03-2-35

Shoot Formation from Several Grape Cultivars by Shoot-Tip Culture

Hye-Jeong Park, Hyeon-Cheol Cha*

Department of Biology, Dankook University, Cheonan 330-714, Korea

Objectives

Most grape cultivars are centuries old and are more often the products of clonal selection than of breeding. Among the rest, shoot-tip culture is used for rapid micropropagation, for overcoming some of the disadvantages of conventional propagation methods, and producing virus-free plants. And growth patterns in the shoot-tip explants greatly depend on the levels of essential nutrients and phytohormones in the culture media. This activity is modified by internal factors, e.g., the physiological age and the nutrient condition of the mother plants.

We report the effect of varying levels of growth regulators on shoot-tip culture in a wide range of grape cultivars. First of all, we examined the relation of multiple-shoot induction and media composition on shoot induction with several grape cultivars.

Materials and Methods

Shoot-tips of grape cultivars were collected at Cheonan. The shoot-tips were washed thoroughly under running tap water. Following of a 10-sec incubation in 70% ethanol, shoot-tips were surface-sterilized with an aqueous solution of sodium hypochlorites (approx. 2% active chlorine) for 15 min and rinsed five times in sterile distilled water.

We investigated on single and multiple shoots induction from shoot-tips cultures in several cultivars on Nitsch media including BA. Thereafter, we focused on multiple-shoot induction by BA strength from several cultivars. The cultures were kept for 4 weeks at 25°C±1°C and under a 16h/8h photoperiod.

Results and Discussion

We examined the relation of BA and multiple-shoot induction in shoot-tip explants of several grape cultivars.

Fig. . Single-shoot growth

In ' Honey Seedless', '1202' and 'Buffalo' cultivars, Nitsch medium with 1 mg/L BA showed high ratio on multiple-shoot induction, but, in '110R' and '3306' cultivars, presented only single shoot growth. Interestingly, culture of shoot-tips in Nitsch media with 0.01mg/L BA resulted in intact plantlets induction from shoot-tips in all grape cultivars.

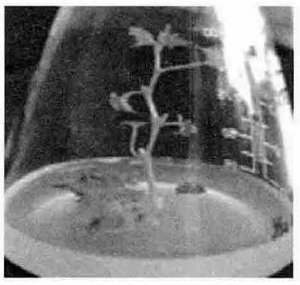

Fig. 1. Single-shoot growth

Fig. 2. Multiple-shoot

* Corresponding author : Tel +82-041-550-3444 FAX +82-041-550-3440 e-mail : hccha@dankook.ac.kr, phj216@dankook.ac.kr