

Effect of age of tissue culture plantlets on yield and quality of banana (*Musa paradisiaca* L.) cv. GRAND NAIN

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Accepted : November, 2006

ABSTRACT

Studies were conducted to find out the effect of age of tissue culture plantlets on yield and quality of banana cv. Grand Nain. Different ages of tissue culture banana plantlets as 1 month old, 2 months old, 3 months old, 4 months old and 5 months old were selected. Age of banana tissue culture plantlets strongly influenced on yield and quality. Treatment T₃ (3 months age plantlets) were superior not only in yield characters like length of bunch but also quality characters like length of finger, girth of finger than other treatments.

Key words : Banana, Age of tissue culture plantlets, Yield and quality.

Banana is one of the important fruit crops grown in India. Traditionally banana is propagated by suckers and rhizomes. Recently micro-propagation of banana through the tissue culture has acquired the commercial significance. It is often aimed that tissue culture technique is proving to be alternative to suckers as its advantages being disease free, uniform growth, flowering and harvesting with uniform bunches in weight and shape. However, recently several complains were being received from banana growers of region regarding uneven growth, yield and quality of banana fruits. There was a very few work had been until on this aspect. Jambhale and Patil (2001) found the maximum fruit yield (19.96kg) in three to four months hardened tissue culture plantlets as compared to two to three months hardened tissue culture plantlets.

Birhade *et al.* (1997) recorded the maximum number of hands per bunch (8.70) in four months tissue culture plantlets than two months tissue culture plantlets (6.95). Ingle (2000) recorded the maximum number of fingers per bunch (110.56) in suckers having age four months old. Variation in the yield and quality of tissue culture banana might be due to the age of the plantlets and it was proven by the studies carried on this upto now, but there is need to optimize the age of tissue culture plantlets for obtaining less variation in yield and quality. Therefore, the present experiment was undertaken as effect of age of tissue culture banana cv. Grand Nain on yield and quality of fruits.

MATERIALS AND METHODS

The investigations were carried out at department of Horticulture, Marathwada Agricultural University, Parbhani during the year 2003-2004. Age of banana tissue culture plantlets at the time of planting were as 1 month (T₁), 2 months (T₂), 3 months (T₃), 4 months (T₄) and 5 months (T₅). The treatments were replicated completely four times in Randomized Block Design. Weight of bunch (kg) under each treatment was recorded after harvesting. Number of hands per bunch of tissue culture plantlets was counted. Number of fingers per bunch of each plantlets was counted. The length of bunch was measured from first to last hand of bunch. Length of finger was also measured with the help of thread and then it was matched with meter scale. Girth of finger was measured at the middle portion of finger.

RESULTS AND DISCUSSION

The data regarding effect of age of tissue culture banana plantlets on yield and quality parameters of banana are presented in Table 1.

Yield parameters

In the present study, it was found that, weight of bunch was influenced by different age of tissue culture plantlets. Significantly maximum weight of bunch (22.07kg) was recorded in the plantlets having age of 3 months followed by 4 months, 5 months, 2 months i.e. 21.25, 20.90 and 19.70 kg, respectively, whereas, minimum weight of bunch (19.15kg) was noticed in plantlets having age of one months. Reduction in weight of bunch in over aged tissue culture plantlets (4 to 5 months) may be due to delayed establishment of these