Proliferation and rooting of wild cherry: The influence of cytokinin and auxin types and their concentration

Mansseri-Lamrioui, A.[a], Louerguioui, A.[a], Bonaly, J.[b], Yakoub-Bougdal, S.[c], Allili, N.[c], Gana-Kebbouche, S.[a]

[a] Department of Biology, Faculty of Science, M'Hamed Bougara University, Boumerdes, Algeria
[b] Faculty of Pharmacy, University of Paris XI, France
[c] Department of Biology, Faculty of Biological and Agronomic Sciences, Mouloud Mammeri University, Tizi-ouzou, Algeria

Determination of the most optimal type and concentration of plant growth regulators as medium constituents is one of the most important aspects of successful micro propagation, among other in vitro factors. With the aim of optimization of in vitro multiplication of wild cherry, the effect of the following cytokinins was studied: 6-benzyladenine (BAP), 2-isopentenyl adenine (2iP) and kinetin (Kin) at concentrations of 1, 2, 4 and 8 mg. l $^{-1}$. Stem segments of seedlings from juvenile and adult materials were disinfected and grown on a Quoirin and Lepoivre (1977) (QL) medium without growth regulators for 4 weeks. Each material responded differently to the tested cytokinins. The use of 6-benzyladenine resulted in the highest percentage of sprouting, the development of shoots and the ratios of multiplication for two materials of Prunus avium L. In the next experiment, seedlings from the juvenile and adult materials were grown on (MS2/5) medium in the presence of auxins indole-3-butyric acid (IBA), naphtaleneacetic acid (NAA), indole-3-acetic acid (IAA), when compared with concentrations of 0.5, 1, 2, and 4 mg. l $^{-1}$. For the type of explants and its reactivity with the type and the concentration of auxin, significant differences among explants for root induction were observed. The adult material did not develop roots in any of the auxin and concentration used. In the case of the juvenile material, the IBA was distinguished from the other auxins tested and the highest induction of roots took place in 1 mg. l $^{-1}$. The most significant induction of cal characterizes, especially, the mediums containing the NAA followed by the IAA with concentrations of 2 and 4 mg. l $^{-1}$, respectively, which block the emergence of the roots partly and decreases the rate of rooting thereafter. The highest average number of roots and the highest average length of roots were obtained with the IBA with 1 mg. l $^{-1}$

Author keywords

Auxins; Cytokinins; Proliferation; Rooting; Wild cherry tree

Indexed keywords

EMTREE drug terms: 2 isopentenyl adenine; 6 n benzyladenine; adenine derivative; arylacetic acid derivative; auxin; cytokinin; indoleacetic acid; indolebutyric acid; kinetin; unclassified drug

EMTREE medical terms: article; cherry; concentration (parameters); controlled study; in vitro propagation; nonhuman; plant breeding; Prunus; prunus avium; root development; root length; rooting; sprouting

Species Index: Prunus avium