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TISSUE CULTURE AND AGAMIC PROPAGATION OF WINTER-FROST TOLERANT 'LONGICAULIS' ARUNDO DONAX L.

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Abstract

The primary objectives of this study were to identify the ecotypes of the 'longicaulis' giant reed (*Arundo donax* L.) that are winter-frost and cold tolerant in temperate climates on marginal lands and to perform biotechnological research on these ecotypes. We searched for large 'longicaulis' giant reed ecotypes, which wintered successfully in spite of the 2012/2013 winter frosts and sprouted from stem nodes in the spring of 2013 in three locations of the Balaton basin. Starting *in vitro* culture from the buds of the secondary shoot of the full-grown plant on Murashige and Skoog (1962) medium supplemented with 0.3 mg L⁻¹ 6-benzyl-aminopurine (BAP) and 0.05 mg L⁻¹ 1-naphthalene-acetic acid (NAA) was the most satisfactory during October. Our experiments indicated that *in vitro* propagation by stem cuttings can be successfully performed from *in vitro* shoots (node number increased with 0.2% NaCl treatment) on Murashige and Skoog (1962) medium containing kinetin (3 mg L⁻¹) and indole-3-acetic acid (3 mg L⁻¹). By combining our micro- and macropropagation methods based on propagation by stem cuttings, 400 to 450 plants can be produced from one *in vitro* shoot during 11 to 12 months of growth.

Key words: giant reed, longicaulis ecotype, macropropagation, micropropagation, winter-frost tolerance

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