

ANATOMICAL STRUCTURAL CHANGES AND CORRELATION BETWEEN WATER CONTENT AND GERMINATION CHARACTERISTICS DURING SEED GERMINATION OF *PHYLLOSTACHYS EDULIS* (CARRIÈRE) J. HOUZ.

Juan Li, Baosheng Zhang, Hongyan Gao, Shaohua Mu, and Jian Gao*

Key Laboratory of Bamboo and Rattan Science and Technology of the State Forestry Administration,
International Centre for Bamboo and Rattan, 8 Futong Dongdajie,
Wangjing, Chaoyang District, 100102 Beijing, China, *Fax: + 86-10-8478 9900,
*E-mail: ljgx2003@126.com

REFERENCES

- BAI Y. F., JIAO F. C., LU X. P., ZHANG Y. H., YU H. Q. (2007). Dynamic change of respiratory intensity and the activities of the peroxidase during germination of Tobacco seeds. Journal of Yunnan Agricultural University, 22: 672-675 (in Chinese).
- BASKIN C. C. (2001). Seeds: ecology, biogeography and evolution of dormancy and germination. Academic Press, San Diego, 121 pp.
- BASKIN J. M., BASKIN C. C. (2004). A classification system for seed dormancy. Seed Science Research, 14: 1-16.
- BEYER W. F., FRIDOVICH I. (1987). Assaying for superoxide dismutase activity some large consequences of minor changes in conditions. Analytical Biochemistry, 161: 559-566.
- BRADFORD M. M. (1976). A rapid and sensitive method for the quantification of microgram quantities of protein utilizing the principle of protein-dye binding. Analytical Biochemistry, 72: 248-254.
- BRITTON C., MAEHLY A. C. (1955). Assay of catalase and peroxidase. In: Packer L. (Ed.). Methods in Enzymology. Vol. II, New York: Academic Press: 801-813.
- CAI C. J. (2008). Seed germination characteristics of *Phyllostachys edulis*. Chinese agricultural science bulletin, 24: 163-168 (in Chinese).
- CAI C. J., LIU F., PENG Z. H., CAO B. H. (2009). Effect of storage temperature and moisture content on seed vitality of Moso bamboo (*Phyllostachys edulis*). Journal of Anhui Agricultural University, 36: 607-611 (in Chinese).
- CAI C. J., LIU F., GUO Q. R., GAO J. (2010). A study on responses of moisture contents to seed germplasm preservation of *Moso bamboo*. Acta Agriculturae Universitatis Jiangxiensis, 32: 312-317 (in Chinese).
- CHEN Z. H., GU J. C., LI X. F., YUN X. J., GAO H. W. (2011). Effect of ultradry treatment on seed storage of *Hedysarum* leave. Acta Prataculturae Sinica, 20: 148-154 (in Chinese).
- ELLIS R. H., HONG T. D. (2007). Quantitative response of the longevity of seed of twelve crops to temperature and moisture in hermetic storage. Seed Science and Technology, 35: 432-444.
- JI Y., HU H. W. (2009). Seed biology. Chemistry Industry Press, Beijing: 184-186 (in Chinese).
- KNÖRZER O. C., BURNER J., BOGER P. (1996). Alterations in the antioxidative system of suspension-cultured soybean cells (*Glycine max*) induced by oxidative stress, Physiologia Plantarum, 97: 388-396.
- LIU F., CAO B. H., CAI C. J., TANG Q. (2009a). Study on the change of physiology and biochemistry of *Phyllostachys edulis* seed during germination. Seed, 28: 12-14 (in Chinese).
- LIU F., CAO B. H., CAI C. J., TANG Q., CAO Y. C., JIA B. (2009b). Primary studies on seed vitality promotion mechanisms of GA₃ to *Phyllostachys edulis*. Journal of Southwest Forestry University, 29: 22-25 (in Chinese).
- MO J. R. (1982). Physiological basis of hybrid rice. Beijing: Agricultural press, 55 pp. (in Chinese).
- MONTES-RECINAS S., MÁRQUEZ-GUZMÁN J., OROZCO-SEGOVIA A. (2012). Temperature and water requirements for germination and effects of discontinuous hydration on germinated seed survival in *Tillandsia recurvata* L. Plant Ecology, 213: 1069-1079.
- SERTSE D., DISASA T., BEKELE K. (2011). Mass flowering and death of bamboo: a potential threat to biodiversity and livelihoods in Ethiopia. Journal of Biodiversity and Environmental Sciences, 1: 16-25.
- SUN H. M., JING X. M., XIN X. (2004). Effects of ultradry storage on the stability of antioxidation system of seed of the seed of *Brassica caulorapa* Pasq. Acta Horticulturae Sinica, 31: 751-757.
- TAO Q. J., ZHANG L. L., LIU R., RAO H. Y., WU Y. Y., ZHOU W. J. (2015). Effect of 137Cs-γ-rays irradiation on germination and seedling growth and chlorophyll fluorescence characteristics of grape. Journal of Nuclear Agricultural Sciences, 29: 761-768.
- WONG K. M. (1981). Flowering, fruiting and germination of the bamboo *Schizostachyum zollingeri* in Perlis. The Malasian Forester, 44: 453-463.
- YANG H., LIU H. F., YANG H. L., RONG Y. P. (2016). Effect of storage temperature and moisture content on the seed's quality of *Agropyron cristatum*. Pratacultura Science, 33: 2033-2040 (in Chinese).
- YANG H. Q., LIANG N., LI C. F., LI T. C., SUN M. S. (2013). Seed germination and storage of six woody bamboo species in Yunan, China. Forest Research, 26: 710-714 (in Chinese).
- YUAN J. L., XIONG D. G., JIN G., ZHONG Z. Q., HUANG L. J., ZHANG W. Y. (2009). Seedling maintenance for introduction of *Qiongzhuea tumidinoda*: a rare and protected bamboo species. Forest Research, 22: 166-170 (in Chinese).
- ZHANG Y. L., WANG X. F., JING X. M., LIN J. (2005). The effect of moisture content on storage life of rice seeds. Scientia Agriculutra Sinica, 38: 1480-1486 (in Chinese).
- ZHANG H., XU S. Q., XIAO S. Y. (2014). Determination of seed moisture content in ginseng (*Panax ginseng* C. A. Mey). Seed Science and Technology, 42: 444-448 (in Chinese).
- ZHENG G. H., SHI Z. L., ZHAO T. F., TAO T. F. (1990). The technique for promoting seed germination. In: Xu J. H. (Ed.). Application

- of Seed Physiology. China Agriculture Press, Beijing: 277-278 (in Chinese).
- ZHOU D. M. (2005). Ultra-dried *Stylosanthes* seed preservation and its effect to the seed biomemberane system. *Acta Agrestia Sinica*, 13: 23-26 (in Chinese).
- ZHU C., ZENG G. W., ZHENG G. H. (2000). The storage tolerance and lipid peroxidation in ultradried Peanut seeds. *Acta Agronomica Sinica*, 26: 235-238 (in Chinese).
- ZHU P., KONG L. Q., LI G., ZHANG X. Y. (2011). Effect of moisture content on physiological characteristics of *Elymus sibiricus* seed under different storage temperature condition. *Acta Prataculurae Sinica*, 20: 101-108.