

## The establishment of effective regeneration system and *in vitro* culture of *Campanula*

Zeinab Ghayour karimani and Margaret Serk  
zghayoor@gmail.com

### Abstract

Several species of *Campanula* genus have been cultivated as ornamental plants, and there is an increasing demand for more attractive and novel characteristics. Optimal regeneration protocol is prerequisite for subsequent successful genetic manipulation and generation of new features. In current study the optimal media composition and explant source for shoot regeneration of three *Campanula* cultivars, *C. portenschlagiana* cvs. Blue Ocean (BO) and Royal; *C. carpatica* cv. Improved Blue Uniform (IBU) were determined. The focus of this study was based on avoiding over-supplementation of plant growth regulators (PGRs) especially cytokinins (TDZ). The explant which were examined for shoot regeneration were petioles harvested from two different explant sources; 1) Petioles harvested of three months old tissue-cultured plants, 2) Petioles harvested of etiolated nodal cuts. Furthermore various media compositions have been tested to find out the best composition for shoot regeneration of three cultivars and different NAA (0.5, 1.0 and 2.0 mg L<sup>-1</sup>) and TDZ (1.0, 2.0, 3.0 and 5.0 mg L<sup>-1</sup>) concentrations were investigated. According to the results, the most favorable explant source for harvesting petioles were nodal cuts of mature greenhouse plants. The best shoot regeneration obtained from the harvested petioles of nodal cuts in the three cultivars were, 85% IBU, 65% BO and 45.8% Royal.

**Keywords:** shoot regeneration, explant source, TDZ concentration