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Effect of Growth Regulators on Organogenesis in Diploid and Tetraploid *Codonopsis lanceolata* In Vitro Culture

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[Abstract]

This study aimed to investigate the effect of growth regulators on the formation of the organ in the in vitro propagation of diploid and tetraploid *Codonopsis lanceolata*, and gain the basic data for in vitro propagation of superior *C. lanceolata*. In the case of diploid *C. lanceolata*, the highest shoot formation (3.0) was observed at 0.5 mg·L⁻¹ addition medium with low IBA concentration. The shoot formation of tetraploid *C. lanceolata* was suppressed by addition of IBA. In the addition of IAA, the shoot formation of diploid *C. lanceolata* was slightly higher at 1.0 mg·L⁻¹ addition medium than that of control group, whereas tetraploid *C. lanceolata* showed the highest number (5.4) from control group. In the case of NAA, the shoot formation of diploid and tetra *C. lanceolata* tended to decrease at higher concentration. In terms of BA addition, the shoot formation of diploid *C. lanceolata* was increased by the addition of BA, whereas while the growth of shoot was decreased by the addition of BA. In the case of tetraploid *C. lanceolata*, shoot was found to be formed by the addition of low concentration of BA, and the growth of shoot was inhibited with the higher addition concentration of BA. With the addition of kinetin, the shoot formation of diploid *C. lanceolata* was slightly higher than that of control group, and the formation of adventitious root was highest (5.3) in the control group. In the case of tetraploid *C. lanceolata*, the shoot formation was similar in all treatment groups, but the formation and growth of adventitious root were significantly lower than that of diploid *C. lanceolata*. In the case of TDZ addition, the shoot formation of diploid *C. lanceolata* showed the pronounced results at 5.0 mg·L⁻¹ addition medium, and the growth of shoot was inhibited by the addition of TDZ. The formation of adventitious root was 5.3 and 4.9 in the control group and 0.1 mg·L⁻¹ addition medium respectively. The formation of the shoot of tetraploid *C. lanceolata* showed better results with the higher concentration of TDZ, and the growth was better with the lower concentration of TDZ. The formation and growth of adventitious root were significantly slower than that of diploid *C. lanceolata*.

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