



Analysis of the Effect of some Plant Growth Regulators on Carnation (*Dianthus caryophyllus*) Callusing

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Abstract

Today, ornamental plants are known as a profitable industry; as a result, research on ornamental plants to achieve optimal varieties is economically necessary. Carnation (*Dianthus caryophyllus*) is one of the most important cut flowers. Due to the limitations in classical breeding methods, using of new molecular techniques to create economic characteristics is essential in Carnation. Development of tissue culture systems is required for the application of molecular techniques. The aim of this study is *in vitro* callusing of carnation and preparation of that for the important goals such as diversity creation in plants. In this study, the leaf explants of three varieties of carnation including Siciliano, Xanthe and Piaff were prepared and used for tissue culture. Sterilization was performed by sodium hypochlorite solution (2%). BA and 2,4-D treatments were used for callusing. Samples were placed in a growth chamber at 25 ± 1 ° C with 16h photoperiod under fluorescent light. The experiment was done as a factorial experiment based on randomized complete block design. According to the results, all the treatments at the concentration of 2 mg.l⁻¹ 2,4-D + 1 mg.l⁻¹ BA, 2mg.l⁻¹ 2,4-D + 0.5 mg.l⁻¹ BA and 1 mg.l⁻¹ 2,4-D +1 mg.l⁻¹ BA have had the greatest impact on the number and quality of callus in all the varieties.

Keywords: BA, Callusing, Carnation, *Dianthus caryophyllus*, 2, 4-D