

IN VITRO SHOOT PROLIFERATION, ROOTING, AND ACCLIMATIZATION OF FOUR DIVERSE *DIANTHUS PETRAEUS* W. ET K. GENOTYPES USING TDZ, NAA, AND IBA

**Georgios Tsoktouridis^{1*}, Katerina Grigoriadou¹, Evangelia Doua¹,
Anna Nikolaidou², Georgios Menexes³, and Eleni Maloupa¹**

¹Laboratory for the Conservation and Evaluation of Native and Floricultural Species,
Balkan Botanic Garden of Kroussia, Hellenic Agricultural Organization “Demeter”,
P. O. Box 60125, 570 01 Thermi, Thessaloniki, Greece,
*Fax: + 30 2310 478907, *E-mail: gtsok1@yahoo.co.uk

²Regional Laboratory for Agricultural Applications and Analysis of Fertilizers (P.E.G.E.A.L.) of
Central Macedonia, Ministry of Rural Development and Food, Directorate of Research, Industrial Area,
Sindos, 57400 Thessaloniki, Greece,

³Laboratory of Agronomy, School of Agriculture, Aristotle University, 541 24, Thessaloniki, Greece

REFERENCES

- BERARDI G., RONCASAGLIA R., SCARAVELLI D., DRADI G. (2006). *In vitro* propagation of *Dianthus balbisii* Ser. Subsp. *liburnicus* (Bartl.) Pign. by shoot tip culture. *Acta Horticulturae*, 725: 427-430.
- CASAS J. L., OLMOS E., PIQUERAS A. (2010). *In vitro* propagation of carnation (*Dianthus caryophyllus* L.). In: Jain S. M., Ochatt S. J. (Eds). *Protocols for In Vitro Propagation of Ornamental Plants. Methods in Molecular Biology*, 589: 109-116.
- CRISTEA V., BRUMMER A.T., JARDA L., MICLĂUŞ M. (2010). *In vitro* culture initiation and phytohormonal influence on *Dianthus henteri* – a Romanian endemic species. *Romanian Biotechnology Letters*, 15: 25-33.
- CRISTEA V., PUŞCAŞ M., MICLĂUŞ M., DELIU C. (2006). Conservative micropropagation of some endemic or rare species from the *Dianthus* genus. *Acta Horticulturae*, 725: 357-364.
- GRIGORIOU K., MALOUPA E. (2008). Micropropagation and salt tolerance of *in vitro* grown *Crithmum maritimum* L. *Plant Cell, Tissue and Organ Culture*, 94: 209-217.
- JAIN A., KANTIA A., KOTHARI S. L. (2001). *De novo* differentiation of shoot buds from leaf-callus of *Dianthus caryophyllus* L. and control of hyperhydricity. *Scientia Horticulture*, 87: 319-326.
- MALOUPA E., KRIGAS N., GRIGORIOU K., LAZARI D., TSOKTOURIDIS G. (2008). Conservation strategies for native plant species and their sustainable exploitation: Case of the Balkan botanic garden of Kroussia, N Greece, In: Teixeira da Silva J. A. (Ed.). *Floriculture and Ornamental Plant Biotechnology: Advances and Topical Issues*, vol. V (4), Global Science Books, Isleworth, UK: 37-56.
- MICLĂUŞ M., CRISTEA V., DELIU C. (2003). Micropropagation on *Dianthus petraeus* W. et K. ssp. *simonkaianus* (Péterfi) Tutin. *Contribuții Botanice*, XXXVIII: 77-84.
- MURASHIGE T., SKOOG F. (1962). A revised medium for rapid growth and bio-assay with tobacco tissue cultures. *Plant Physiology*, 15: 473-497.
- NONTASWATSRI C., FUKAI S., TOUMA T., GOI M. (2002). Comparison of adventitious shoot formation from node and leaf explants of various carnation (*Dianthus caryophyllus* L.) cultivars. *Journal of Horticultural Science and Biotechnology*, 77: 520-525.
- NONTASWATSRI C., RUAMRONGSRI S., FUKAI S. (2008). Callus induction and plant regeneration of *Dianthus chinensis* L. and *Dianthus barbatus* L. via anther culture. *Proceedings of the International Workshop of Ornamental Plants*, 788: 109-114.
- PAPAFOTIOU M., STRAGAS J. (2009). Seed germination and *in vitro* propagation of *Dianthus fruticosus* L. *Acta Horticulturae*, 813: 481-484.
- PARAMESH T. H., CHOWDHURY S. (2005). Impact of explants and gamma irradiation dosage on *in vitro* mutagenesis in carnation (*Dianthus caryophyllus* L.). *Journal of Applied Horticulture*, 7: 43-45.
- POPOVIĆ M., GRBIĆ M., MARKOVIĆ M. (2008). Propagation of *Dianthus deltoides* L. by shoot culture. *Bulletin of the Faculty of Forestry*, 97: 209-220.
- SALEHI H. (2006). Can a general shoot proliferation and rooting medium be used for a number of carnation cultivars? *African Journal of Biotechnology*, 5: 25-30.
- SRISKANDARAJAH S., PRINSEN E., MOTYKA V., DOBREV P., SEREK M. (2006). Regenerative capacity of Cacti Schlumbergera and Rhipsalidopsis in relation to endogenous phytohormones, cytokinin oxidase/dehydrogenase, and peroxidase activities. *Journal of Plant Growth Regulators*, 25: 79-88.
- STEEL R. G. D., TORRIE J. H., DICKEY D. A. (1997). *Principles and procedures of statistics: a biometrical approach*. 3rd edn. Mc Graw-Hill, New York, 666 pp.
- TOOTHAKER L. (1993). *Multiple Comparison Procedures*. Sage Publications Inc., Newbury Park, California, 104 pp.
- WALTER K. S., GILLET H. J. (1998). 1997 IUCN Red list of threatened plants. Compiled by the World Conservation Monitoring Centre. Gland, Switzerland: IUCN – The World Conservation Union: 122-124.
- WATAD A. A., AHRONI A., ZUKER A., SHEJTMAN H., NISSIM A., VAINSTEIN A. (1996). Adventitious shoot formation from carnation stem segments: a comparison of different culture procedures. *Scientia Horticulture*, 65: 313-320.
- WYSE-JACKSON P. S., SUTHERLAND L. A. (2000). *International Agenda for Botanic Gardens in Conservation*. Richmond: Botanic Gardens Conservation International, London, 58 pp.