# Optimized Nutrient Medium for Galanthamine Production in *Leucojum aestivum* L. *in vitro* Shoot System

Vasil Georgiev[a], Strahil Berkov[b], Milen Georgiev[a], Monique Burrus[c], Carles Codina[b], Jaume Bastida[b], Mladenka Ilieva[a], and Atanas Pavlov[a,*]

[a] Department of Microbial Biosynthesis and Biotechnologies – Laboratory in Plovdiv, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, 26 Maritza Blvd., 4002 Plovdiv, Bulgaria. E-mail: lbpmbas@yahoo.com
[b] Department of Natural Products, Plant Biology and Edaphology, Faculty of Pharmacy, University of Barcelona, Av. Joan XIII s/n, 08028 Barcelona, Catalonia, Spain
[c] UMR 5174 Evolution et Diversité Biologique, Université P. Sabatier, 118 route de Narbonne, 31062 Toulouse cedex 9, France

* Author for correspondence and reprint requests

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The common effect of $NH_4^+$, $NO_3^-$, $KH_2PO_4$ and sucrose on the biosynthesis of galanthamine by a *Leucojum aestivum* shoot culture was studied. Polynominal regression models were elaborated for the description of the galanthamine biosynthesis as a consequence of variation of the investigated variables ($NH_4^+$ between 0.20 and 0.54 g/L; $NO_3^-$ between 1.44 and 3.44 g/L; $KH_2PO_4$ between 0.10 and 0.24 g/L, and sucrose between 30.00 and 60.00 g/L). Optimization procedures allowed us to establish the optimal concentrations of the investigated variables and to propose the modified MS nutrient medium, with 4.50 g/L $KNO_3$, 0.89 g/L $NH_4NO_3$, 1.25 g/L $(NH_4)_2SO_4$, 0.10 g/L $KH_2PO_4$ and 60 g/L sucrose, for the galanthamine production by a *Leucojum aestivum* shoot culture. The proposed modified MS medium provided considerable increase of both the production yield and the relative content of the target alkaloid in the alkaloid mixture.

*Key words:* Galanthamine, *Leucojum aestivum* Shoot Culture, Medium Optimization