



Expt: 4 Study of pollen germination on stigma

Aim:

To study the pollen germination on stigma.

Materials Required:

Portulaca or China rose flower, Slide, Coverslips, Microscope.

Chemicals: Sucrose 10 g, boric acid 10 mg, potassium nitrate 10 mg, magnesium sulphate 20 mg, calcium nitrate 30 mg, distilled water 100 ml,

Beaker and a dropper.

Procedure:

1. Prepare a nutrient medium by mixing the above chemicals in 100 ml of distilled water in a clean and dry beaker.
2. Dust the pollen grains from the stamens of a flower on a clean and dry slide.
3. Add a drop of nutrient medium with a dropper over the pollen grains.
4. Let the slide be kept undisturbed for 10-15 minutes.
5. Observe the slide under low power of microscope.
6. Write comments and draw the labelled diagram in your practical record book.

Observation:

The pollen grains which germinate and develop pollen tube are the viable pollen grains.

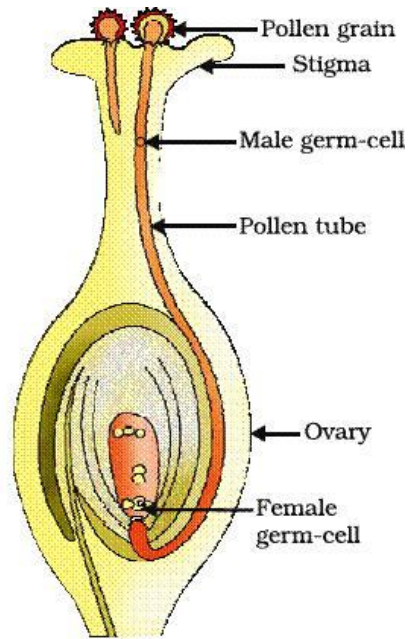
The pollen grains which do not develop pollen tube are the non-viable pollen grains.

Conclusion:

The germination of viable pollen grains in the nutrient medium shows the growth of pollen tube on stigma.

Precautions:

1. Use clean and dry slide for dusting pollens on it.
2. Use two-three drops of nutrient medium.



Diagram

Points to Remember, not to be written:

1. Pollen grains are products of meiosis cell division. Formation of pollen grains is called microsporogenesis.
2. These structures have variable shapes, such as they may be spherical, oblong or triangular in various species.
3. A mature pollen has two layers exine the tough, carved and rough protective coat made of sporopollenin, and intine the smooth inner layer made of pectocellulose.
4. At certain places exine is thin and delicate known as germ pores through which pollen tube (intine) emerges out with two male gametes.
