Title The Study on Effects of Some Growth Regulators on Vegetative Function and Production in Parthenocarpic Cucumber (*Cucumis sativa* L.) in Greenhouse

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Abstract

Recently green house production of cucumber (*Cucumis sativa* L.) has been increased enormously in I.R.Iran and other parts of the world. This study was conducted to investigate the effects of two exogenous growth regulators, IAA and GA3, on production, vegetation, and infrastructure of parthenocarp cucumber (*Cucumis sativa*), Holland Royal Star cultivar, in greenhouse conditions, Two concentrations of 100 and 500 ppm of IAA and GA3, alone or in combination, was sprayed every week on the plants from when they have 4 leaves and followed for 24 weeks. Experiments carried out in a 4 complete randomized blocks, each comprising 9 parts: 8 treatments and one for control. Each part included 8 plants in 2 square meters. Vegetative and reproductive factors such height, number of leaves, male and female flowers, and number of fruits was measured every week and the data was analyzed using ANOVA. Study on infrastructure of plants was carried out using conventional methods. Results showed that the combination of 500 ppm IAA and 100 ppm GA3 ked to produce significantly more vegetation and female flowers ($p<0.01$) in which number of fruits was 2.78 times more than control. Interestingly, significantly ($p<0.011$) more male flowers appeared when the combination of 100 ppm IAA and 500 ppm GA3 used. The hormone treatments have caused different infrastructural alteration in various parts of the plants such cortical and pith parenchymas, xyem vessels, and structural tissues. The results of this study could be applied in green houses to increase production of cucumber.