

Callus induction and plant regeneration from the immature inflorescences of digitgrass Survenola (*Digitaria × umfolozi* Hall)⁽¹⁾

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Received: May 2, 2022; Accepted: Nov. 9, 2022

Abstract

Survenola (*Digitaria × umfolozi* Hall) is a hexaploid interspecific hybrid grass species with $6x = 54$ chromosomes. Mainly vegetative propagated by stolons, Survenola is one of the varieties released from Florida's tropical grass breeding program. In this study, a tissue cultured method for callus induction and plant regeneration from the immature inflorescences of Survenola was established for variety preservation and mass production. In order to investigate the effects of 2,4-D and BA on the induction rate of Survenola callus and the rate of plant regeneration, the immature inflorescences of Survenola were properly sterilized and cultured with MS (Murashige and Skoog) medium and combined with different concentrations of plant growth regulators 1.0, 2.0 mg L⁻¹ 2,4-D (2,4-dichlorophenoxyacetic acid) and 0.0, 0.1, 0.5, 1.0, 2.0, 4.0 mg L⁻¹ BA (N6-benzyladenine). The experimental results showed that the main effect of medium supplementation with 2,4-D and BA on the induction rate of callus of immature inflorescences was significant, but the effect of interaction was not significant. In particular, the average figure of the main effect for 2.0 mg L⁻¹ 2,4-D callus induction rate was 93.1%, which was significantly higher than 88.1% with 1.0 mg L⁻¹ 2,4-D. The effects of 2,4-D and BA showed no significant effect on plant regeneration from the results of the callus induced by 2,4-D and BA were cultured on medium with 0.5 mg L⁻¹ NAA (α -naphthaleneacetic acid) and 0.1 mg L⁻¹ TDZ (N-phenyl-N'-1,2,3- thiadiazol-5-yl urea). There were 60% of callus induced with 2 mg L⁻¹ 2,4-D and 1.0 mg L⁻¹ BA that could be regenerated into plantlet, which was significantly higher than the combination of other treatments. The tissue culture process established according to this experiment will help the mass propagation of Survenola seedlings and the research on the improvement of forage varieties using biotechnology in the future.

Key words: Digitgrass, Callus, Plant regeneration.

(1) Contribution No. 2723 from Livestock Research Institute, Council of Agriculture, Executive Yuan.

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