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High Frequency Shoot Induction and Plantlet Formation from Several Grapevine Cultivars

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Objectives

We examined the effects of plant growth regulators (BA, IBA) and kinds of media (MS, modified MS, Nitsch) to induce shoots with high frequency for the mass-propagation of several grapevines.

Materials and Methods

1. Material

Several grapevine cultivars ('3306', '3309', '1202', 'Schuyler' and 'Buffalo') were obtained from the Agricultural Technology & Research Center, Cheonan-si, Chungnam.

2. Methods:

Vine cutting with an axillary buds were cultured by removing leaves in various medium (MS, modified MS or Nitsch) with plant growth regulators (BA or IBA; 0.01, 0.1, 1 and 5 mg/L) and media (MS, modified MS, Nitsch).

Results and Discussion

We observed shoot formation from the explants of vine cutting with axillary buds by various treatments. Explants were cultured on MS or Nitsch medium supplemented with various BA or IBA concentrations (0.01, 0.1, 1 and 5 mg/L). Among them, high concentrations of BA such as 1 or 5 mg/L showed the highest frequency of multiple-shoot induction on Nitsch medium in cultivars '3306', '3309' and 'buffalo'. In case of MS medium, the addition of 1 mg/L BA showed high multiple shoot induction in all five cultivars. In modified MS medium, 0.01 or 0.1mg/L BA treatment showed plantlet formation in '3306' and '3309'. Also, treatment of low IBA concentrations (0.01 or 0.1mg/L) in Nitsch medium showed only single shoot induction except 1mg/L IBA on '3309' which concentration showed callus induction. Also, in multiple shoot induction, the highest number of adventitious shoot was about 4.6. As a result, in '3306' and '3309', multiple-shoots induction ratio was higher on MS than Nitsch medium. But, in 'Buffalo', Nitsch medium was more effective than MS medium for adventitious shoots induction.