



S. G. V. C. Vidya Prasarak Trust's,
**Matoshri Gangamma Veerappa Chiniwar
Arts, Commerce & Science College,**

MUDDABIHAL-586212. Dist. Vijayapur (Karnataka)
(Accredited with CGPA of 3.31 on seven point scale at 'A+' Grade)

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Ref. No. :

Date : 2023-24

Department of Botany

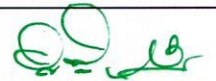
Title of the Project Work: Types of Placentation

B.SC VI Semester- 2023-24

Sl. No	Register Number	Name of the Students
01	U15NU22S0004	Shivaleela Kanakal
02	U15NU22S0005	Shashikala Awati
03	U15NU22S0016	Shabana Awati
04	U15NU22S0027	Sneha Awati
05	U15NU22S0028	Deepa Wadawadagi
06	U15NU22S0029	Chaitra Nadagouda
07	U15NU22S0030	Akshata Bhovi
08	U15NU22S0031	Nasareen Diddimani
09	U15NU22S0035	Vidyashree Ambiger
10	U15NU22S0039	Soumya Hangaragi
11	U15NU22S0040	Shahinsaba Mulla
12	U15NU22S0043	Zaveriya Momin
13	U15NU22S0044	Aftab Pinjar
14	U15NU22S0049	Prajwal Pathepurmath
15	U15NU22S0051	Ganesh Murodi
16	U15NU22S0052	Zaboor Shivalli


Co-ordinator,

Internal Quality Assurance Cell
S.G.V.C. Arts, Commerce & Science College
MUDDABIHAL-586212. Dist: Vijayapur



PRINCIPAL,

S.G.V.C. Arts, Commerce & Science College
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M.G.V.C. ARTS, COMMERCE AND SCIENCE COLLEGE
MUDDEBIHAL**

DEPARTMENT OF BOTANY

**Project work on Types of Placentation, 2023-24
Class- B.Sc.III Semester**



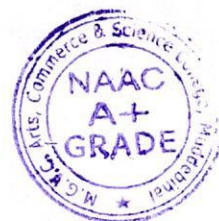
Sl. No	Reg. No	Name of the students
01	U15NU220004	Shivalila.S. Kanakal
02	U15NU220005	Ganesh Muradi
03	U15NU220016	Soumya Hangaragi
04	U15NU220027	Nasarin Diddimani
05	U15NU220028	Prajwal Pattepuramath
06	U15NU220029	Chaitra Nadagouda
07	U15NU220030	Bibiuzma Mudnal
08	U15NU220031	Akshata Bovi
09	U15NU220035	Vidyashree Ambiger
10	U15NU220039	Shahinsaba K Mulla
11	U15NU220040	Deepa Vaddodagi
12	U15NU220043	Sneha Aski
13	U15NU220044	Shashikala S A wati
14	U15NU220049	Zaveriya A Momin
15	U15NU220051	Aftab K Pinjar
16	U15NU220052	Zahurahamed N Shivalli

Head of the Department of Botany
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B.Sc. BOTANY: Semester - 3

Practical: Discipline Specific Core Course (DSCC)

Title of the Course and Code:

BOT-A-3.2: PLANT ANATOMY AND DEVELOPMENT BIOLOGY

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/ Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
BOT-A-3.2	DSCC	Practical	02	04	52 hrs	3hrs	25	25	50

LIST OF EXPERIMENT TO BE CONDUCTED

Practical No.1

- i) Study of meristem (Permanent slides/ Photographs).
- ii) Study of Simple Tissues (Parenchyma, Collenchyma and Sclerenchyma) and Complex Tissues (xylem and phloem).

Practical No.2

Maceration technique to study elements of xylem and phloem, Study of primary structure of dicot root, stem and leaf (Sunflower) and monocot root, stem and leaf (Maize)

Practical No.3

Study of Normal secondary growth structure in dicot stem and root (Sunflower) and Anomalous secondary growth: *Aristolochia*, *Boerhaavia* (dicot stem) *Dracaena* (monocot stem)

Practical No. 4

Study of trichomes (any three types) and stomata (any three types) with the help of locally available plant materials

Practical No. 5

Permanent slides of Microsporogenesis and male gametophyte Mounting of Pollen grains of Grass and Hibiscus and Pollinia of Calotropis

Practical No. 6

Pollen germination (hanging drop method) and Effect of Boron and Calcium on pollen germination

Practical No. 7

Permanent slides of types of ovules, Megasporogenesis & embryo sac development and types of placentation: Axile, Marginal and Parietal types. Sectioning of ovary, for the studied types of placentation

Practical No. 8


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Mounting of embryo: Tridax and Cyamopsis, Mounting of endosperm: Cucumis

Practical No. 09

Histochemical localization of proteins/ carbohydrates

Practical No. 10 and 11

Mini project work in groups of 3-5 students, from the following list

- a) Study of pollen morphology of different flowers with respect to shape, colour, aperture etc.
- b) Pollen germination of different pollen grains and calculates percentage of germination.
- c) Calculating percentage of germination of one particular type of pollen grain collected from different localities/ under different conditions.
- d) Study of placentation of different flowers.
- e) Any other relevant study related to Anatomy / Embryology.

Text Books for Reference:

1. Bhojwani and Bhatnagar, Introduction to Embryology of Angiosperms –Oxford & IBH, Delhi
2. Bhojwani Sant Saran, 2014.Current Trends in the Embryology of Angiosperms, Woong-Young Soh, Springer Netherlands,
3. Coutler E. G. , 1969. Plant Anatomy – Part I Cells and Tissues – Edward Arnold, London.
4. Dickison, W.C. (2000). Integrative Plant Anatomy, Harcourt Academic Press, USA
5. Eames A. J. - Morphology of Angiosperms - Mc Graw Hill, New York.
6. Esau, K. 1990. Plant Anatomy, Wiley Eastern Pvt Ltd New Delhi
7. Evert, R.F. (2006) Esau's Plant Anatomy: Meristem, Cells, and Tissues of the Plant Body: Their Structure, Function and Development. John Wiley and Sons, Inc
8. Fahn, A.1992. Plant Anatomy, Pergamon Press, USA
9. Johri, B.M. I., 1984.Embryology of Angiosperms, Springer-Verlag, Netherlands.
10. Karp G., 1985. Cell Biology; Mc.Graw Hill Company
11. Maheshwari,P 1950. An introduction to the embryology of angiosperms. New York: McGraw-Hill
12. Mauseth, J.D. (1988). Plant Anatomy, the Benjammin/Cummings Publisher, USA.
13. Nair P .K .K - Pollen Morphology of Angiosperms - Scholar Publishing House, Lucknow
14. Pandey S.N. 1997, Plant Anatomy and Embryology .A. Chadha, Vikas Publication House Pvt Ltd;
15. Pandey, B. P., 1997. Plant Anatomy, S.Chand and Co. New Delhi
16. Raghavan, V., 2000. Developmental Biology of Flowering plants, Springer, Netherlands.
17. Saxena M. R. – Palynology – A treatise - Oxford & I. B .H., New Delhi.
18. Shivanna, K.R., 2003. Pollen Biology and Biotechnology. Oxford and IBH Publishing Co. Pvt.Ltd. Delhi.
19. Vashishta .P.C .,1984. Plant Anatomy – Pradeep Publications – Jalandhar
20. Vashishta, P.C. 1997. Plant Anatomy, Pradeep Publications



S.G.V.C VIDYA PRASARK TRUST'S
M. G.V.C. ARTS, COMMERCE AND SCIENCE COLLEGE MUDEBIHAL
DEPARTMENT OF BOTANY
PROJECT WORK
ON
TYPES OF PLACENTATION



**B.Sc THIRD SEMESTER STUDENTS
DURING THE YEAR
2023-24**

PRINCIPAL,

**M. G. V. C. Arts, Com. & Science College
MUDEBIHAL - 586212.**



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DEPARTMENT OF BOTANY

CERTIFICATE

Examination Seat No: U15NU2250044

Class: B.Sc Third Sem

This is to certify that, Mr/Mrs. Shashikala.S.Awati Has satisfactorily completed Mini Project Work on "**Types of Placentation**" under our supervision in M.G.V.C Arts, Commerce and Science College Muddebihal, Department of Botany during the year 2023-24.

Chaitis

Staff Member in charge

HM

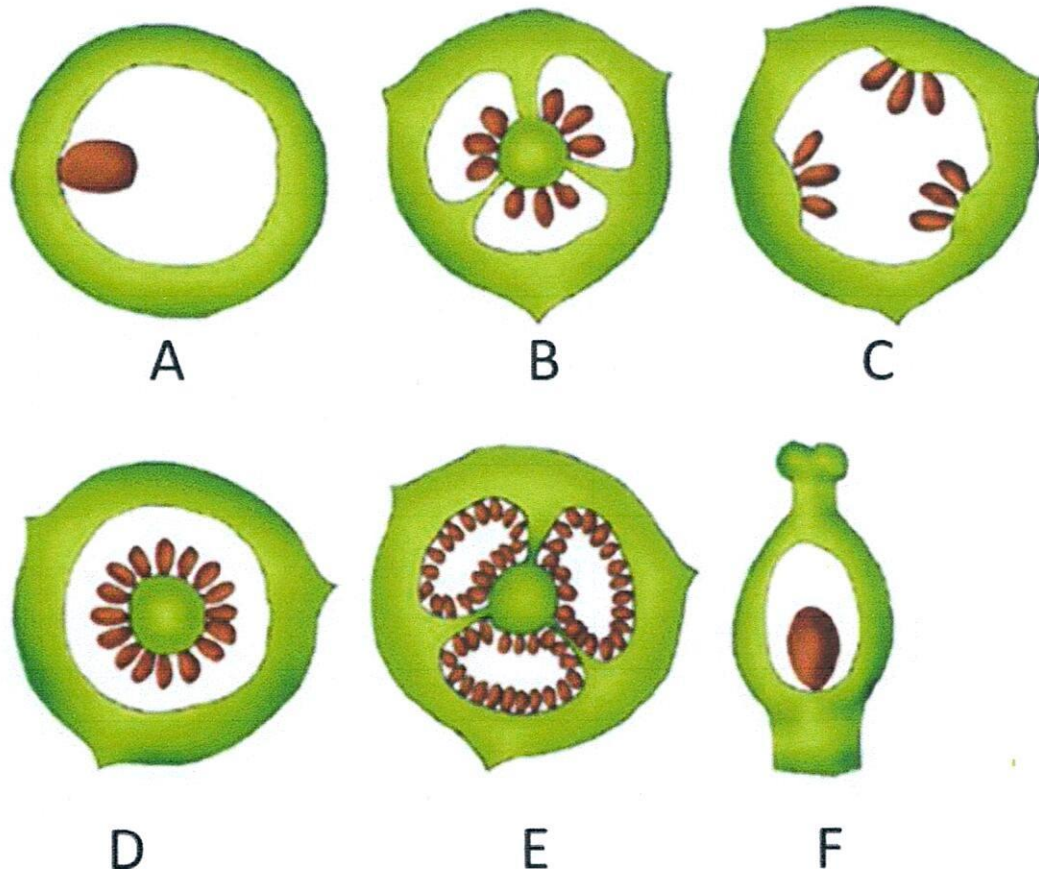
Head Department of Botany

Head of the Department of Botany
M.G.V.C. College, MUDEBIHAL-586212
Dist: Bijapur.

VALUED	
Examiner's Date:	
1.	<i>Sawadagi</i> 15/03
2.	<i>Chaitis</i> 15/03/24



DEPARTMENT OF BOTANY
PROJECT WORK ON TYPES OF PLACENTATION



The placentation, or arrangement of ovules within the ovary, is frequently of taxonomic value. Placentation is usually submarginal in a simple pistil (female sex organ). In a compound pistil, two or more carpels are used in various ways, placentation being parietal, with carpels united.

Placenta, in botany, the surface of the carpel (highly modified leaf) to which the ovules (potential seeds) are attached. The placenta is usually located in a region corresponding somewhat to the margins of a leaf but is actually submarginal in position. The placentation, or arrangement of ovules within the ovary, is frequently of taxonomic value. Placentation is usually submarginal in a simple pistil (female sex organ). In a compound pistil, two or more carpels are used in various ways,



placentation being parietal, with carpels united by their adjacent margins and the ovules disposed along the inner ovary walls; axile, with carpels folded inward and the ovules along the central axis of the ovary; free central, derived from the axile, with a central column bearing the ovules; basal, with ovules positioned on a low column at the base of the ovary; or laminar, with ovules scattered over the inner surfaces of carpels.

Placentation in Plants:

1. Marginal:

The ovules develop in rows near the margin on the placenta formed along the ventral suture. It occurs in monocarpellary and unilocular ovary, e.g., Leguminosae.

2. Parietal:

The placenta is formed by the swelling up of cohering margins, and on the latter develop the ovules in rows. It occurs in bicarpellary or multicarpellary but unilocular ovary, e.g., Papaveraceae.

2. Axile:

Here, the placentae develop from the central axis which correspond to the confluent margins of carpels. It occurs in bi-to multilocular ovary, e.g., Solanaceae, Malvaceae.

4. Free-central:

Here, the placenta develop in the centre of the ovary as a prolongation of floral axis and the ovules are attached on this axis. It occurs in multicarpellary but unilocular ovary, e.g., Primulaceae.

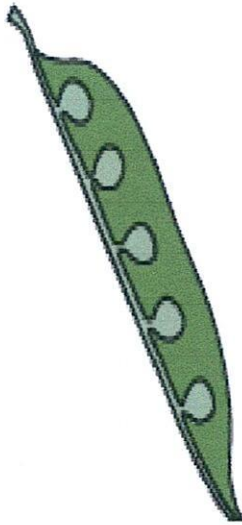
5. Superficial or Laminar:

Here, the ovules develop over the entire inner surface of the carpels. It occurs in multicarpellary ovary, e.g., Nymphaea.

6. Basal:

The placenta develops directly on the thalamus and bears a single ovule at the base of the unilocular ovary, e.g., Compositae.

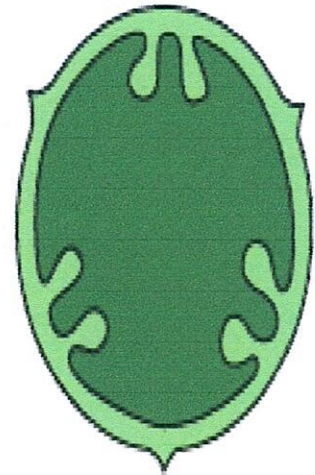
TYPES OF PLACENTATION



Marginal placentation



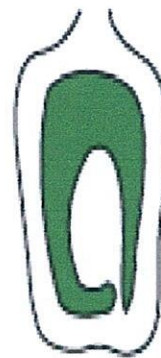
Axile placentation



Parietal placentation



Free central placentation



Basal placentation

TYPES OF PLACENTATION

Placentation

The mode of distribution of placenta inside the ovary



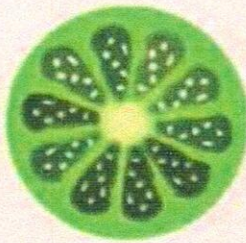
Marginal

It is with the placentae along the margin of a unilocular ovary.
 Example: Fabaceae.



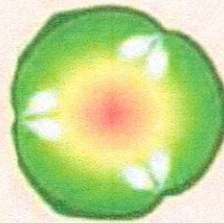
Axile

The placentae arises from the column in a compound ovary with septa.
 Example: Hibiscus, tomato, lemon



Superficial

Ovules arise from the surface of the septa.
 Example: Nymphaeaceae



Parietal

It is the placentae on the ovary walls or upon intruding partitions of a unilocular, compound Ovary.
 Example: Mustard, Argemone, cucumber.



Free-central

It is with the placentae along the column in a compound ovary without septa.
 Example: Caryophyllaceae, Dianthus, Primrose



Basal

It is the placenta at the base of the ovary.
 Example: Sunflower (asteraceae) Marigold



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REPORT

B.Sc Third Semester students has satisfactorily completed Mini Project Work on "Types of Placentation" under our supervision in M.G.V.C Arts, Commerce and Science College Muddebihal during the year 2023-24.

HOD of Botany

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