

NEW TECHNIQUES OF SELFING AND CROSSING IN SESAME

Sesame (*Sesamum indicum* L) flowers are borne in acropetal succession on short pedicels in the axils of the upper leaves and has a two lipped, five lobed, tubular corolla. The four stamens are in didynamous condition, two of which are long and two short. Ovary is superior with many ovules. Style is slender with bifid stigma. Anthesis under upland conditions at Vellayani is between 5.30 and 6.30 a. m. Anthers start dehiscing at 4.30 a. m. and stigma becomes receptive by 5.00 a. m. and remains so till 7.00 a. m. Pollen are shed concurrently with the opening of the bifid stigma. The latter gets covered with pollen (Weiss. 1971) and hence self pollination is the rule. However, pollen carried by insects may result in about 5% cross pollination (Joshi, 1961; and Uzo, 1977).

Selfing technique

The conventional method of selfing sesame is by covering individual flower (causing damage to the pedicel) or the whole plant during the flowering season using paper cover, which adversely affects plant growth, as the flowering season lasts for 40 to 50 days.

Due to these handicaps in the conventional methods a simple and effective technique of selfing sesame flowers has been developed. This involves the tying of the corolla tips of mature flower buds in the evening with a piece of thread (Figure 1). Care has to be taken to avoid fixing of the knot at the tip of the bud causing slipping off during flower opening, and also avoid the knot becoming tight at the level of stigma and damaging it. On the day of anthesis the corolla fails to open out in the morning but falls off normally in the evening. The closed condition of the corolla throughout the day guarantees complete self pollination. This method of selfing does not interfere with fertilisation and development of pods.

Crossing technique

Crossing in sesame involves emasculation and pollination. Mature buds, which are white and large, due to open the next morning are to be selected the previous evening. The methods of emasculation generally employed are: opening the mature flower bud and removing the stamens (which is time consuming) or pulling out the corolla along the epipetalous stamens (which exposes the tender ovary and may even lead to its dislocation).

The technique now developed is simple and effective. Using a pointed needle, a longitudinal slit is made along the upper ridge of the corolla tube. The stigma then slides out of the corolla. Emasculation is done by cutting and removing the upper part of the corolla along with the stamens (Fig. 2). All mature buds are emasculated this way and the shoot is covered by a stitched butter paper cover. During rains, polythene bags can be used. Stakes can be used to fix the bag in position.

After completing pollination, the bags are removed the next day between 6.00 and 7.00 a. m. Pollen scooped out from the anthers of male parents (bagged the day before) are applied gently on the erect, hairy stigmatic lobes of the emasculated flowers on to which they adhere. The pollinated are covered again. The cover is retained till the evening, then removed and the stigmatic lobes are cut to prevent chance contamination by foreign pollen. The crossed plants are labelled to indicate the cross combination. Only crossed pods are retained in a plant.

സംഗ്രഹം

എള്ളിൻ പൂവിന്റെ പ്രത്യേകതയെ പരിഗണിച്ച് വളരെ ലളിതവും ഫലപ്രദവുമായ രീതിയിൽ സ്വപരാഗണം നടത്തുന്നതിനും, പരപരാഗണം നടത്തുന്നതിനും ഉള്ള പുതിയ മാർഗ്ഗങ്ങൾ ആവിഷ്കരിച്ചിരിക്കുന്നു. പുതിയതായി ആവിഷ്കരിച്ച മാർഗ്ഗങ്ങൾ നിലവിലുള്ള രീതിയേക്കാൾ വളരെ അധികം കാര്യക്ഷമവും ലാഭകരവും ആയതിനാൽ എള്ളിലെ പ്രജനനത്തിന് സ്വീകരിക്കാവുന്നതാണ്.

Department of Plant Breeding,
College of Agriculture,
Vellayani.

SVERUP JOHN
V. GOPINATHAN NAIR

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