

# Exercise 12

**Aim:** To perform emasculation, bagging and tagging for controlled pollination

**Principle:** Conventional plant breeding programmes involve bringing under human control reproductive processes that lead to seed and fruit formation. For this controlled pollination is desirable using male and female parent having desired traits. One of the process that can be easily brought under human control is **emasculation**. For this the knowledge of flower structure, mechanism of pollination, fertilisation and physiology of flowering is essential for this. In emasculation technique the stamens are removed before anthesis to obtain female parent and pollen from the desired male parent is transferred on to its stigma.

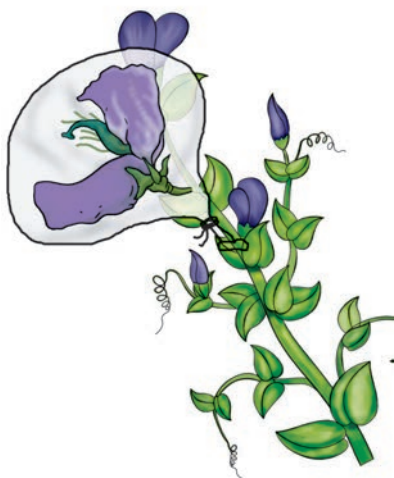
**Requirement:** Ornamental plants/ wild plants bearing large bisexual flower, magnifying lens, tweezers, small sharp scissors, brush, alcohol, rubber bands, paper bags, paper clips and tags

## Procedure

- (i) Select a flower in bud condition where anthesis has not occurred. Open the bud carefully and remove the stamens (Fig. 12.1). Mark this as female parent plant.



**Fig. 12.1** Showing process of Emasculation



**Fig. 12.2** Bagging of an emasculated flower



**Fig. 12.3** Showing cross pollination on an emasculated flower

(ii) Cover the emasculated flower with a plastic bag to protect it from undesired pollen (Bagging) (Fig. 12.2). The bag should be held securely in place with a paper clip/string/thread. Select the size of bag in accordance with the flower size. Bags must be transparent with minute pores.

(iii) Bring into physical contact anthers of a desired male plant containing mature pollen grains with the stigmatic surface of emasculated female flower (Fig. 12.3). Use tweezers/brush if necessary to dust the stigmatic surface with pollen.

(iv) Cover the pollinated flower again with the bag immediately. For identification, label the female parent (Tagging). Each pollinated flower should bear a label containing the name of the seed parent, the letter X (to signify a cross), the name of the pollen parent, and the date on which the cross was effected.

## Questions

1. Why is emasculation performed before anthesis?
2. What are the advantages of using a bag containing minute pores?