

BRIEF COMMUNICATION

FIBROUS MASSES AND CELL AND NUCLEUS MOVEMENT IN THE POLLEN TUBE OF *PETUNIA HYBRIDA*

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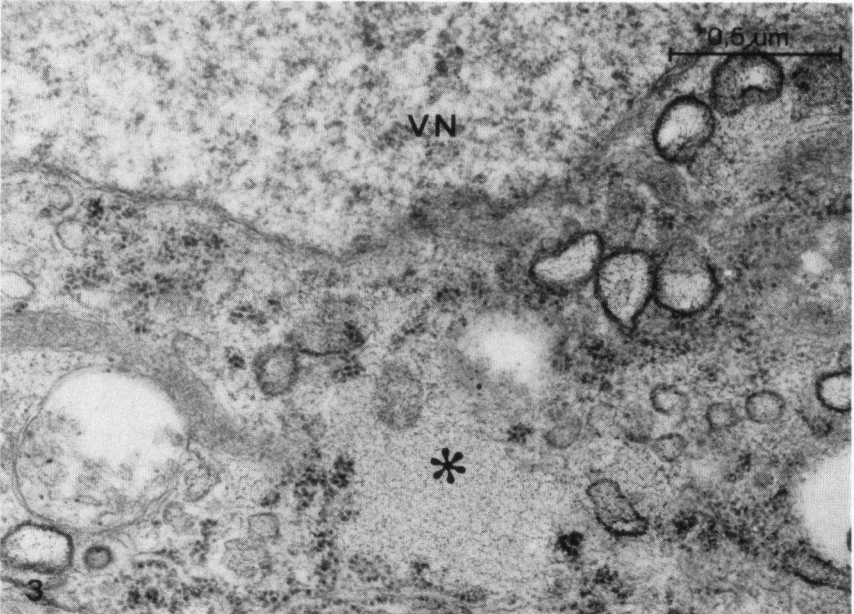
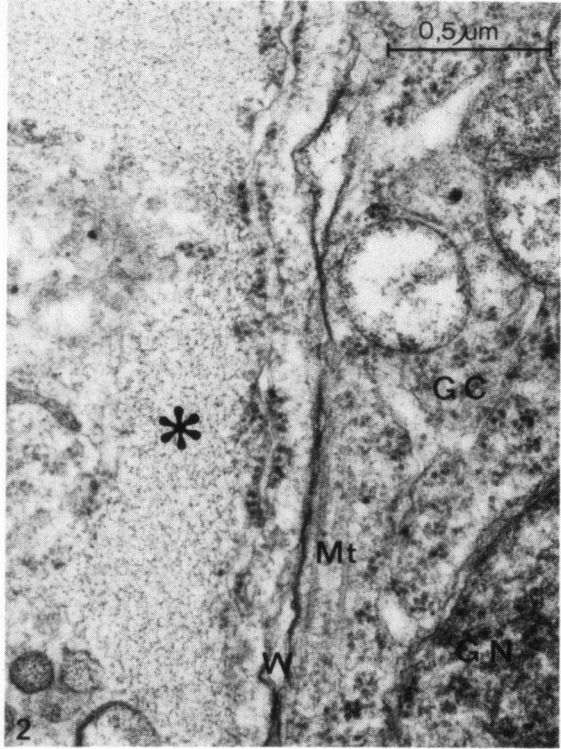
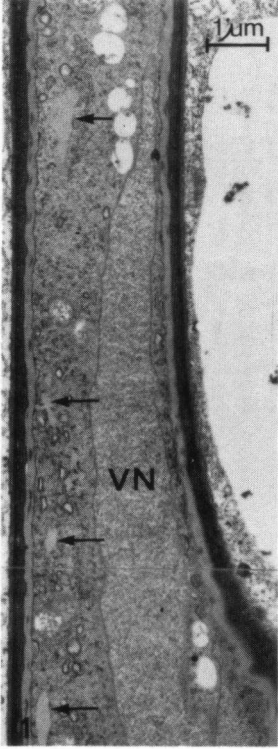
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As revealed by papers of BOPP-HASSENKAMP (1960) and KOROBOVA (1974) the movement of the generative cell and vegetative nucleus during pollen tube growth is still an unanswered question. The presence of a fibrillar-like material near the generative cell and vegetative nucleus during pollen tube growth of *Petunia hybrida* may be related to the movement of these structures. In pollen tubes different zones of cytoplasm organization can be distinguished (VAN WENT 1976).

In *Petunia hybrida* the generative cell and vegetative nucleus are situated about half way between the tip of the pollen tube and the latest formed callose plug. Only in this zone near the vegetative nucleus and generative cell fibrillar-like structures can be observed (figs. 1, 2). The structures are strands of a fibrous mass of electron dense material enclosed by electron transparent material. In the fibrous mass microfilaments and granular material are visible (fig. 3). The regular arrangement of several masses of fibrous material along the generative cell and the vegetative nucleus may indicate the presence of one or few long strands.

Since the other cell organelles appear quite normal in our investigations, the above described fibrous mass must be considered as a distinct structure in the vegetative cell.

It is unlikely that the fibrous mass represents disorganized microtubular material, since well preserved microtubules are present in the generative cell. Fibrillar material has also been found in pollen tubes of *Gossypium* (JENSEN & FISCHER 1970), *Clivia* and *Lilium* (FRANKE et al. 1972). CONDEELIS (1974) described the cytoplasmic fibrils in *Amaryllis* pollen tubes as F actin containing elements. According to PARTHASARATHY & MÜHLETHALER's (1972) hypothesis that the presence of filaments in plant cells is related to cytoplasmic streaming, the presence of F actin and the sinuous aspect of the fibrous mass give indications for possible contractile properties of this material. Although further investigation is necessary, the presence of this fibrillar material suggests the presence of a local contractile centre along the generative cell and vegetative nucleus in relation to the movement of these elements.



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Fig. 1. Longitudinal section of pollen tube containing the vegetative nucleus (VN). Fibrillar structures are to be seen in the cytoplasm (arrows). $\times 8600$.

Fig. 2. Longitudinal section of pollen tube containing the generative cell (GC) with generative nucleus (GN) and microtubules (Mt). Fibrillar structures (asterisk) can be seen near the generative cell wall (W). $\times 44000$.

Fig. 3. Cross-section of a pollen tube with the vegetative nucleus (VN). Fibrillar structures (asterisk) are present. $\times 46000$.