The effect of using PPM (plant preservative mixture) on the development of cauliflower microshoots and the quality of artificial seed produced

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a b s t r a c t

The effects of using PPM (plant preservative mixture) (Apollo Scientific Limited, UK) on the growth of cauliflower microshoots were determined. A negative correlation was found between the concentration of PPM in the liquid medium and the number of microshoots developed: the greater the concentration, the lower microshoot number. The stage of the culture process most suitable for the introduction of PPM was also investigated. While the use of PPM with blending medium (S23: 4.4 g L−1 MS + 30 g L−1 sucrose) did not control the later contamination in the culture medium, the use of 0.5 mL L−1 of PPM with culture medium (S23 supplemented with 2 mg L−1 (9.29 _M) of kinetin + 1 mg L−1 (4.9 _M) of IBA (indole butyric acid)) was found to be effective in controlling contamination and keeping the growth capacity of microshoots. Cauliflower microshoots were encapsulated in sodium alginate as artificial seeds. Artificial seeds conversion rate and viability assessed as fresh weights of plantlets produced were evaluated in different culture substrates (compost, perlite, sand and vermiculite). The effects of PPM concentrations used with S23 irrigation solutions were also evaluated. This study showed the effectiveness of using PPM in controlling the contamination and the necessity for determination the correct concentration and the correct stage for the use of this material in order to obtain optimum results.

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