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## Effect of growth regulators on shoot regeneration and root formation during *in vitro* culture of bulb segments from *Narcissus* (cv. *Dutch Master*)

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### Objectives

We have studied to evaluate the effect of growth regulators on callus formation and shoot regeneration during *in vitro* culture of bulb segments from *Narcissus* (cv. *Dutch Master*).

### Materials and Methods

#### 1. Materials

We purchased bulbs of *Narcissus* (cv. *Dutch Master*) from Netherlands company, and used the sections of bulbs such as scale, scape with basal, and scape

#### 2. Methods

The experiment was designed to get an adequate concentration of supplements in the medium. The explants were incubated in the medium, supplemented with NAA 0.5mg/L, BA 100mg/L and NAA 5.0mg/L for shoot regeneration, and thidiazuron (TDZ) 0.02mg/L for root induction.

### Results and Discussion

The study had been shown that the callus formation and shoot regeneration was observed in 50% of the bulb floral axis segments with base division. In the case of both floral axis and scale of bulb tissue, the level of shoot regeneration was hardly observed. Shoot induction of floral axis with base division was effectively achieved on MS medium, supplemented with NAA 0.5 mg/L and BA 1.0 mg/L, the same concentration as the growth regulators of callus formation. The formation of all shoots was taken for 140 days. On the TDZ medium, roots were induced on NAA 5.0 mg/L and TDZ 0.02 mg/L. The bulb floral axis segments with base division formed both shoots and callus remarkably.