

Our Objective

Our aim is to study pollen germination on a slide.

Theory

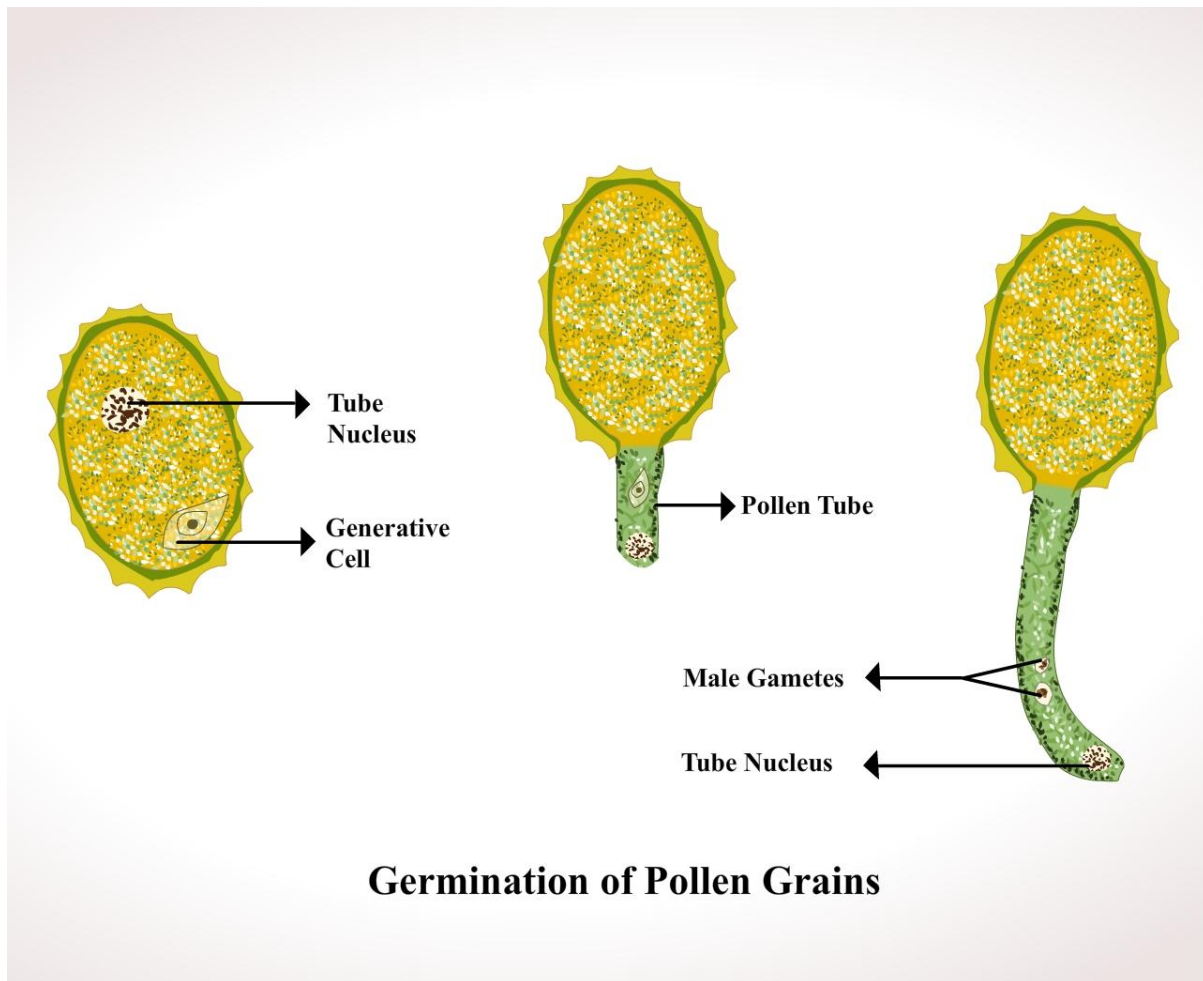
What is pollination?

Pollination is a very important part of the life cycle of a flowering plant. Pollination is the transference of pollen grain from the anthers of a flower to the stigma of the same or another flower, mediated by abiotic or biotic means. Abiotic means the pollen is not carried by organisms, but through means such as wind or water. Biotic pollination occurs through agents like animals, insects or birds. The majority of plants are pollinated through biotic pollination.

Let's see how pollen germinates

In flowering plants, however, the ovules are contained within a hollow organ called the pistil, and the pollen is deposited on the pistil's receptive surface, the stigma. On the stigma, the germination of pollen grains begins by absorption of water and nutrients and the pollen grain produces a tiny pollen tube through the style to the ovary. The tube cell enlarges and comes out of the pollen grain through one of the germ pores to form a pollen tube. The tube nucleus descends to the tip of the pollen tube.

The generative cell also passes into it. It soon divides into two male gametes. In an act of double fertilization, one of the two sperm cells within the pollen tube fuses with the egg cell of the ovule, making possible the development of an embryo, and the other cell combines with the two subsidiary sexual nuclei of the ovule, which initiates formation of a reserve food tissue, the endosperm. The growing ovule then transforms itself into a seed. We can stimulate pollen germination in vitro with the help of a nutrient medium.



Learning Outcomes:

- Students understand the term pollination.
- Students understand how pollen germinates.
- Students do the experiment better in the real lab having gone through the animation and simulation.