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Study of Pollinia of some corticolous orchids from Maharashtra under SEM).

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Abstract
Study of Pollinia of three different taxa of orchids viz. Eria dalzellii Lindl., Rhynochostylis retusa (L) Bl. and Oberonia brunoniana Wight using SEM is made. It reveals interesting features as well as variations in shape and cellular structure of pollinium.

Orchidaceae, a highly evolved family of the monocots covers about 7-9% of population of flowering plants and 40% of the monocots1. Such interesting group has also gained importance as cut flower industry. This fascinating group of flowering plant has been ignored for palynological study under Scanning Electron Microscopy. Study of this group under SEM as well as TEM can be used as a parameter for the interrelationship in the diversity of orchids. Unfortunately very little work2 has been done on the observation of pollinia under SEM. Keeping this view in mind, it has been thought to undertake work on the pollinia of the three corticolous taxa of orchids viz. Eria dalzellii Lindl., Rhynchostylis retusa (L.) Bl. Oberonia brunoniana Wight. from different localities of Western ghats in Maharashtra.

The material was collected from different localities of Western Ghats (Khandala ht. 677 m. alt, Panvel at sea-level, castle-rock ht 900m. alt) from Maharashtra. The SEM study of pollinia of Orchids was conducted under Electron Microscope Jeol 1200 Ex model 1982 at the Laboratory of RSIC of Panjab University, Chandigarh.

Pollinia, were collected and mounted on a double metallic stub with gold sputter coater for five minutes for coating the material. Material was then processed for scanning under electron microscope.

1. *Eria dalzellii Lindl.* (Button Orchid) :

This very small corticolous orchid can be recognized by the presence of flattened button-like pseudobulb, oblanceolate to oblong leaves, green flowers with yellow tinge, pollinia pyriform, 8 in number. Said endemic taxon was collected from Khandala.

Palynological observations :

Under L. M. :

Presence of eight ovate to pyriform pollinia .
Pollinia are ovate in shape but narrow at one end.

Pollinium is brownish ovate but narrow at one end. (x 140) Cells on Pollinium surface are sub-rectangular to polygonal in shape, smooth in texture and appears as if they are overlapping each other (x 1200).

2. *Rhynchostylis retusa (*L.) Bl. (Foxtail orchid)

This corticolous orchid is characterized by having woody stem. Covered with old leaf bases, 20-30 cms long. Leaves distichous, strongly keeled, leaf-tip blunt, unequally lobed, flowers densely arranged like a garland, pink, white and deep magenta in colour. Spur laterally compressed and saccate. This orchid was collected from Panvel.

Polynological observations :

Under L. M.

Pollinium is yellow coloured and (corrugate) (x 140) circular and covered by hairy structures. The outer surface is covered by granulate hairy structure (x 700).

3. *Oberonia brunoniana Wight.* (Rat's tail orchid)

This robust species of oberonias differs from other orchids in having olive brown

PLATE I

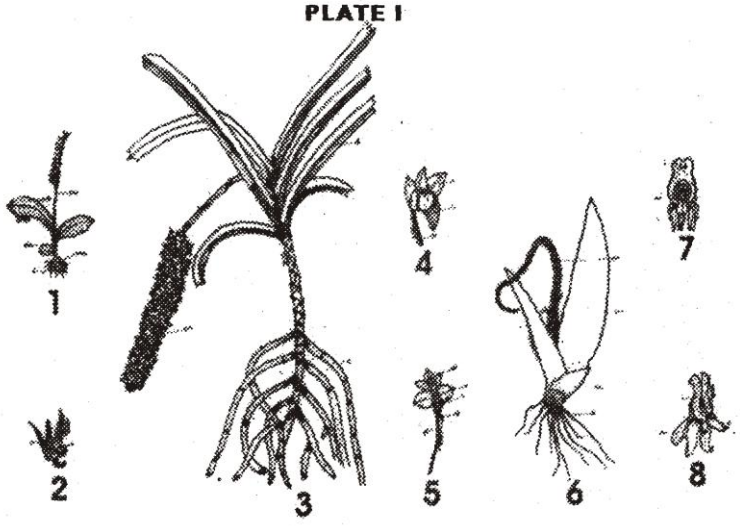
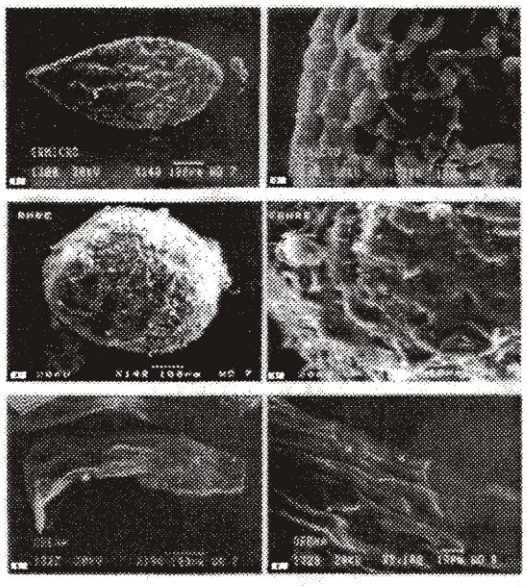


PLATE-II



succulent and coriaceous pendulous leaves. Inflorescence is with dull orange coloured flowers in raceme.

Under L. M. :

Pollinium is elongated.

Under SEM. :

Pollinium is long and linear. (x 190) Cells on it's surface are smooth, striate, elongated rectangular in shape. (x 1100).

Study of the pollinium of these orchids under SEM reveals interesting features as well as variations in shape and cellular structure.

Pollinia vary in shape. In Eria dalzellii Lindl. pollinia are pyriform (ovate), narrow at one end, whereas pollinium in Rhynchostylis retusa (L.) Bl. is circular in shape. In O. brunoniana Wight. pollinium is elongated and linear in shape.

There is a great range in variation in structure and shape of the cells of pollinium. Cells on the pollinium surface of Eria dalzellii Lindl. appear to be sub-rectangular to polygonal in shape, smooth in texture and overlap each other, whereas the cells on the pollinium of Rhynchostylis retusa L. Blume. are more or less rectanglar in shape along with granulate (Corrugate) surface. The observation in the cells of pollinium of O. brunoniana Wight. are quite different. Cells on its surface are smooth striate, elongated, rectangular in shape and overlap each other.

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Explanation of Plates :

PLATE NO. I

1. Eria dalzellii Lindl. (Text fig. 1-2). Entire plant showing disc like stem and raceme iflorescence.
2. Enlarged view of a flower.
3. Rhynchostylis retusa (L.) Blume. (Text fig. 3-5) Showing entire plant with pendant "garland-like" inflorescence.
4. Flower (enlarged view).
5. Flower (lateral View)
6. Oberonia brunoniana Wight. (Text fig. 6-8). Entire plant with rat-tail like inflorescence.
7. Entire flower.
8. Flower (lateral view)

PLATE NO. II

1. Eria dalzellii Lindl. Showing ovate pollinium under SEM. (x 140)
2. Eria dalzellii Lindl. Showing enlarged view of a wall of pollinium having subrectangular to polygonal cells under SEM. (x 1200)
3. Rhynchostylis retusa (L) Bl. Pollinium circular in shape, with granulate surface (x 140)
4. R. retusa (L) Bl. Showing granulate surface of wall of the pollinium.
5. Oberonia brunoniana Wight showing pollinium under SEM. (x 190)
6. Oberonia brunoniana Wight. Showing enlarged view of wall of pollinium formed by smooth, striate, elongated, rectangular cells.

Reference :

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