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Effect of Growth Regulators on Morphogenetical Potential Witania somnifera L. *in vitro*

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Aim of the study: The research aim was to study the influence of a nutrient medium hormonal composition on morphogenetic potential of Aswanaganda isolated tissues (*Withania somnifera*) *in vitro*.

Material and Methods: The research object was ashwaganda seeds and plants-regenerants. To obtain a sterile culture, seeds were sterilized with a solution of mercuric chloride at a concentration of 0.1% for 10 minutes, followed by their cultivation on the Murashige and Skoog (MS) hormone-free nutrient medium to get sterile shoots and plants. The plants obtained were subsequently grafted and grown on MS medium containing various growth regulators: cytokinins (BAP, kinetin), auxins 2.4-D, IAA) in various concentrations and combinations.

Results: As a result of many-sided experiments it was found that the most optimal nutrient medium at the stage of micropropagation is the medium containing mineral salts according to the MS recipe, as well as BAP at a concentration of 0.5 mg /l. Under these conditions the average micro-shoot height was 4.7 cm, and the multiplication factor was 13-14, which allows obtaining within 6 months of cultivation, up to 20,000 micro-plants from one primary explant. To obtain quickly a well proliferating callus tissue, it is advisable to add 2.4-D to the medium at the concentration of 2 mg /l in combination with kinetin of 0.5 mg /l. Under these conditions a loose callus tissue is formed, which can later be used to produce suspension culture in order to obtain secondary metabolism substances. To get regenerating plants from callus tissue, it is necessary to apply BAP at a concentration of 0.5 mg /l. The established optimal conditions for cultivation will make it possible to obtain regenerating plants of ashwagandha, as a medicinal plant and a source of substances with highly efficient anticancer activity.

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