

SOMATIC EMBRYOGENESIS IN RED- AND WHITE-BRACT CULTIVARS OF POINSETTIA

Marcos Castellanos, J. Brian Power, and Michael R. Davey*

Plant Sciences Division, School of Biosciences, University of Nottingham,
Sutton Bonington Campus, Loughborough LE12 5RD, UK,
*Tel: +44 (0)115 9513057, *Fax: +44 (0)115 9516334, *E-mail: mike.davey@nottingham.ac.uk

REFERENCES

- ADAS (Agricultural Development and Advisory Services) (1987). Poinsettia: a Christmas crop. Ministry of Agriculture, Fisheries and Food Publications, Alnwick, UK, Leaflet P610. 4 pp.
- Brandau K., Preil W., Lieberei R. (1997). Differences in compounds released by embryogenic and non-embryogenic suspension cultures of *Euphorbia pulcherrima*. *Biologia Plantarum*, 39: 113-124.
- Corredoira E., Ballester A., Vieitez A. M. (2003). Proliferation, maturation and germination of *Castanea sativa* Mill. somatic embryos originated from leaf explants. *Annals of Botany*, 92: 129-136.
- Gaj M. D. (2004). Factors influencing somatic embryogenesis induction and plant regeneration with particular reference to *Arabidopsis thaliana* (L.) Heynh. *Plant Growth Regulation*, 43: 27-47.
- Geier T., Beck A., Preil W. (1992). High uniformity of plants regenerated from cytogenetically variable embryogenic suspension cultures of poinsettia (*Euphorbia pulcherrima* Willd. ex Klotzsh). *Plant Cell Reports*, 11: 150-154.
- Grotkass C., Lieberei R., Preil W. (1995). Polyphenoloxidase-activity and activation in embryogenic and non-embryogenic suspension cultures of *Euphorbia pulcherrima*. *Plant Cell Reports*, 14: 428-431.
- Hartley D. E. (1992). Poinsettias. In: Larson R.A. (Ed.). *Introduction to Floriculture*. Academic Press, New York, USA: 306-331.
- Jasrai Y. T., Thaker K. N., d'Souza M. C. (2003). *In vitro* propagation of *Euphorbia pulcherrima* Willd. through somatic embryogenesis. *Plant Tissue Culture*, 13: 31-36.
- Kielly G. A., Bowley S. R. (1992). Genetic control of somatic embryogenesis in alfalfa. *Genome*, 35: 474-477.
- Laxmi D. V., Sharma H. C., Kirti P. B., Mohan M. L. (2000). Somatic embryogenesis in mango (*Mangifera indica* L.) cv. Amrapali. *Current Science*, 77: 1355-1359.
- Mondal T. K., Bhattacharya A., Sharma M., Ahuja P. S. (2001). Induction of *in vivo* somatic embryos from tea (*Camellia sinensis*) cotyledons. *Current Science*, 81: 297-300.
- Murashige T., Skoog F. (1962). A revised medium for rapid growth and bioassays with tobacco tissue cultures. *Physiologia Plantarum*, 15: 473-496.
- Nielsen M. D., Joshi P. A., Andersen A. S. (2005). *In vivo* differentiation of adventitious shoots in decapitated plants of poinsettia (*Euphorbia pulcherrima* Willd. ex Klotzsch). *Propagation of Ornamental Plants*, 5: 210-218.
- Osternack N., Saare-Surminski K., Preil W., Lieberei R. (1999). Induction of somatic embryos, adventitious shoots and roots in hypocotyl tissue of *Euphorbia pulcherrima* Willd. ex Klotzsch: Comparative studies on embryogenic and organogenic competence. *Journal of Applied Botany*, 73: 197-201.
- Park Y. S., Pond S. E., Bonga J. M. (1993). Initiation of somatic embryogenesis in white spruce (*Picea glauca*): genetic control, culture treatment effects and implications for tree breeding. *Theoretical and Applied Genetics*, 86: 427-436.
- Praveen S., Pawar V., Ahlawat Y. S. (2003). Somatic embryogenesis and plant regeneration in kinnow mandarin. *Journal of Plant Biochemistry and Biotechnology*, 12: 163-165.
- Preil W. (1994). *In vitro* culture of Poinsettia. In: Stromme E. (Ed.). *The Scientific Basis of Poinsettia Production*. Advisory Service, Agricultural University of Norway: 49-55.
- Preil W., Beck A. (1991). Somatic embryogenesis in bioreactor culture. *Acta Horticulturae*, 289: 179-192.
- Raemakers K., Jacobsen E., Visser R. (2000). The use of somatic embryogenesis for plant propagation in cassava. *Molecular Biotechnology*, 14: 215-221.
- Razdan M. K. (2003). *Introduction to Plant Tissue Culture*. Science Publishers, Inc., Enfield, USA, 375 pp.
- Saare-Surminski K., Preil W., Know P. J., Lieberei R. (2000). Arabinogalactan proteins in embryogenic and non-embryogenic callus cultures of *Euphorbia pulcherrima*. *Physiologia Plantarum*, 108: 180-187.

- Sakhanokho H. F., Zipf A., Rajasekaran K., Saha S., Sharma G. C. (2001). Induction of highly embryogenic calli and plant regeneration in upland (*Gossypium hirsutum* L.) and pima (*Gossypium barbadense* L.) cottons. *Crop Science*, 41: 1235-1240.
- Tomaz M. L., Mendes B. M. J., Mourao F., Demetrio C. G., Jansakul N., Rodríguez A. P. M. (2001). Somatic embryogenesis in *Citrus* spp: carbohydrate stimulation and histodifferentiation. *In Vitro Cellular and Development Biology – Plant*, 37: 446-452.
- USDA (United States Department of Agriculture). (2002). Holiday sales look bright for Christmas trees and poinsettias. *Agricultural Outlook Report*: 14-15.