



## Investigation of the effects of plant growth regulators on the ability to induce callus from the anther of chili plants (*Capsicum annuum* L.)

Dat Quoc Ngo, and Phuong Dong Tran Nguyen\*

Faculty of Biotechnology, Ho Chi Minh City Open University, HCMC, Vietnam

\*Corresponding: Email: [phuong.ndt@ou.edu.vn](mailto:phuong.ndt@ou.edu.vn)

### Abstract

*Capsicum annuum* L. belongs to the genus *Capsicum* family Solanaceae and is a popular spice plant in Vietnam with characteristics of aroma and spicy taste. As a crop that brings high economic value to agriculture in Vietnam, the breeding of new varieties from local chili is still limited due to the lack of research on cold pre-treatment methods on anthers and optimal culture medium to create embryos. The study was conducted to investigate the optimal cold pre-treatment on anthers and culture medium for inducing embryos. Flower buds were randomly collected, then cold pre-treated at separate times (3–7 days) at 6°C. After the temperature treatment, anthers were cultured on basic Murashige and Skoog medium (MS) supplemented with different plant growth regulators that were used for the callus induction. Finally, the callus was subcultured on ½ MS supplemented with 6-benzyladenine (BA, 0.2–1.0 mg/L). The results showed that pre-treated anthers at a temperature of 6°C for 3 days had the highest survival rate. Additionally, it was observed that MS with 1-naphthaleneacetic acid (NAA), Silver Nitrate (AgNO<sub>3</sub>) and Activated Carbon gave the best inducing results. ½ MS with 1 mg/L BA was the best medium for embryo induction from the callus. In conclusion, we successfully identified the optimal culture medium for inducing embryos.

**Keywords:** *Anthers, callus induction, Capsicum annuum* L., cold pre-treatment, inducing embryos