

THE EFFECTS OF PLANT GROWTH REGULATORS AND INCUBATION TEMPERATURES ON GERMINATION AND BULB FORMATION OF *FRITILLARIA PERSICA* L.

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REFERENCES

- BASKIN J. M., BASKIN C. C., LI X. (2000). Taxonomy, anatomy and evolution of physical dormancy in seeds. *Plant Species Biology*, 15: 139-152.
- BASKIN C. C. BASKIN J. M. (2001). *Seeds: ecology, biogeography, and evolution of dormancy and germination*. London, Academic Press, 666 pp.
- BASKIN J. M., BASKIN C. C. (2004). A classification system for seed dormancy. *Seed Science Research*, 14: 1-16.
- BRYAN J. E. (2002). *Bulbs*. Revised Edition, Timber Press, Portland, Oregon, 525 pp.
- CARASSO V., HAY F. R., PROBERT R. J., MUCCIARELLI M. (2011). Temperature control of seed germination in *Fritillaria tubiformis* subsp. *moggridgei* (Liliaceae) a rare endemic of the South-West Alps. *Seed Science Research*, 21: 33-38.
- DE HERTOIGH A. A., LE NARD M. (1993). General Chapter on Spring Flowering Bulbs. *In: De Hertogh A., Le Nard M. (Eds). The Physiology of Flower Bulbs*. Elsevier, Amsterdam: 705-739.
- FINCH-SAVAGE W. E., LEUBNER-METZGER G. (2006). Seed dormancy and the control of germination. *New Phytologist*, 171: 501-523.
- GAO W. Y., LI Z. L., XIAO P. G. (1997). Temperature effects on seed dormancy relieving of *Fritillaria thunbergii* Miq. *Journal of Chinese Pharmaceutical Science*, 6: 160-164.
- GAO S. L., ZHU D. N., CAI Z. H., JIANG Y., XU D. R. (1999). Organ culture of a precious Chinese medicinal plant – *Fritillaria unibracteata*. *Plant Cell, Tissue and Organ Culture*, 59: 197-201.
- HILHORST H. W. M. (2011). Standardizing seed dormancy research *In: Kermod A. R. (Ed.). Seed Dormancy Methods and Protocols*. Humana Press: 43-52.
- KUKULEZANKA K., KROMOR K., CZASTKA B. (1989). Propagation of *Fritillaria meleagris* L. through tissue culture. *Acta Horticulturae*, 251: 147-153.
- MANCUSO E., BEDINI G., PERUZZI L. (2012). Morphology, germination, and storage behaviour in seeds of Tuscan populations of *Fritillaria montana* (Liliaceae), a rare perennial geophyte in Italy. *Turkish Journal of Botany*, 36: 161-166.
- MOHAMMADI-DEHCHESHMEH M., KHALIGHI A., NADERI R., EBRAHIMIE E., SARDARI M. (2007). Indirect somatic embryogenesis from petal explant of endangered wild population of *Fritillaria imperialis*. *Pakistan Journal of Biological Science*, 10: 1875-1879.
- MURASHIGE T., SKOOG F. (1962). A revised medium for rapid growth and bioassays with tobacco tissue cultures. *Physiologia Plantarum*, 15: 473-497.
- PAEK K. Y. (1996). Several factors affecting bulblet regeneration from the culture of scale segment on none-bud in fritillary as medicinal bulbous plant. *Acta Horticulturae*, 440: 498-503.
- PAEK K. Y., MURTHY H. N. (2002). High frequency of bulblet regeneration bulb scale sections of *Fritillaria thunbergii*. *Plant Cell, Tissue and Organ Culture*, 68: 247-252.
- SEO M., JIKUMARA Y., KAMIYA Y. (2011). Profiling of hormones and related metabolites in seed dormancy and germination studies. *In: Kermod A. R. (Ed.). Seed Dormancy Methods and Protocols*. Humana Press: 99-111.
- SNEDECOR G. W., COCHRAN W. G. (1989). *Statistical Methods*, Eighth Edition, Iowa State University Press, Ames, IA, USA, 491 pp.
- SUMLU S., ATAR H. H., KHAWAR K. M. (2010). Breaking seed dormancy of water lily (*Nymphaea alba* L.) under *in vitro* conditions. *Biotechnology and Biotechnological Equipment*, 24: 1582-1586.
- SUN C. S., CHU C. C., WANG D. Y. (1977). Callus formation and organ formation in the tissue culture of *Fritillaria thunbergii* Miq. *Acta Botanica Sinica*, 19: 161-162 (in Chinese).
- TUBIVES (2013). *Fritillaria*. http://turkherb.ibu.edu.tr/index.php?sayfa=1&tax_id=9163.
- ULUG B., KORKUT V., ASLI B., SISMAN E. (2010). Research on propagation methods of Persian lily bulbs (*Fritillaria persica* Linn.) with various vegetative techniques. *Pakistan Journal of Botany*, 42: 2785-2792.
- WITOMSKA M., LUKAZEWSKA A. J. (1997). Bulblet regeneration *in vitro* from different explants of *Fritillaria imperialis*. *Acta Horticulturae*, 430: 331-338.