In vitro shoot proliferation and enhancement of rooting for the large-scale propagation of yellow bamboo (*Bambusa vulgaris* 'Striata')

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Abstract

Continuous and rapidly proliferating axillary shoots were raised from axillary buds in secondary branches of adult field culms and nursery grown 1-year-old tissue culture-raised plants of *Bambusa vulgaris* 'Striata'. Shoots continuously proliferated in a MS medium containing 4 mg L^{-1} 6-benzyladenine (BA). The effects of indole butyric acid (IBA) levels, a pretreatment with thidiazuron (TDZ) (1-phenyl-1-([1,2,3-thidiazol-5-yl])urea) and illumination on rooting, were investigated after 6 months of shoot proliferation. A rooting medium with IBA at 3 mg L^{-1} was optimum for root induction. Shoots of adult field culms that were proliferated in the presence of BA when induced to root in this medium resulted in 40% rooting in 27 days. In vitro shoots raised from 1-year-old tissue cultured plants showed 92% rooting under the same conditions. Rooting was enhanced when the relatively difficult-to-root in vitro shoots from adult field culms were pretreated with 0.5 mg L^{-1} TDZ for two to three subcultures before placing in the root induction medium. Continuously illuminated shoots pretreated with TDZ for three subcultures showed 100% rooting compared to 83% rooting of shoots that were exposed to a 12 h photoperiod. These findings have been applied in the large-scale propagation of this species.

Keywords: Axillary shoot proliferation; In vitro rooting; Yellow bamboo; *Bambusa vulgaris* 'Striata'; Thidiazuron; Light