

Plant Growth Regulators Promotes Organogenesis in the Diploid and Tetraploid *Codonopsis lanceolata*

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[Introduction]

Codonopsis lanceolata is a perennial creeper that is used for food or medicine. Recently, functional substances of medicinal plants have been attained increasing attention, but research on breeding and cultivation method to increase yields is still limited. Therefore, the purpose of this study was to examine the effects of plant growth regulators (PGR) on organogenesis in diploid and tetraploid *C. lanceolata* with the purpose of acquiring mass propagation of superior species of *C. lanceolata*.

[Materials and Methods]

The effects of BA, TDZ, Kinetin, and auxins; NAA, IBA and IAA were investigated separately. However, 1/2 MS culture medium supplemented with sucrose (5%) and agar (0.6%) was selected as reference culture medium for diploid *C. lanceolata*. The 1/4 MS culture medium supplemented with sucrose (5%) and agar (0.6%) was selected as reference culture medium for tetraploid *C. lanceolata* respectively. The concentrations of growth regulators were maintained at 0, 0.1, 0.5, 1, 5, 10 mg L⁻¹.

[Results and Discussions]

In the case of diploid *C. lanceolata*, shoot formation was good in medium supplemented with 0.5 mg·L⁻¹ IBA, while growth was good in no-additive medium. The adventitious roots showed the highest growth rate (8.7 per explant) in the medium supplemented with 10 mg·L⁻¹ IBA. The formation of shoots in the tetraploid *C. lanceolata* was higher in the medium without addition than in the supplement, but growth was best at IBA 0.1 mg·L⁻¹. The formation of shoots of tetraploid *C. lanceolata* was good in control and the growth was good in 0.5 mg·L⁻¹ IAA. The formation of adventitious roots tended to be promoted by addition of IAA, especially IAA 0.1 mg·L⁻¹ and the growth was dominant in 5 mg·L⁻¹ medium. NAA also showed good results when cultured nodes than leaf explant of diploid *C. lanceolata*. BA showed the best formation of shoots in the medium containing 0.5 mg·L⁻¹. In the case of nodes, the number of shoots was increased as the concentration of BA increased, and the highest number of shoots was formed at 1.0 mg·L⁻¹, while that of 0.1 mg·L⁻¹ showed the best growth in the medium. Kinetin showed good diploid *C. lanceolata* shoot formation in the medium supplemented with 5.0 mg·L⁻¹. In the case of TDZ, the higher the concentration, the better the formation of diploid *C. lanceolata* shoots 1.0 mg·L⁻¹ showed the best growth rate of 3.3 plant, and the shoot information of tetraploid *C. lanceolata* was higher at 0.5 mg·L⁻¹ concentration.

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