

Serbian Plant Physiology Society

Institute for Biological Research „Siniša Stanković“, University of Belgrade

1<sup>st</sup> International Conference  
on Plant Biology  
20<sup>th</sup> Symposium of the  
Serbian Plant Physiology Society



Hotel PATRIA, Subotica, June 4-7, 2013

# 1<sup>st</sup> International Conference on Plant Biology

## 20<sup>th</sup> Symposium of the Serbian Plant Physiology Society

### Subotica, June 4-7, 2013

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pose, auxin and cytokinin were used separately or combined with each other. The influence of growth regulators on gametophores multiplication *in vitro* as well as on protonemal diameter was recorded. Based on multiplication index *in vitro*, maximum development of gametophores was realized on BCD medium supplemented with 0.1  $\mu\text{M}$  IBA and 0.03  $\mu\text{M}$  BA. The highest production of secondary protonema was achieved on BCD medium enriched with 0.1  $\mu\text{M}$  IBA and 0.3  $\mu\text{M}$  BA. Rather successfully applied micropropagation of this threatened moss species enables better knowledge of its biology and is of great value for its conservation biology and stress physiology research.

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### Age-dependent catalase activity in Empress tree (*Paulownia tomentosa* Steud.) seeds

Milica Milutinović<sup>1</sup>, Suzana Živković<sup>1</sup>, Milan Dragičević<sup>1</sup>, Jelena Cvetković<sup>1</sup>, Ana Simonović<sup>1</sup>,  
Jelena Bogdanović Pristov<sup>2</sup>, Slađana Todorović<sup>1</sup>

(milica.milutinovic@ibiss.bg.ac.rs)

<sup>1</sup> Institute for Biological Research „Siniša Stanković“, University of Belgrade, Bulevar despota Stefana 142,  
11060 Belgrade, Serbia

<sup>2</sup> Institute for Multidisciplinary Research, University of Belgrade, Kneza Višeslava 1, 11030 Belgrade, Serbia

In plants, catalase (CAT) is considered to play a key role in protection and repair systems during seed ageing. The aim of our study was to investigate the effects of light, GA<sub>3</sub>, KNO<sub>3</sub> and liquid smoke on germination, CAT activity and CAT isozyme pattern of positive photoblastic Empress tree (*Paulownia tomentosa* Steud.) seeds of different ages.

Freshly harvested Empress tree seeds require long term periods of light for germination. However, the application of KNO<sub>3</sub> and liquid smoke extract could stimulate germination and overcome the light requirement. During the process of after-ripening in young seeds, their sensitivity to light increases and a single 5 min pulse of red light is sufficient to induce maximum germination. Over longer seed storage, seeds lose ability to germinate and become less viable. No germination was detected in seeds older than 8 years.

We observed a correlation between the level of germination and catalase activity. Its activity is higher in mature seeds than in freshly harvested seeds during light-induced germination. In young seeds, CAT activity is enhanced by exogenous seed germination stimulators application. In very old, non viable seeds, CAT activity is reduced to basal level (CAT activity of dry seeds).

Different CAT isozyme patterns were observed in dark- and light germinated seeds.

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### Variability of sunflower seed oil content as a function of locality and genotype

Jelena Mrđa, Vladimir Miklič

(jelena.mrdja@nsseme.com)

Institute of Field and Vegetable Crops, Maksima Gorkog 30, 21000 Novi Sad, Serbia

Seed oil content is a major consideration in sunflower breeding because the oil content i.e. oil yield per hectare is considered to be the main indicator of sunflower hybrids productivity. Productivity is mostly determined by the genotype, but also the environmental conditions as well as the interaction of genotype x environmen-