

EFFECT OF SEED IRRADIATION WITH GAMMA RAYS AND FOLIAR SPRAY WITH GA3 ON GROWTH AND YIELD OF CARROT PLANTS (Daucus carota L.)

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ABSTRACT

Carrot seeds of cv. Chantenay were subjected to 2, 4 and 8 Krad of gamma irradiation. Plants grown from irradiated seeds were sprayed with GA3 at concentrations 50 and 100 ppm after 45, 60 and 75 days from planting. Low dose of gamma rays (2 Krad) resulted in improving seed germination percent and rate. However, higher doses of gamma rays (4 and 8 Krad) decreased the percentage and rate of seed germination. The highest values of vegetative growth measurements expressed as foliage length and weight, and plant weight were associated with the gamma rays dose 2 and 4 Krad, and GA3 concentration 100 ppm. Seed irradiation (without foliar spray with GA3) was found to have a stimulate effect on root weight and length but had an inhibiting effect on root carotene content. The deleterious effect of seed irradiation with relatively high dose of gamma irradiation (4 and 8 Krad) on root carotene content was reversed by foliar spray with GA3 at concentration 50 or 100 ppm. Spraying with GA3 resulted in increasing root length, and decreasing root and core diameter, and root sugar content. Seed irradiation with 2 and 4 Krad resulted in increasing root sugar content.