

## SOMATIC EMBRYOGENESIS IN *HOSTA MINOR* (BAKER) NAKAI

Doo Hwan Kim and Iyyakkannu Sivanesan\*

Department of Bioresources and Food Science, Institute of Natural Science and Agriculture,  
Konkuk University, 1 Hwayang-dong, Gwangjin-gu, Seoul 05029, Republic of Korea

\*Fax: + 8224503310, \*E-mail: isivanesan@yahoo.com

### REFERENCES

- ALI A., MUJIB A., ZAFAR N., TONK D. (2018). Somatic embryogenesis, biochemical alterations and synthetic seed development in two varieties of coriander (*Coriandrum sativum* L.). *Advances in Horticultural Science*, 32: 239-248.
- BASKARAN P., KUMARI A., NAIDOO D., VAN STADEN J. (2016) *In vitro* propagation and ultrastructural studies of somatic embryogenesis of *Ledebouria ovatifolia*. *In Vitro Cellular & Developmental Biology-Plant*, 52: 283-292.
- BASKARAN P., VAN STADEN J. (2014). Plant regeneration via somatic embryogenesis in *Drimys robusta*. *Plant Cell, Tissue and Organ Culture*, 119: 281-288.
- CHOI H., LEE S. Y., RYU S. H., YOON S. M., KIM S. Y., LEE J. S., YANG J. C. (2018). *In vitro* callus and somatic embryo induction of six *Hosta* species native to Korea. *In: Park S-J., Chung K-S., Bae C-H. (Eds). International Symposium on the Natural Products Industry and the Fall Conference of the Korean Society for Plant Resources, October 8-9, 2018, 80: 68.*
- CHURIKOVA O. A. (2008). Microclonal propagation and some regularities of morphogenesis of daylily and hosta *in vitro*. *Moscow University Biological Sciences Bulletin*, 63: 89-94.
- DASGUPTA C. N., MUKHOPADHYAY M. J., MUKHOPADHYAY S. (2007). Somatic embryogenesis in *Asparagus densiflorus* (Kunth) Jessop cv. Sprengeri. *Journal of Plant Biochemistry and Biotechnology*, 16: 145-149.
- DEVI K., SHARMA M., AHUJA P. S. (2014). Direct somatic embryogenesis with high frequency plantlet regeneration and successive cormlet production in saffron (*Crocus sativus* L.). *South African Journal of Botany*, 93: 207-216.
- GOLLAGUNTA V., ADELBERG J. W., RIECK J., RAJAPAKSE N. (2004). Sucrose concentration in liquid media affects soluble carbohydrates, biomass and storage quality of micropropagated hosta. *Plant Cell, Tissue and Organ Culture*, 77: 125-131.
- HAQUE S. M., GHOSH B. (2016). High-frequency somatic embryogenesis and artificial seeds for mass production of true-to-type plants in *Ledebouria revoluta*: an important cardioprotective plant. *Plant Cell, Tissue and Organ Culture*, 127: 71-83.
- KHILWANI B., KAUR A., RANJAN R., KUMAR A. (2016). Direct somatic embryogenesis and encapsulation of somatic embryos for in vitro conservation of *Bacopa monnieri* (L.) Wettst. *Plant Cell, Tissue and Organ Culture*, 127: 433-442.
- KIM D. H., KANG K. W., SIVANESAN I. (2019). Influence of auxins on somatic embryogenesis in *Haworthia retusa* Duval. *Biologia*, 74: 25-33.
- KUMAR V., MOYO M., VAN STADEN J. (2016). Enhancing plant regeneration of *Lachenalia viridiflora*, a critically endangered ornamental geophyte with high floricultural potential. *Scientia Horticulturae*, 211: 263-268.
- LOWE K., ROTA M. L., HOERSTER G., HASTINGS C., WANG N., CHAMBERLIN M., WU E., JONES T., GORDON-KAMM W. (2018). Rapid genotype “independent” maize transformation via direct somatic embryogenesis. *In Vitro Cellular & Developmental Biology-Plant*, 54: 240-252.
- MAHENDRAN G., NARMATHA BAI V. (2016). Direct somatic embryogenesis of *Malaxis densiflora* (A. Rich.) Kuntze. *Journal of Genetic Engineering and Biotechnology*, 14: 77-81.
- MAKI S. L., DELGADO M., ADELBERG W. (2005). Time course study of ancyimidol for micropropagation of hosta in a liquid culture system. *HortScience*, 40: 764-766.
- MAŚLANKA M., PANIS B., MALIK M. (2016). Cryopreservation of *Narcissus* L. ‘Carlton’ somatic embryos by droplet vitrification. *Propagation of Ornamental Plants*, 16: 28-35.
- MOUSAVIZADEH S. J., MASHAYEKHIA K., HASSANDOKHT M. R. (2017). Indirect somatic embryogenesis on rare octoploid *Asparagus breslerianus* plants. *Scientia Horticulturae*, 226: 184-190.
- MUJIB A., ALI M., TONK D., ZAFAR N. (2017). Nuclear 2C DNA and genome size analysis in somatic embryo regenerated gladiolus plants using flow cytometry. *Advances in Horticultural Science*, 31: 165-174.
- MURASHIGE T., SKOOG F. (1962). A revised medium for rapid growth and bio assays with tobacco tissue cultures. *Physiologia Plantarum*, 15: 473-497.
- PAEK K. Y., MA S. H. (1996). *In vitro* propagation of hosta using cultured shoot tips and somaclonal variability of regenerants. *Acta Horticulturae*, 440: 576-581.
- RAJU C. S., ASLAM A., SHAJAHAN A. (2015). High-efficiency direct somatic embryogenesis and plant regeneration from leaf base explants of turmeric (*Curcuma longa* L.). *Plant Cell, Tissue and Organ Culture*, 122: 79-87.
- SAITO H., NAKANO M. (2002). Plant regeneration from suspension cultures of *Hosta sieboldiana*. *Plant Cell, Tissue and Organ Culture*, 71: 23-28.
- SHERIF N. A., BENJAMIN J. H. F., KUMAR T. S., RAO M. V. (2018). Somatic embryogenesis, acclimatization and genetic homogeneity assessment of regenerated plantlets of *Anoectochilus elatus* Lindl., an endangered terrestrial jewel orchid. *Plant Cell, Tissue and Organ Culture*, 132: 303-316.
- SIVANESAN I., SON M. S., JANA S., JEONG B. R. (2012). Secondary somatic embryogenesis in *Crocus vernus* (L.) Hill. *Propagation of Ornamental Plants*, 12: 163-170.

- VERMA V. M. (2017). Direct somatic embryogenesis and organogenesis from axillary meristem in taro (*Colocasia esculenta* var. *esculenta*). American Journal of BioScience, 5: 114-122.
- WILLIAMS D. J., AL-JUBOORY K. H., SKIRVIN R. M. (1998). Adventitious shoot regeneration from ovaries of Hosta 'Golden Scepter'. In Vitro Cellular & Developmental Biology-Plant, 34: 289-292.
- YÜCESAN B. B., ÇİÇEK F., GÜREL E. (2014). Somatic embryogenesis and encapsulation of immature bulblets of an ornamental species, grape hyacinths (*Muscari armeniacum* Leichtlin ex Baker). Turkish Journal of Agriculture and Forestry, 38: 716-722.