New Cultivation Technology of Plants at Hydroponic System with Applying Inductors (Phytohormones)

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Purpose: Project aim: study the effect of salicylic acid-SA (0,1 mM), indole-3-butyric acid-IBA (350mg/plant) on the yield time of Phaseolus vulgaris, determination the activity of the main antioxidant enzymes (guaiacol peroxidase (GPX), catalase (CAT), superoxide dismutase (SOD)), as well as analysis of the synthesis of proline. Procedure: The plant was grown on Steiner solution. Substrates: Perlite and cocopeat. IBA and SA were added to solution of experimental plants. The activity of enzymes was determined: spectrophotometric method (for GPX and SOD), gasometric (CAT), densitometric (proline). Results: We determined that amount of prolin under the influence of IBA was higher. Increasing of antioxidant potential of plant cells- straight proportionality between superoxide dismutase and peroxidase under influence of phytohormones (IBA) was observed. Decreasing of SOD activity under influence of 0,1 mM SA was defined. Under influence of 350mq IBA SOD activity was increased. CAT activity increased under SA, but decreased under IBA. Yields obtaining from plants elaborated with phytohormone-SA was occurred at short period compared with controls (in control-45-64; in plant with SA- 41-49 days). Conclusion: Influence of phytohormones as inductors of different reactions in plant cells demonstrate that low concentration of SA and IBA gives different results. Prolin synthesis (under influence of IBA) of plant cultivated in cocopeat was relatively intensive than cultures in perlite. Activity of CAT,SOD and GPX demonstrate dissociation of enzymes from each other. In some cases, this is critical for plants. In our cases, for both phytohormones, this was of a protective nature.

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