

Factors Affecting the Production of in vitro Plants from Nodal Pieces in Chinese Yam(*Dioscorea opposita* Thunb.)

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Objectives

This study was carried out to establish the production system of healthy seedling through nodal stem segment culture of yam cultivated in Korea.

Materials and Methods

1. Materials

Nodal stem, leave, petioles, roots pieces of *Dioscorea opposita* were obtained from plantlets *in-vitro* grown.

2. Methods :

The effects of medium strength(dilutions of a Murasige and Skoog's basal medium), medium solidity and plant growth regulators(0~2 mg/L 2,4-D, NAA, BAP, Kinetin, GA₃) on organ development in nodal stem segment cultures were evaluated.

Results and Discussion

Different types of explant(leaf segment, petioles, roots and internodal stem pieces) excised from in- vitro growing seedlings of *Dioscorea opposita* cv. Danma, were cultured on MS medium supplemented with various growth regulators. All of the growth regulators induced plantlet regeneration from internodal stem segments at high frequency with no shooting or callusing from leaf, petiol and root tissues. The medium containing NAA(0.01-1mg/L), BAP(0.5mg/L), Kinetin(0.5mg/L), BAP 0.5+Kinetin 0.5mg/L or without plant growth regulators was suitable for uniform plantlet production on nodal segment culture. Addition of GA₃ to the culture medium depressed shoot induction and growth while increased micro-tuber formation. The shoot growth and micro-tuber formation was also affected medium strength and solidity. The solidified medium inhibited shoot growing. Using the half strength medium, micro-tuber formation was also inhibited on a medium having high concentration of gelrite. MS basal medium containing 1g/L gelrite was suitable for micro-tuber production from nodal segment of Chinese yam cultivated in Korea.