

## MICROPROPAGATION IN STATIONARY LIQUID MEDIA

John E. Preece

National Clonal Germplasm Repository, USDA-ARS, One Shields Avenue, University of California,  
Davis, CA 95616-8607, Fax: + 1 (530)7525947, E-mail: john.preece@ars.usda.gov

### REFERENCES

- ADELBERG J. (2005). Efficiency in thin-film liquid system for *Hosta* micropropagation. In: Hvoslef-Eide A.K., Priel W. (Eds). Liquid culture systems for *in vitro* plant propagation. The Netherlands: Springer: 443-457.
- AVILA A. D. L., PEREYRA S. M., ARGÜELLO J. A. (1996). Potato micropropagation: Growth of cultivars in solid and liquid media. Potato Research, 39: 253-258.
- BERUTO M., BERUTO D., DEBERGH P. (1999a). Influence of agar on *in vitro* cultures: I. Physicochemical properties of agar and agar gelled media. In Vitro Cellular & Developmental Biology-Plant, 35: 86-93.
- BERUTO M., CURIR P., DEBERGH P. (1999b). Influence of agar on *in vitro* cultures: II. Biological performance of Ranunculus on media solidified with three different agar brands. In Vitro Cellular & Developmental Biology-Plant, 35: 94-101.
- BRANDT K. (1991) A method for estimating oxygen availability of stationary plant cell cultures in liquid media. Plant Cell, Tissue Organ Culture, 26: 195-201.
- DALAL M. A., SHARMA B. B., RAO M. S. (1992). Studies on stock plant treatment and initiation culture mode in control of oxidative browning in *in vitro* cultures of grapevine. Scientia Horticulturae, 51: 35-41.
- DAMIANO C., LA STARZA S. R., MONTICELLI S., GENTILE A., CABONI E., FRATTARELLI A. (2005.) Propagation of *Prunus* and *Malus* by temporary immersion . In: Hvoslef-Eide A. K. Priel W. (Eds). Liquid culture systems for *in vitro* plant propagation. The Netherlands: Springer: 243-251.
- DEBERGH P. (1983). Effects of agar brand and concentration on the tissue culture medium. Physiologia Plantarum, 59: 270-276.
- DEBERGH P., HARBAOUI Y., LEMEUR R. (1981). Mass propagation of globe artichoke (*Cynara scolymus*): Evaluation of different hypotheses to overcome vitrification with special reference to water potential. Physiologia Plantarum, 53: 181-187.
- ETIENNE H., BERTHOULY M. (2002). Temporary immersion systems in plant micropropagation. Plant Cell, Tissue Organ Culture, 69: 215-231.
- GHASHGHAIE J., BRECKMANN F., SAUGIER B. (1991). Effects of agar concentration on water status and growth of rose cultured *in vitro*. Physiologia Plantarum, 82: 73-78.
- GOODWIN P. B., KIM Y. C., ADISARWANTO T. (1980). Propagation of potato by shoot-tip culture. I. Shoot multiplication. Potato Research, 23: 9-18.
- HEILE-SUDHOLT C., HUETTEMAN C. A., PREECE J. E., VAN SAMBEEK J. W., GAFFNEY G. R. (1986). *In vitro* embryonic axis and seedling shoot tip culture of *Juglans nigra* L. Plant Cell, Tissue and Organ Culture, 6: 189-197.
- HSIA C-N., KORBAN S. S. (1996). Factors affecting *in vitro* establishment and shoot proliferation of *Rosa hybrid* L. and *Rosa chinensis minima*. In Vitro Cellular & Developmental Biology-Plant, 32: 217-222.
- HUANG L.-C., MURASHIGE T. (1976). Plant tissue culture media: Major constituents, their preparation and some applications. Tissue Culture Association Manual, 3: 539-548.
- KEVERS C., COUMANS M., COUMANS-GILLÈS M.-F., GASPAR TH. (1984). Physiological and biochemical events leading to vitrification of plants cultured *in vitro*. Physiologia Plantarum, 61: 69-74.
- KIM E. K., HAHN E. J., MURTHY H. N., PAK K. Y. (2003). High Frequency of shoot multiplication and bulblet formation of garlic in liquid cultures. Plant Cell, Tissue Organ Culture, 73: 231-236.
- MAENE L., DEBERGH P. (1985). Liquid medium additions to established tissue cultures to improve elongation and rooting *in vivo*. Plant Cell, Tissue Organ Culture 5:23-33.
- MARGA F., VEBRET L., MORVAN H. (1997). Agar fractions could protect apple shoots cultured in liquid media against hyperhydricity. Plant Cell, Tissue and Organ Culture, 49: 1-5.
- MILLER L. R., MURASHIGE T. (1976). Tissue culture propagation of tropical foliage plants. In Vitro, 12 :797-813.
- PREIL W. (2005). General introduction: a personal reflection on the use of liquid media for *in vitro* culture. In: Hvoslef-Eide A. K. Priel W. (Eds). Liquid culture systems for *in vitro* plant propagation. The Netherlands, Springer: 1-18.
- SAID A. G. E., MURASHIGE T. (1979). Continuous Cultures of tomato and citron roots *in vitro*. In Vitro, 15: 593-602.
- SAVANGIKAR V. A., SAVANGIKAR C., DAGA R. S., PATHAK S. (2005). Potentials for cost reduction in a new model of commercial micropropagation. In: Hvoslef-Eide A. K. Priel W. (Eds). Liquid culture systems for *in vitro* plant propagation. The Netherlands, Springer: 403-414.
- SCHOLTEN H. J., PIERIK R. L. M. (1998a). Agar as a gelling agent: chemical and physical analysis. Plant Cell Reports, 17:230-235.
- SCHOLTEN H. J., PIERIK R. L. M. (1998b). Agar as a gelling agent: differential biological effects *in vitro*. Scientia Horticulturae 77:109-116.
- VARSHNEY A., DHAWAN V., SRIVASTAVA P. S. (2000). A protocol for *in vitro* mass propagation of asiatic hybrids of lily through liquid

- stationary culture. *In Vitro Cellular & Developmental Biology-Plant* 36:383-391.
- WHITE P. R. (1934). Potentially unlimited growth of excised tomato root tips in a liquid medium. *Physiologia Plantarum*, 9: 585-600.
- ZIV M., CHEN J. (2008). The anatomy and morphology of tissue cultured plants. *In*: George E. F., Hall M. A., De Klerk G.-J. (Eds). *Plant Propagation by Tissue Culture*, 3<sup>rd</sup> Ed., Volume 1. The Background. Dordrecht, The Netherlands: Springer: 465-477.
- ZIV M., MEIR G., HALEVY A. H. (1983) Factors influencing the production of hardened glaucous carnation plantlets *in vitro*. *Plant Cell, Tissue and Organ Culture*, 2: 55-65.