

THE EFFECT OF GROWTH REGULATORS, PHENOLIC COMPOUNDS AND TIME OF PROPAGATION ON THE ROOTING OF GUAVA STEM CUTTINGS

R. S. Al-Obeed

Plant Production Department, College of Agriculture, King Saud University, Riyadh, Saudi Arabia

Received on: 13/12/1999

Accepted on: 5/8/2000

ABSTRACT

Semi- hardwood cuttings 15-cm long of guava (*Psidium guajava* cv. *Balady*) were treated with 15 treatments including IBA at 3000 ppm and NAA at 1000 ppm both alone or in different combinations with catechol at 500 or 1000 ppm and cinnamic acid at 500 or 1000 ppm, and the control. The cuttings were collected in spring and fall during 1997 and 1998 seasons from the sub-terminal growth of the experimental trees. The cuttings were rooted in a growth chamber under 3000 lx in 16-h photoperiods at 20-25 °C and 80-85% RH. Evaluations after 6 weeks revealed that, in general, treatments with IBA, NAA, catechol or cinnamic acid when used singly promoted the adventitious root formation on the cuttings during both seasons and markedly increased the percentage of rooted cuttings as compared with those of the control. In addition, treating the cuttings with IBA or NAA in combinations with catechol or cinnamic acid at the highest concentrations, significantly, increased the percentage of rooted cuttings over the most of the other treatments including the control. The maximum rooting percentage (62.9%) was obtained in guava cuttings treated with IBA+ catechol at 1000 ppm, followed by cuttings treated with NAA+ catechol at 1000 ppm (59.6%) and the lowest rooting percentage (19.8%) was in the untreated cuttings. In addition, the percentage of rooted cuttings propagated in spring of the first season was significantly higher than cuttings collected in fall. In general, cuttings treated with IBA in combination with catechol at 500 and 1000 ppm gave the highest number of roots (31.1 and 28.8 roots per cutting, respectively) while the control produced 9.1 roots per cutting. Moreover, cuttings collected in spring of both seasons produced significantly higher number of roots than cuttings collected in fall. Generally, cuttings treated with IBA+ catechol at 1000 ppm and NAA+ cinnamic acid at 1000 ppm gave the longest roots (16.2 and 16.1 cm, respectively) whereas the control produced 8.3 cm average root length per cutting. In addition, cuttings collected in spring of the first season produced significantly longer roots than cuttings propagated in fall. Also, cuttings treated with IBA in combination with catechol or cinnamic acid at 1000 ppm produced thicker roots (1.367 and 1.233 mm, respectively) than those of the most treatments including the control cuttings that gave 0.758- mm root diameter.