HortFlora Research Spectrum, 3(1): 94-96 (March 2014) ISSN : 2250-2823

Research Note :

STANDARDIZATION OF RAPID PROPAGATION TECHNIQUE FOR FIG (*Ficus carica* L.) CULTIVARS BY BUDDING

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ABSTRACT : In the present study eight varieties of fig (*Ficus carica* L) viz., Black Fig, Brown Turkey, Conadria, Deanna, Golden Celeste, King, Panachee and Texas were budded (inverted 'T' method) on seedlings of Brown Turkey in last week of August. Maximum budding success was recorded in variety King and Brown Turkey and the least success was obtained in Black Fig. There was no significant difference between the varieties for number of days taken from budding to sprouting. Besides, no incompatibility was recorded in any variety even one year after budding operation. The union became smoother with time. As fig culture in Punjab is new, this technique will help in the quick spread of newly introduced varieties.

Keywords : *Ficus carica, budding, varieties, propagation.*

Fig is a subtropical plant belonging to *Ficus* genus of Moraceae family. Fig fruits, which have considerably high level of nutritional value can be consumed as fresh and dried. Due to these features, fig has been cultivated in many countries since early periods. The world fig production is estimated to be 1 million tonnes.

In India, fig is considered as a minor commercial fruit, probably because its production cannot compete with other commercial fruit crops. The main reasons for low production are the limited information on varietal introduction, characterization and non-availability of sufficient number of quality nursery plants. Fig trees are propagated by tip cuttings (Aksoy,1; Lionakis,10; Mansour,11; Kai *et al*.,8; Pereira and Nachtigal,12). Tip cuttings, which are prepared to15-25cm length, are planted in production beds prepared in the field and allowed to root (Eroglu,5). Fig cuttings are easily rooted but sudden changes in air temperature and moisture condition of soil affect rooting and development of shoots. Moreover, propagation in the field, soil based bacterial and fungal diseases affect production cost and amount (Anon, 2; Kabasakal,7).For these reasons, nursery plant efficiency of production in field is about 50-60% (Cobanoglu *et al.,* 3). Fig plants are also propagated by rooting of cuttings in rooting unit with bottom heating and misting (Yildiz,13; Dolgun *et al.,*4). But, the most significant factor restricting nursery plant production in both is the shortage of wood in making sufficiently long cuttings. Therefore, desired success and sustainability cannot be provided due to above mentioned negative factors in fig nursery plants. Moreover, 5-10cm long shoots are formed in abundance, but these cannot be used in nursery plant production in field due to their weak growing or drying in a short time.

At Punjab Agricultural University, Ludhiana new varieties of fig have been introduced. Some of which are very promising for productivity and fruit quality. Fig is usually propagated on their as own-rooted cuttings, however with the release of fig as new crop in Punjab, large number of plants are required, the demand of which may be difficult to meet through conventional methods. Besides, some of the new good genotypes make poor growth on their own-roots under Punjab conditions. So the production of fig plants more quickly and cheaply would be of considerable commercial value.This experiment was planned with objective of evaluating eight fig varieties collected from different Indian and exotic sources for their ability to be propagated by inverted 'T' budding method. The experiment was laid in the College Orchard of Punjab Agricultural University, Ludhiana (located at Latitude 30° 53' 44" N and Longitude 75° 48' 26" E). The seed of Brown Turkey were extracted, washed and sown in July 2011 in the cemented pots. Brown Turkey was used as rootstock because this variety is well adapted under local conditions and plants make vigorous growth even under adverse conditions. In the winter season pots were kept in green house to prevent frost damage to young seedlings. The seedlings were transplanted in February to nursery beds at the spacing of 30 cm x 30 cm. Inverted 'T' budding was undertaken in the last week of August 2012 at the height of 30 – 40 cm above the ground level. Fifty healthy seedlings were budded with the buds of each variety. The polyethylene tying material was removed 25 days after performing the budding operation and top of the rootstock was cut 3-5 inches above the bud union. The buds initially became swollen followed by sprouting (Fig 1).The number of sprouted buds was counted and budding success was calculated in mid-October.

Received : 10-01-2014 *Accepted : 20-02-2014*

Figure 1 : A. Newly sprouted bud of variety Conadria, B. One month old sprouted bud of variety Deanna. C. Three month old sprouted bud of variety Panachee, D. Two month old sprouted bud of variety Texas.

All the new introductions were responsive to budding operation and can be propagated successfully by this method. Maximum budding success was recorded in variety King and Brown Turkey (100% each) followed by Conadria (94%), Panachee (86%), Deanna (84%), Golden Celeste (82%), Texas (80%) and Black Fig (72%). There was no significant difference between the varieties for number of days taken from budding to sprouting. Thus budding at the end of rainy season can be used to propagate superior

varieties of fig under Punjab conditions. Besides, no incompatibility was recorded in any variety even one year after budding operation. The union became smoother with time. This technique not only save the propagules, but also preliminary observations showed budded plants to be considerably more vigorous than plants propagated by cuttings. These findings are supported by the study of Krezdorn and Glasgow (9) who budded or grafted several *F. carica* cvs. on to *F. glomerata, F. cocculifolia, F. graphalocarpa* and *F. palmata* and no incompatibility was noted with any of the rootstock species. Similarly, advantage of rootstock was obtained in fig varieties by Hosomi *et al.*(6) in Japan by grafting varieties susceptible to soil sickness on resistant rootstocks.

As fig culture in Punjab is at very nascent stage, this technique will help in the quick spread of better varieties.

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Citation : Rattanpal H.S., Singh G. and Singh G. (2014). Standardization of rapid propagation technique for fig (*Ficus carica* L.) cultivars by budding. *HortFlora Res. Spectrum,* 3(1) : 94-96.