

## Studies on the propagation of pomegranate as influenced by season and shoot portion

NAVJOT AND P.S. KAHLON

See end of article for authors' affiliations

Correspondence to :  
Navjot  
Department of Horticulture,  
Punjab Agricultural University,  
LUDHIANA (PUNJAB)  
INDIA

Accepted : July, 2006

### ABSTRACT

Studies were carried out to evaluate the influence of season and shoot portion on the sprouting percentage and growth of pomegranate cuttings. The cuttings were prepared from basal, middle and sub-apical portion of the shoot planted during July, December and January. Significantly higher sprouting percentage, plant height, shoot length and shoot number was registered in January plantings. Cuttings taken from middle portion results maximum percentage of sprouted cuttings, plant height, shoot length, shoot girth and shoot number. However, plant girth was significantly higher in basal type of cuttings. Middle stem cuttings planted during January proved to be the most effective in promoting sprouting and growth of the cuttings.

**Key word :** Pomegranate, Propagation, Cuttings, Seasons, Sprouting.

The Pomegranate is one of the important fruit crop gaining popularity in arid and semi arid regions of India. Propagation by stem cutting is of paramount importance because it is cheapest, rapid and simple than any other propagation methods. Propagation of pomegranate by hardwood cuttings has been attempted by various workers under different agro climatic conditions and times with varying degree of success (Kumar *et al.*, 1995). Keeping in view the importance of this fruit crop, the present studies were undertaken to evaluate the effect of season of planting on sprouting and growth of cuttings taken from sub-apical, middle and basal portion of the shoot.

### MATERIALS AND METHODS

Uniform size cuttings of about 20 cm in length having 3-4 buds were prepared from the basal, middle and sub-apical portion of the shoot from the pomegranate trees of cv. Kandhari growing at New Orchard, Department of Horticulture, PAU, Ludhiana. In the trial, three types of cuttings (basal, middle and sub-apical) were taken in three seasons i.e. July, December and January and planted on 15 July, 15 December and 15 January, respectively. Fifteen cuttings were used for each treatment and replicated thrice in randomized Block design (Factorial). The data on per cent sprouted cuttings were taken after 45 days and on shoot characters after four months from planting.

### RESULTS AND DISCUSSION

The season of planting influenced sprouting of the cuttings significantly. The maximum (90.12%) sprouting

was observed in January and the minimum (79.83%) in July plantings (Table 1). This may pertain to the higher accumulation of carbohydrates in January plantings as it succeeded dormant season and soon followed by a congenial climatic conditions for sprouting of the buds. The continuous growth of shoot preceeded July plantings, which depleted the shoot reserve thereby leading to low percentage of sprouting of buds. Furthermore, too high temperature following July planting might have adversely affected the sprouting of the buds also. Sprouting percentage was maximum (88.68%) in the middle and the minimum (82.04%) in sub-apical type of cuttings. This may pertain to the fact that the cuttings from the middle portion has higher levels of carbohydrates than the sub-apical cuttings. Although the basal cuttings may contain higher amounts of carbohydrates than the middle cuttings but the sprouting was less in basal portion because of over maturity of the wood. However, contrary to the present results Purohit and Shekharappa (1985) in pomegranate reported that basal cuttings sprouted better than the cuttings taken from any other portion of the shoot. These variations may occur due to species or locality differences.

In January plantings, plant height (42.61cm) was significantly higher as compared to other seasons of planting. This may be due to the fact that the plants are in better physiological conditions in January. Similar results were reported by Howard and Nahlawi (1969) in plum. In the present study July plantings showed poor performance which corroborate the findings of Chauhan and Maheshwari (1970) in peach. The maximum plant height was registered in the middle stem cutting followed by basal and sub-apical stem cuttings. However, the