
POLLEN TUBE PLUGS IN *LYCHNIS ALBA*¹—The occurrence of pollen tube plugs in the Cucurbitaceae has been noted by Vasil (1960), who reported their morphology as single ring-like deposits within older regions of the pollen tubes. Vasil indicated that the composition of such pollen tube plugs was presumably callose. Only the terminal millimeter of pollen tubes for most plants remains cytoplasmic and bears the two haploid male (sperm) nuclei and a single vegetative (tube) nucleus, the latter disintegrating soon after entering the embryo sac. The pollen tube plugs effectively seal off the noncytoplasmic portion of pollen tubes, leaving only the cytoplasmic portion nourished in its course through the style.

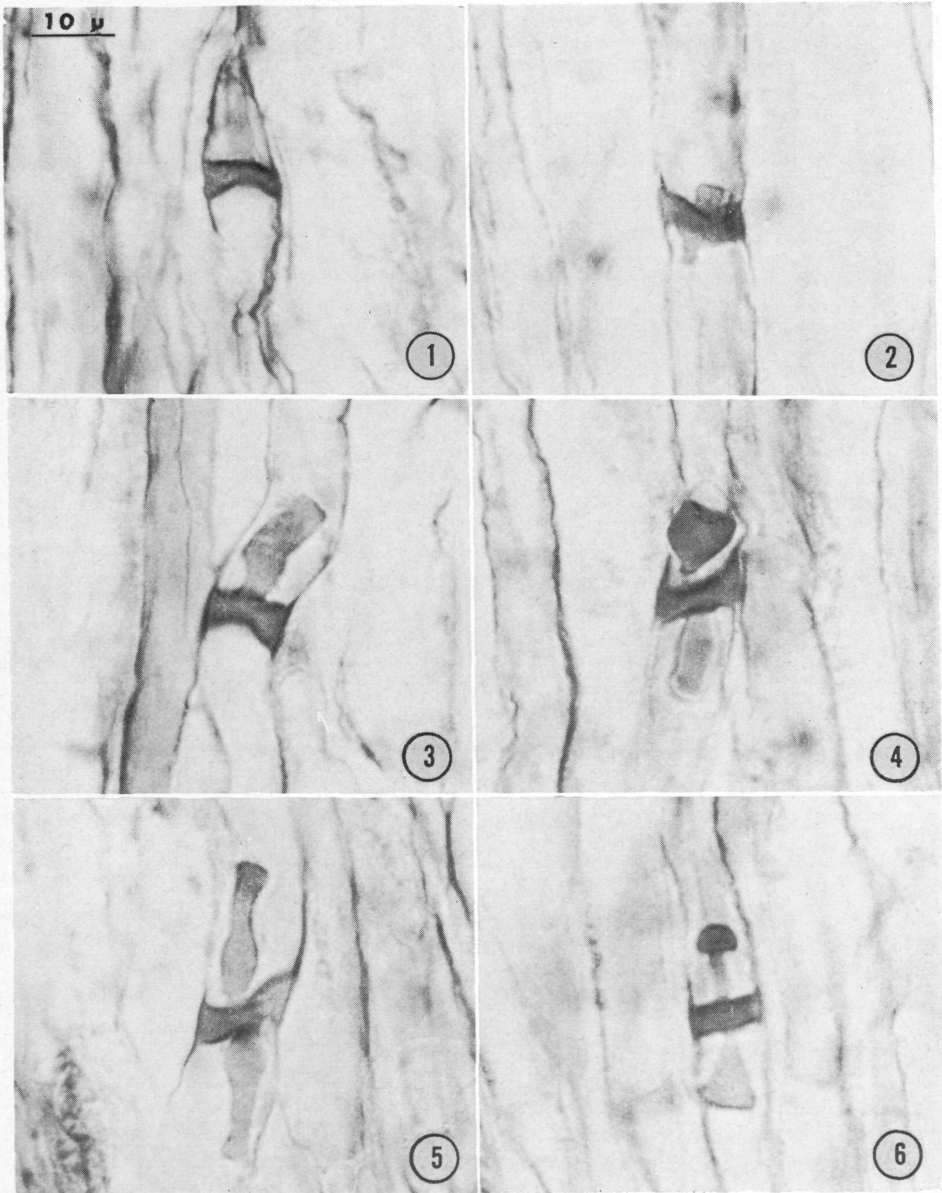
During an investigation (Crang, 1966) into the course of pollen tubes in *Lychnis alba*, a member of the Caryophyllaceae, it was observed that pollen tube plugs were conspicuously abundant in styles as soon as four hours following pollination. Unlike other plants observed by the author (*Lilium* spp. and *Vicia faba*), as well as the observations of Vasil, the pollen tube plugs of *Lychnis alba* assume a variety of morphological forms, many of which may represent developmental stages. Characteristically, a single band is present in older portions of the pollen tubes (fig. 1) and it is from this transverse band that processes develop at right angles (fig. 2). At times only one tubular process is formed (fig. 3) and at other times two. Variation in the form of the tubular processes may be described as obconate (fig. 4), pyriform (fig. 5), and capitate (fig. 6).

Staining of fresh, pollinated styles with 0.005% alcoholic aniline blue (Jensen, 1962), for periods of time ranging up to 24 hours, showed no preferential uptake of the callose-specific dye by the bands or processes, using visible light microscopy. Additional observations of aqueous aniline blue-stained material, using fluorescence microscopy (Currier, 1957), has not yielded a positive identification of callose. Vasil, in his study, did not specify the method of callose determination. Although callose deposits may be common in pollen tubes of many plants, the plugs of *Lychnis alba* pollen tubes do not appear chemically homologous even if they are homologous in function. The bands and processes do stain readily with safranin O in aqueous solution as indicated in the accompanying figures. The function of the processes radiating from the pollen tube plugs is unknown.—RICHARD E. CRANG, *Department of Biology, Wittenberg University, Springfield, Ohio 45501.*

¹Manuscript received May 19, 1966.

LITERATURE CITED

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FIGS. 1-6. Examples of pollen tube plugs in *Lychnis alba* stained with aqueous safranin O solution (see text).