

Research Paper :

Study of propagation methods and spacings on quality parameters and yield of banana var. Basrai

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ABSTRACT

Field experiment was conducted in 1999-2000 at CRS farm Dr. PDKV, Akola. The experiment was laid out in Factorial Randomized Block Design with four treatment replicated four times. It was observed that tissue culture developed plants had given good quality fruits, with significantly more non-reducing sugar and total sugar content as compared to sucker grown plants of banana. However, the chlorophyll, calcium and ascorbic acid content of banana fruit were not significantly affected by method of propagation. Similarly, spacing had no significant effect on quality of fruits.

Key words : Tissue culture, Banana, Chlorophyll, Reducing sugar, Non reducing sugar, Total sugar.

One of the common methods for propagation of banana is by the suckers. Diseases like bunchy top, sigatoka, reduce yield of banana and commonly affect the crops grown through suckers. To overcome such problems and to evolve the improved quality plants the production of banana plantlets through micropropagation by using tissue culture technique will be useful. Mass propagation of elite material will lead to genetic upgradation and resulting in increased production.

Recently farmers have started use of tissue culture plantlets of banana. Jacob (1997) and Dahale (1998) studied quality parameters of banana fruits from tissue culture developed and normal plants of banana. But there is paucity of information regarding yield and quality parameters in normal and tissue culture plants of banana. With above relevant information the present investigation was undertaken.

MATERIALS AND METHODS

A field experiment was conducted at CRS farm Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during *Kharif* season 1999. The properties of soil of experimental plot was clayey soil with 7.95 pH and 0.231 EC, CaCO₃ 5.7%, available N- 258.24, P- 15.38 and K- 344.53 Kg/ha. Size of experimental plot was 10 R with four treatment and four replications. Two propagation methods were used, one was sucker (P1) and another was tissue culture (P2) with two spacing 1.5 x 1.5 m (S1) and 1.5 x 0.9 x 2.1 m (S2). The fertilizers were applied @ 100:40:100 gm of NPK/plant. Entire dose of P and K was applied as basal

dose while N were applied in three split doses. The plant samples of fruits were collected at time of harvesting and analyzed after ripening of fruits.

The calcium content of fruit was analyzed from acid extract after dry ashing (AOAC, 1965). Ascorbic acid was determined by 2,6 di-chlorophenol indophenol dye method (AOAC, 1965). Reducing sugar and non-reducing sugar were estimated by using benedicts reagent (Motiramani and Wankhede, 1970). The chlorophyll content in leaves was estimated at the time of flowering by acetone extract method (AOAC, 1965).

RESULTS AND DISCUSSION

The results obtained from the present investigation have been discussed below:

Chlorophyll content in leaves:

The data presented in Table 1 show that effect of propagation method on chlorophyll content in leaves of banana at flowering stage was found to be non-significant.

It is also evident from Table 1 that chlorophyll content in leaves of banana at flowering stage was not affected by spacing. The interaction effect between method of propagation and spacing on chlorophyll content in leaves of banana in flowering stage was non significant.

Calcium content in fruit pulp:

The concentration of calcium in fruit pulp was not significantly affected by the method of propagation. The effect of spacing on calcium content in fruit pulp of banana