University of Zabol

Graduate school

Faculty of Agriculture

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The Thesis Submitted for the Degree of Master of Science

Plant Breeding and Biotechnology

Optimization of callus formation and cell suspension of olive plant

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Winter 1399

Abstract

Cell suspension culture involves dispersed and growing cell masses in liquid culture medium and shaking and aeration. In general, the amount of cell dispersion in suspension culture is mainly affected by the concentration of growth regulators in the culture medium. In order to optimize the culture medium of cell suspension of olive plant, leaf and bud explants were prepared from newly grown branches and after washing and disinfection in solid MS medium containing BAP with concentrations (zero, 1.5 and 2 mg/l) and D - 2.2 with concentrations (zero, 5% and 1 mg/l) or a combination thereof. In order to establish the culture of cell suspension and optimize its culture medium, the grown calli were transferred from the callus formation stage to liquid MS medium with the same levels of hormones and kept on a shaker at 120 rpm at room temperature. The results of this study were analyzed by SAS 9.1 software. Using Duncan's multiple range test, the means were compared with each other and Excel software was used to draw the graphs. Mean comparisons showed that OM medium containing BAP (2 mg/L) in propagation, 1.2 MS medium with IBA 2 mg/L in rooting and OM medium containing 3 mg NAA + 1 mg KIN in the process of callus formation had the best performance compared to others.

Keywords: Micropropagation, Cell culture, Olive, Callus formation, Olive rooting