Development of a Multiplication Technique for Virus-Free Garlic Planting Materials

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Abstract

Garlic is vegetatively propagated by cloves; hence, it is exposed to virus infection and pests resulting to the accumulation of diseases in the planting materials through time. To address this problem, *in vitro* rapid multiplication techniques for shoot induction and bulblet formation were done at the Tissue Culture Laboratory. Specifically, this experimental study determined the effect of growth regulators on shoot induction on Ilocos white garlic variety; assessed the performance of Tan Bolters and Mindoro garlic using different culture media for *in vitro* bulblet formation; and evaluate the sucrose level that could enhance *in vitro* bulbing using Murashige and Skoog (MS) as base medium.

The protocol for a rapid multiplication technique was successfully developed both for *in vitro* and field conditions. For the *in vitro* techniques, procedures were done to induce shoots that form bulblets and to optimize bulblet formation. Garlic can be rapidly produced using the appropriate medium for shoot induction, which was MS + 0.3 mg/L IAA + 2 mg 2-ip + 3 % sucrose. For bulblet formation, the best bulbing media for both Tan Bolters and Mindoro I cultivars was MS + 12% sucrose. Based on the results, the bulblets produced in vitro can be multiplied in the field.

Keywords: *garlic, in vitro, tissue culture, multiplication, virus indexing, shoot induction, bulblet formation*