Assessing the amount of biomass and alkaloids content in tissue culture of *H. arachnoideus* Pojark. under the effect of variations in NAA and carbon resources

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Abstract
Therapeutic effects of Hyoscyamus genus are attributed to its obtained different tropan alkaloids. Regarding these rare medicinal herbal species, tissue culture is of almost importance, as, it is possible to obtain optimal volumes of suitable secondary metabolite- producing-tissues with alteration in their culture media. Present study, *H.arachnoideus* Pojark, was investigated. Three types of explants (leaf, root, and hypocotyls) derived from seedlings, were cultured on Murashige and Skoog’s medium supplemented with 3% sucrose, 0.75% (w/v) agar. We investigated the effect of two types of carbon sources (sucrose and monitol) on Murashige and Skoog’s medium supplemented with 3% sucrose and 0.75% (w/v) agar in two explants types (leaf and root) of *H.arachnoideus* with four concentration levels of auxin naphthalene acetic acid(0, 0.5, 1, 2 mg/l), in compare with Murashige and Skoog’s medium supplemented with 3% sucrose, 0.75% (w/v) agar as control. In order to determine callus biomass and total alkaloid content. Our findings revealed the bilateral role of sucrose both as nutrient source and osmotic regulator factor, and also showed the positive effect of sucrose on callus biomass and total alkaloid content.

Keywords: Callogenesis, Carbone Source, Growth regulator, *Hyoscyamus*, Total alkaloid