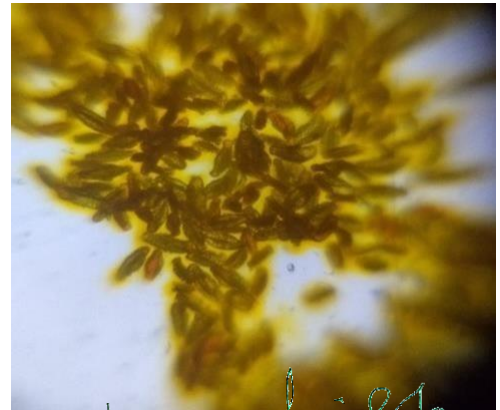
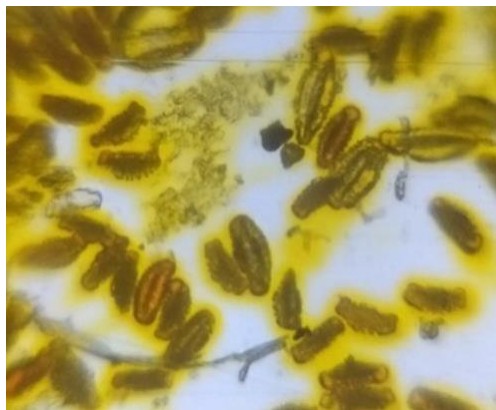
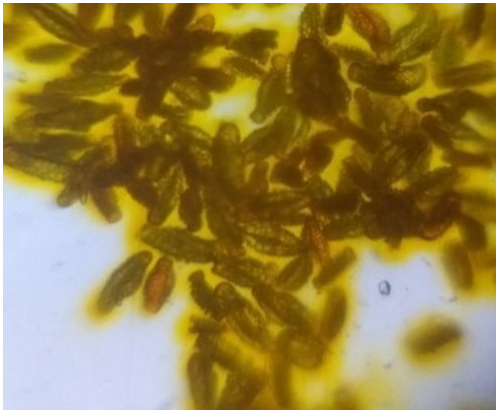
POLLEN GRAINS IN THUNBERGIA ERECTA ARE SPHERICAL AND THE EXINE ORNAMENTAL BEING PSILATE.





2. BEACHSPIDERLILY:

ITHASTHICKANDSTIFFSHINYGREEN.
THEYHAVECIRCULARPOLLENGRAINS

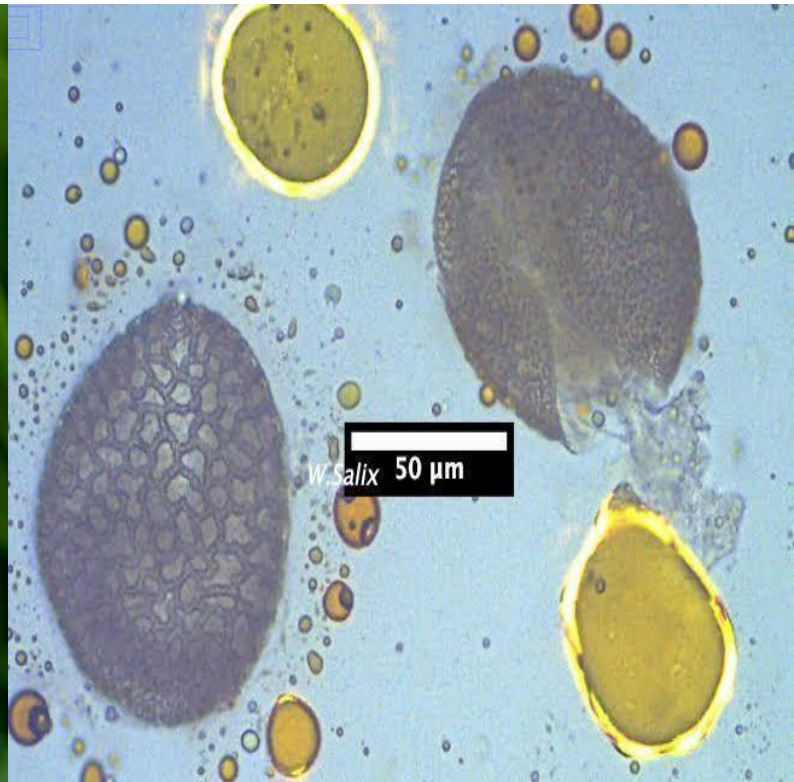


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3. YELLOWDAYLILY:

Pollen of Yellow daylily is monosulcate and 3- porate with amacroreticulateexine. The other genera are homogeneous in possessing of single longitudinal aperture (type monosulcate).



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4. APANTHUSAFRICANUS(AFRICANLILY):

It is mostly ellipsoidal in shape, with dimensions of $(16.6-47.7(-114.8) \times (10.3-26.0(-78.6) \mu\text{m}$, or circular to oval, with a diameter of $(10.0-28.7(-47.5) \mu\text{m}$.



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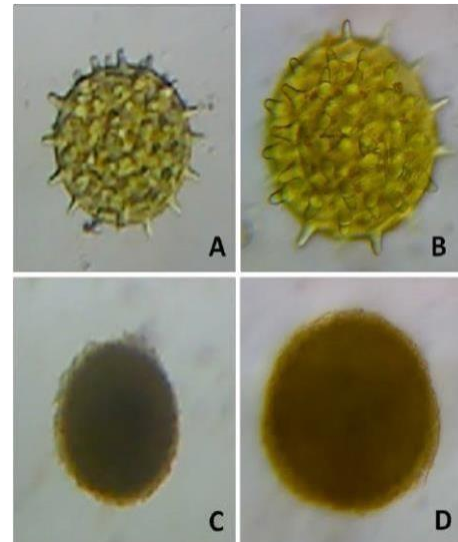
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5 . HIBISCUS

EXINE- ROUGH

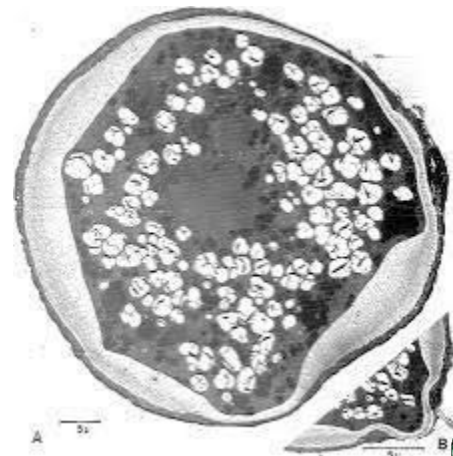
INTINE-SMOOTH, COLOUR-PURPLE



6. VINCAROSEA:

EXINE-THIN

INTINE-THICK, COLOUR-YELLOW



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7. HYPOMIA

EXINE – ROUGH
 INTINE – SMOOTH
 COLOUR – YELLOW

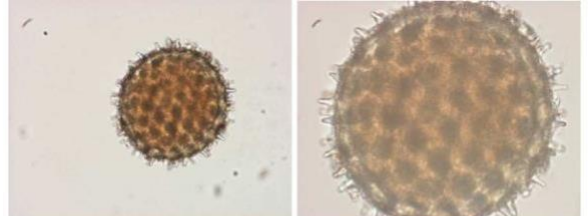


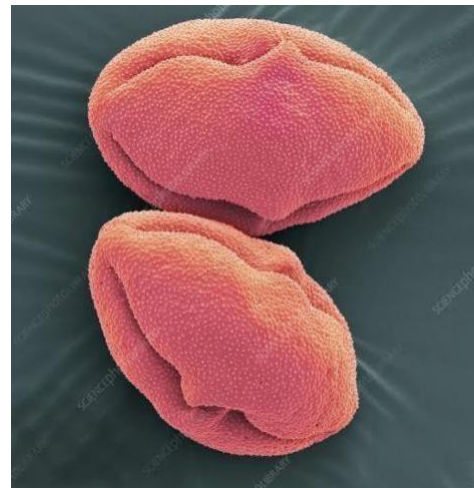
Fig. 11. The pollen grain of *I.hederifolia* (20X) Fig. 12. The pollen grain of *I.hederifolia* (40X)



Fig. 13. The pollen grain of *I.aquatica* (20X) Fig. 14. The pollen grain of *I.aquatica* (40X)

8. TABASCOPEPPER(CHILLI)

EXINE – SMOOTH
 INTINE – SMOOTH
 COLOUR – RED



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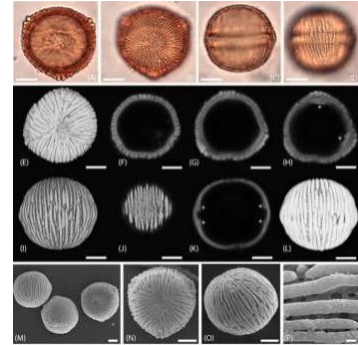


9. DHATURA

EXINE-THICK

INTINE – THIN

COLOUR-PALEYELLOW/GREEN



10. PISUMSATIVUM

EXINE – THIN

INTINE-THICK

COLOUR-GREE



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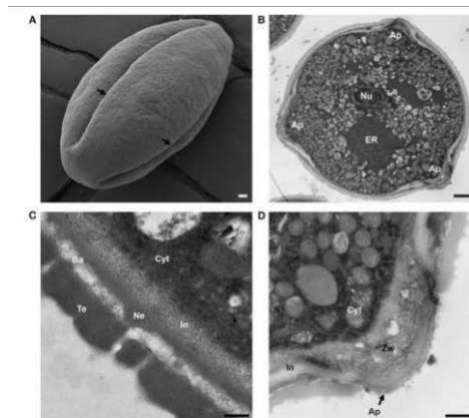
11. CHICKPEA

EXINE – THIN
 INTINE – THICK
 COLOUR – GREEN



12. TOMATO

EXINE – THIN
 INTINE – THICK
 COLOUR – GREEN



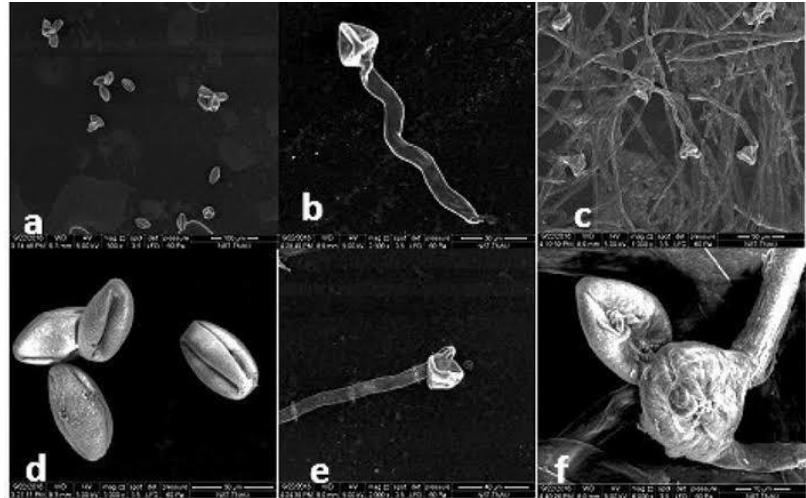
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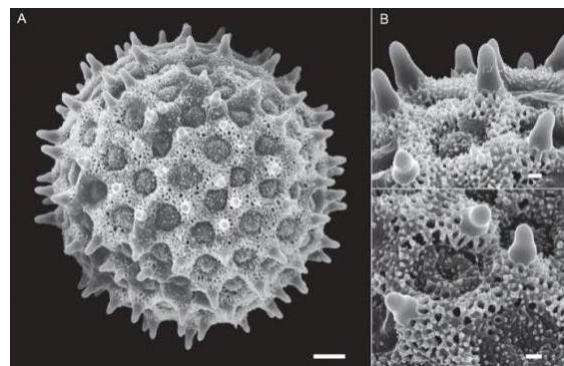
13. BRINJAL

EXINE – THIN
 INTINE – THICK
 COLOUR-BROWN



14. IPOMOEAINDICA

EXINE – ROUGH
 INTINE – SMOOTH
 COLOUR-PURPLE



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15 .AZALEA

EXINE – ROUGH

INTINE – SMOOTH

COLOUR–YELLOW

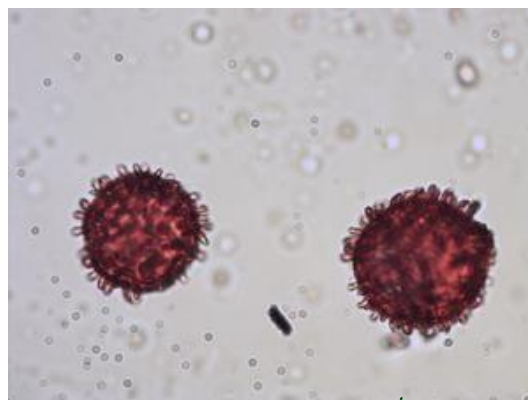


16 .SANDAL

EXINE – THIN

INTINE – THICK

COLOUR–YELLOW



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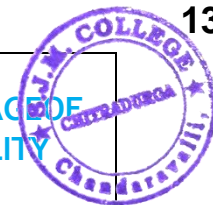
CALCULATION

FORMAULA:

$$\text{PERCENTAGE OF POLLEN FERTILITY} = \frac{\text{TOTAL NUMBER OF GERMINATED POLLEN GRAINS}}{\text{TOTAL NUMBER OF POLLEN GRAINS}} \times 100$$

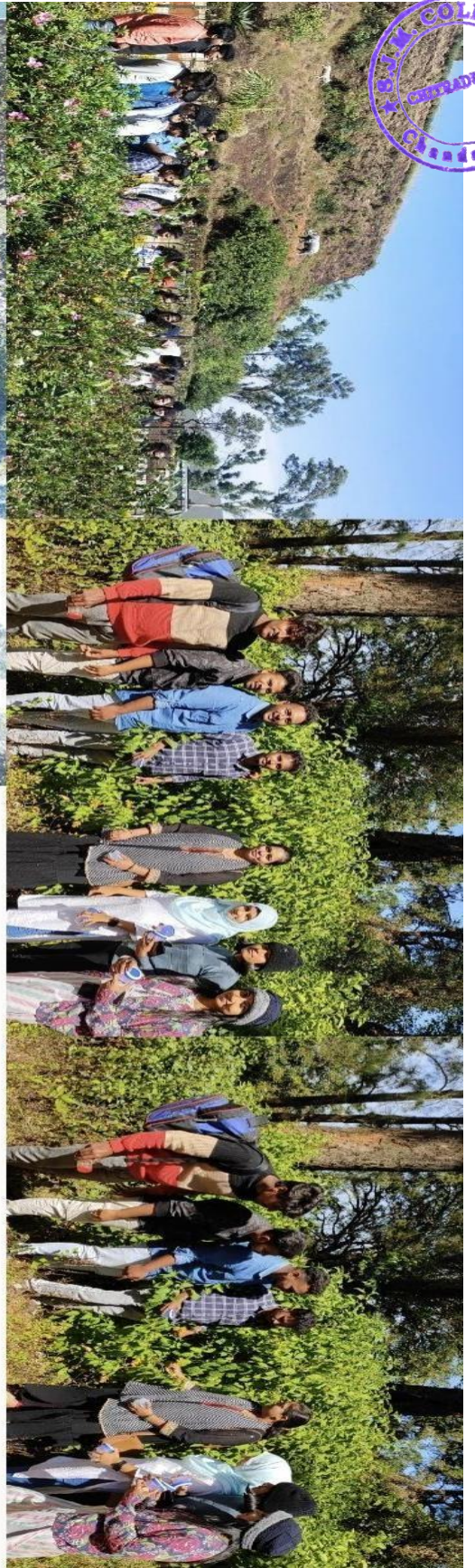
1. **THUNBERGIAERECTA**= $3 \div 10 \times 100 = 30\%$
2. **BEACHSPIDERLILY**= $6.5 \div 10 \times 100 = 65\%$
3. **YELLOWDAYLILY**= $5 \div 10 \times 100 = 50\%$
4. **APAPANTHUSAFRICANUS**= $7.5 \div 10 \times 100 = 75\%$
5. **HIBISCUS**= $7.8 \div 10 \times 100 = 78\%$
6. **VINCA ROSEA**= $3 \div 10 \times 100 = 30\%$
7. **HYPOMIA**= $9.2 \div 10 \times 100 = 92\%$
8. **CHILLI**= $8 \div 10 \times 100 = 80\%$
9. **DHATURA**= $6.5 \div 10 \times 100 = 65\%$
10. **PISUMASATIVUM**= $6 \div 10 \times 100 = 60\%$
11. **CHICKPEA**= $7 \div 10 \times 100 = 70\%$
12. **TOMATO**= $7 \div 10 \times 100 = 70\%$
13. **BRINJAL**= $9.7 \div 10 \times 100 = 97\%$
14. **IPOMIINDICA**= $5.6 \div 10 \times 100 = 56\%$
15. **AZALEA**= $3 \div 10 \times 100 = 30\%$
16. **SANDAL**= $7 \div 10 \times 100 = 70\%$

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PLANTNAME	TOTALNUMBER OF POLLEN GRAINS	TOTAL NUMBEROF POLLEN GRAINS	NUMBEROFNON GERMINATED POLLEN GRAINS	PERCENTAGE OF FERTILITY
THUNBERGIA ERECTRA	10	03	07	30%
BEACH SPIDERLILY	10	6.5	3.5	65%
YELLOW DAYLILY	10	05	05	50%
AFRICAN LILY	10	7.5	2.5	75%
HIBISCUS	10	9.2	0.8	92%
VINCAROSEA	10	7.8	2.2	78%
HYPOMIA	10	03	07	30%
CHILLI	10	08	02	80%
DHATURA	10	6.5	4.5	65%
PISTUMA SATAMUM	10	06	04	60%
CHICKPEA	10	07	03	70%
TOMATO	10	07	03	70%
BRINJAL	10	9.7	0.3	97%
IPOMEA INDICA	10	5.6	4.4	56%
AZALEA	10	03	07	30%
SANDAL	10	07	03	70%

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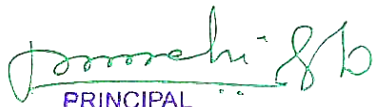
CONCLUSION:



In this study we observed pollen grain morphology of each flower is common and less different from other flower with respect to their size, shape, operature, nature of the pollen wall.

We also Studied fertility of pollen more the number of viability more will be the number of germination. Some more number of growth of plants

It's application in crop improvement and production in oil exploitation, Honey production, taxonomy, phylogeny aeropalology and paleo botany etc.


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