

## CHANGES IN APICES FROM VEGETATIVE TO FLOWER INDUCTION BY SEM

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The transition from vegetative apices to flower induction apices is one of the most important periods of ontogenesis. It requires the structural and physiological preparation of the entire plant and occurs at a definite time of the year and under definite conditions. Scanning electron microscopy (SEM) is a well established technique which has allowed a considerable advancement in studies on flower induction. The apices of marigold (*Tagetes spp.*), chrysanthemum (*Chrysanthemum morifolium*), rose (*Rosa spp.*), ixora (*Ixora spp.*), strawberry (*Fragaria ananassa* Duch.) grape (*Vitis vinifera*) and rice (*Oryza sativa* L.) were dissected under a stereomicroscope magnified 9 to 40 times. The developmental stage of apices from vegetative to flower induction was identified. The scanning electron microscopy (SEM) technique was applied to study on the morphogenesis changes. Apices were fixed in 1% glutaraldehyde in 0.1M phosphate buffer, pH 6.8, by adding fixative during dissection and then exposing to fixative for 2 h, during which time they were continuously rotated. The apices were then washed with three changes of 0.1 M phosphate buffer pH 5.8. Post-fixation was with 1% osmium tetroxide in phosphate buffer pH 6.8 for 1 h. After washing in three changes of distilled water and dehydration using a graded ethanol series (30% to 100%), apices were critical-point-dried through carbon dioxide and stored in a desiccator for 2 d before being mounted on aluminium SEM stubs. The stubs were degassed with degassing solution 154. And the prepared apices were sputter coated with platinum (approximately 200 Å). The apices were examined and photographed using a Jeol JSM 6400 scanning electron microscope operating at an accelerating voltage of 7-15 kV coupled with Robinson backscattered electrons. Apices without pronounced swelling were considered vegetative. The morphology changes due to flower induction of all apices studied appeared as a mounding of the apices (Fig. 1 a-g). The wilting of the leaf primordia could be noticed in nearly very plant studies but the degree of the wilting was different. The mounding of the apex at the flower induction stage may result from a change in a biophysical boundary condition involving dome geometry. The plant vigor probably affects flower induction. However the effect of environment to control flower induction should be more investigated by using SEM technique.

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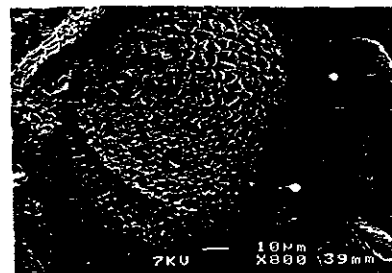
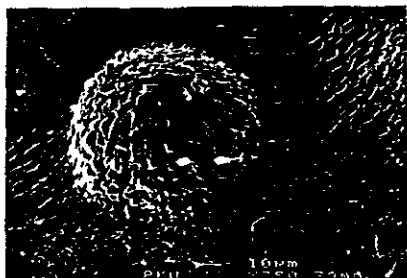
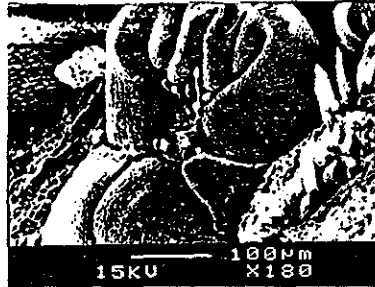


Figure 1. SEM of the flower induction apices of (a to g) showed as a mounding of the apices (p).

- a. Marigold (*Tagetes spp.*)
- b. Chrysanthemum (*Chrysanthemum morifolium*)
- c. Rose (*Rosa spp.*)
- d. Ixora (*Ixora spp.*)
- e. Strawberry (*Fragaria ananassa Duch.*)
- f. Grape (*Vitis vinifera*)
- g. Rice (*Oryza sativa L.*)

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