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Effect of plant growth regulators on rooting of barbados cherry

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ABSTRACT

Barbados cherry cutting having length 20-22 cm were treated with IBA (500, 1000, 2000ppm), GA_3 (100 & 200ppm) and distilled water which served as control. The experiment was carried out in a mist chamber with sand as rooting media at Allahabad Agriculture Institute (Deemed University) to get the effect of growth regulators on the rooting and survival of cuttings. The cutting treated with various conc. of IBA and GA_3 gave significant effect on the root and shoot parameters. Maximum number of roots, length of roots, girth of roots, number of leaves per cutting, number of branches per cutting and number of leaves per branches was recorded by 2000ppm IBM and 100ppm GA_3. Among different combination 13G1 (2000, 100ppm) produced significant effects than other combinations.

Key words : Barbados cherry, IBA, GA3.

The Barbados cherry, a member of Malphighiaceae is one of the important minor fruit and is native to the lesser Antilles from St.Croin to Trinidad neighbouring North South America. The Barbadas cherry is a large bushy shrub or small tree attaining upto height of 6m and an equal breadth with more or less erect or spreading and drooping minutely hairy branches and a short trunk. Ripe Barbados cherry bruise and are highly perishable.

Barbados cherry can be propagated by air- layering, cleft or modified crown grafting but the most common method of propagation of Barbados cherry is by stem cutting. The possibility of using plant growth regulators to improve crop production has been great significance to plant scientist in the recent part particularly in horticulture crops. The plant growth regulators are being employed for improving germination, rooting, flowering, seed setting, inducing parthenocarpy and fruit thinning for which various specific in function and all classes of growth regulators is to increase the percentage of rooting, to increase the number and quality of roots produced per cutting and to produce uniformity of cuttings. Keeping the above facts in view, investigation entitled "Effect of plant growth regulators on rooting of Barbados cherry" was conducted to find efficient growth regulator in rooting of Barbados cherry, to find out the Individual and combined effect of IBA and GA3 and the suitable concentration of plant growth regulators in rooting of Barbados cherry.

MATERIALS AND METHODS

Six months old hard wood cuttings of 20 to 22cm length and 6 to 10mm thick were selected and treated with growth regulators IBA in three concentrations I_1-500ppm, I_2-1000ppm and I_3-2000ppm and GA_3 in two concentrations G_1-100ppm and G_2-200ppm and thus the possible combination treatment are as follows, T1 - I0G0 (control), T2 – I0G1, T3 – I0G2, T4 – I1G0, T5 – I1G1, T6 – I1G2, T7 – I2G0, T8 – I2G1, T9 – I2G2, T10 – I3G6, T11 – 13G4, T12 – I3G2.

The growth regulators were applied by quick dip method and for this a required amount of growth regulator was weighed and dissolved in 10ml ethyle alcohol and then the volume made up to 1 litre by adding distilled water and the cuttings dipped in it for 20 seconds. After dipping the cuttings they were removed from the solution and planted in a mist chamber at an angle of 45° and 2cm deep in a rooting media sand. After every 15 days the cuttings were examined for rooting and the following observations were recorded, average number of roots per cutting, average number of leaves per cutting, average number of longest root, average girth of thickest root, average number of branches per cutting, average number of leaves per branch, percentage of rooting per cutting and survival of rooted cuttings.

RESULTS AND DISCUSSION

The perusal of data in the Table 1 reveals that both the growth regulators IBA and GA_3 had a significant effect on all the rooting parameters over the control. Maximum number of roots per cutting (6.22), length of roots (5.98cm) and girth of roots (1.47cm) was recorded in I3 and the lowest values (1.99, 3.66cm and 0.61cm respectively) was recorded in control. However these values were at par with G_1 showing these values as 5.74, 5.66 and 1.43 respectively. It may be ascribed due to greater metabolic activity and maximum utilization of sugar