

Development of unusual stomata complex in certain epidermal surface

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Stomata, occurring on all aerial parts of the plants, are usually distributed evenly in the leaf epidermis and/or somewhat irregularly in the surface of stems or other parts of plant organs. The normal stomata complex commonly shows kidney-shaped guard cells and has ledges of wall material on the upper or both the upper and the lower sides. Stomata sunken in depressions or crypts are relatively common, however, stomata raised above the epidermis are less common. Unusual stomata complex such as raised stomata and vestigial stomata have been encountered during examination of idioblasts among various epidermal surfaces.

Normal stomata as well as raised stomata complex was present on all aerial parts of *Lycopersicon esculentum*, but the latter was most conspicuous on the ridges of a developing stem. When matured, the raised stomata complex contained numerous cells above the ordinary epidermal surface forming a column-like elevated structure. The stomata complex was ca. 28 x 30 μm in size where the aperture was ca. 14 x 5 μm in average. The stomata complex were particularly raised ca. 80-100 μm above the surface level. While the normal stomata were evenly distributed, the raised stomata exhibited restricted distribution in this species.

The other type of unusual stomata complex was noticed in the adaxial epidermis of *Salvinia natans* where typical stomata were not formed. The complex was presumably vestigial and they were uniformly occurred at the juncture of three to five or more epidermal cells. No defined system of guard cells were detected, yet stoma-like pores occurred throughout the surface. The size of the vestigial stomata complex is ca. 15 x 10 μm and the aperture alone was ca. 8 x 5 μm . The 'guard cells' of the stomata did not appear to be cells at all but merely extension of wall material. Their nature as true stomata complex has been doubtful. The pattern and potential role of the unusual stomata complex are discussed.

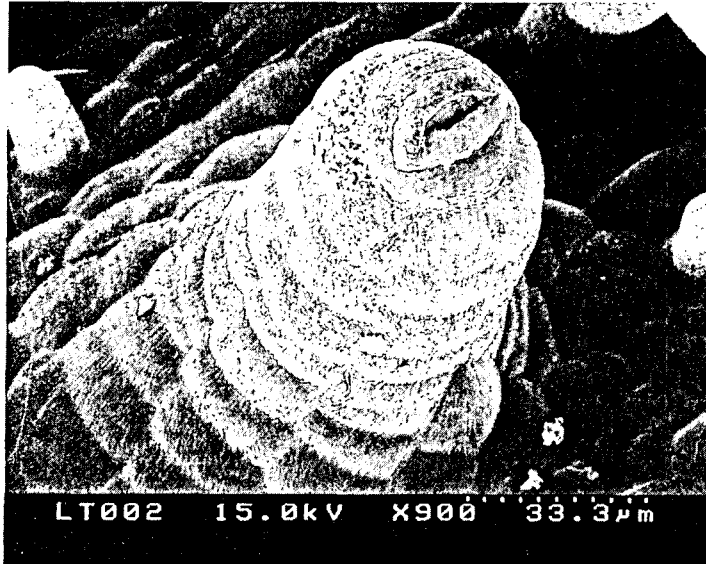


Fig 1. Raised stomata complex

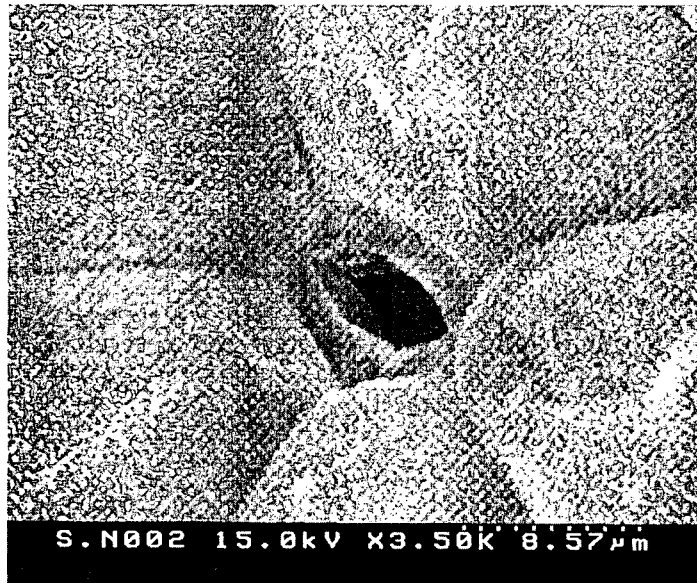


Fig 2. Vestigial stomata complex