



RESEARCH ARTICLE

Embryological Observations of Fruit Development in *Mimosa pudica* Linn.

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ABSTRACT

The present paper deals with embryological studies of the fruit development in *Mimosa pudica* Linn.. Observations on seed coat development is of exotestal pattern and is of multiplicative type, Pericarp is differentiated into epicarp, mesocarp and endocarp were noted.

Keywords: Embryology, Seed, Fruit, *Mimosa pudica* Linn.

INTRODUCTION

Embryology of a taxon was studied by many workers. It has been observed that there is no comprehensive literature on the development of seed and fruit. The earliest work in which Newman (1933a, 1933b, 1934a, 1934b) described the embryology of *Acacia baileyana*. No details of histology and anatomy of this taxon are available. Corner (1951) studied the mature seed in some members of Mimosaceae. He has neither given the ontogeny of seed nor the development of pericarp. Dnyansagar (1951,a) studied the embryology of *Mimosa hamata*, in this taxa the ontogeny of seed and fruit has not been studied. From the review of literature it is seen that the study of seed coat and fruit wall structure has been neglected. No doubt *Mimosa pudica* Linn. is embryologically investigated but above aspects are missing. This research work has been taken to fill up the lacunae in the reproductive biology of *Mimosa pudica* Linn.

MATERIALS AND METHOD

The fruits of *Mimosa pudica* Linn. were collected from the Botanical Garden of Maharaja Sayajirao Gaikwad College, Malegaon Camp. Fruits grow well from August to November. The material was collected at 9 am. in the morning. The material was fixed in FAA (Formalin Acetic Acid Alcohol) for study of development of fruit; dehydration was done by using different grades of alcohol. Usual methods of embedding were followed. Paraffin blocks were cut on Rotary microtome. For cutting the sections of mature fruit. The fruits were boiled for 5 to 6 hours in wax and then cut on microtome. The sections were stained with Iron - alum -haematoxylin and destained in a saturated solution of Picric Acid. Slides were passing through xylol, and then slides were mounted in Canada Balsam.

RESULT

The ontogenetical development of pericarp is a neglected subject. This has also not been studied by Narsimhachar (1951). The lomentaceous fruit of *Mimosa pudica* Linn. Breaks up into four pieces from the place of constriction. Each piece contains one seed (Fig.1). As seen in T.S the pericarp of the fruit is drawn out into wing like (D) structure. The dorsal and ventral valve of pericarp are adpressed together but not fused. These valves in the middle bulged to enclose tannin filled (Fig.1). The outer walls of a few epidermal cells in the seed region are sometimes protruded or papillate. They look like secretary cells (Fig.2). At the mature seed stage, the pericarp does not show any further differentiation, than described above. The pericarp shows accumulation of insoluble polysaccharides.

DISCUSSION

Anatomists have ignored the structure and development of the pericarp in the leguminosae. Fahn and Zohary (1955) and Fahn (1969) studied the histological development of pericarp in the leguminosae. In *Mimosa pudica* Linn. histological differentiation is seen at cordate shaped embryo stage. The epidermis of the epicarp is filled with the tannin. The next zone undergoing histological differentiation constitutes the mesocarp of Fahn and Zohary (1955). According to Fahn and Zohary (1955) this layer is traversed by vascular bundles. Mesocarp also shows tannin deposition in *Mimosa pudica* Linn. and vascular bundles (Present study). This zone account to Fahn and Zohary, (1955), is variable in different taxa. The endocarp generally consists of sclerenchymatous fibres in *Mimosa pudica* Linn. in *Prosopis juliflora*. (Deshpande and Gomkale,1982). The endocarp gets differentiated into two

distinct regions consisting of sclerenchymatous and parenchymatous tissue.

CONCLUSION

Mature embryo is massive, straight. Testa is formed from integument alone, with palisade and hour glass cells. Pericarp is differentiated into epicarp, mesocarp and endocarp. Epidermis of epicarp is filled with tannin. Mesocarp also shows tannin and vascular bundle. Endocarp shows sclerenchymatous fibers. Endocarp is differentiated into two distinct regions.

REFERENCES

- Corner, E. J. H. (1951). The Leguminous seeds. Phytomorphology. 1, 117-150.
- Deshpande, P. K. and Gomkale, K. D. (1982). Embryological studies in *Prosopis julifera* (S.W.) J. Ind. Bot. Soc. 61:39-46. Endosperm and Embryo.
- Dnyansagar, V. R. (1951a). Embryological studies in the Leguminosae. II. A Contribution to the embryology of *Mimosa hamata*. J. Indian Bot. Soc. 100-107.
- Fahn, A. and Zohari, M. (1955). On Pericarpal structure of Legumen. It's evolution and dehiscence. Phytomorphology 5, 95-111.
- Fahn, A. (1969). Plant Anatomy, Jerusalem.
- Narasimhachar, S. G. (1951). An Embryological studies of *Mimosa pudica* Linn. Ibid. 33B: 192 - 198
- Newmann, I. V. (1933a). A Studies in the Australian acacias I. Geeral introduction. Jour. Linn. Soc. London, 49:145-167.
- Newmann, I. V. (1933b). The Life history of *Acacia baileyana* (F.V.M.) Jour. Linn. Soc. London, 49:45-167.
- Newmann, I. V. (1934a). Studies in the Australia macacias. III, supplementary observation on the habit, carpel, spore production and chromosome of *Acacia baileyana* (F.V.M.) Jour. Linn. Soc. London, New South Wales 59:237-250.
- Newmann, I. V. (1934b). Studies in the Australian acacias IV. The life history of *Acacia baileyana* (F.V.M.) Gametophytes, fertilization, seed production, germination and general conclusion. Proc. Linn. Soc. New South Wales, 59, 277-313.

Plate I

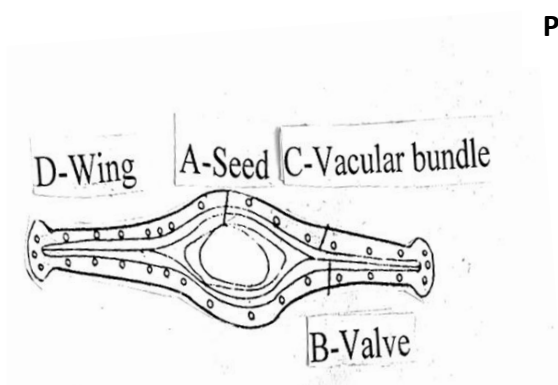


Fig. 1 : T. S. of Fruit

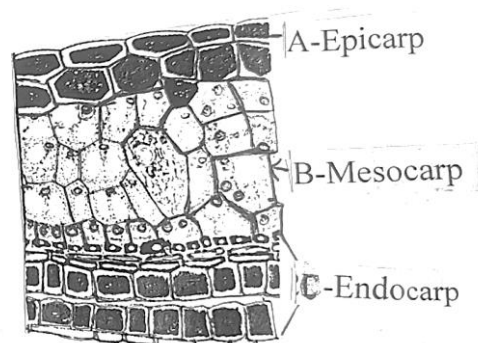


Fig. 2 : L. S. of Pericarp at Mature Embryo Stage