

AMPL-2021
PULSED LASERS AND LASER APPLICATIONS

September 12–17, 2021
Tomsk, Russia

ABSTRACTS

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MEDIA SPONSORS

*Atmospheric and Oceanic Optics Journal, Tomsk, Russia
Photonics Journal, Moscow, Russia*



Tomsk, 2021

No. 2020-220-08-2389 to support scientific research projects implemented under the supervision of leading scientists at Russian institutions, Russian institutions of higher education.

G-10

FLUORESCENT INDICES OF PLANTS LEAVES TREATED WITH GROWTH REGULATORS

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At the present stage of development of agricultural production, plant growth regulators have become an attribute of intensive technologies. However, most recommendations for their use, as a rule, lack data on their effect on the structural and functional characteristics of the photosynthetic apparatus. In this work, we investigated the slow fluorescence induction (SFI) of plant leaves (beans, cucumber), the leaves and seeds of which were treated with the preparation "Epin-Extra" (NEST-M company, active substance – 24-epibrassinolide). The fluorescence was excited by blue light, and recorded at a wavelength of 686 nm. The ratio $(F_M - F_T)/F_T$ (F_M – maximum, F_T – stationary value of the fluorescence intensity reached after 8–10 minutes of illumination) was used as the SFI parameter. Previously, it was shown that the relative changes in this indicator correspond to the relative changes in photosynthetic activity per chlorophyll.

Soaking of beans and cucumber seeds in a solution of the preparation (epibrassinolide content of 0.02 mg / l) led to an increase in the values $(F_M - F_T)/F_T$ compared to the control. As the soaking time increased, the values $(F_M - F_T)/F_T$ increased, and plant growth accelerated. The increase in the values $(F_M - F_T)/F_T$ after treatment of plants with epin-extra should be interpreted as a partial "removal" of non photochemical quenching due, for example, to a more active synthesis of ATP in the first seconds of illumination. At a lower (0.01 mg/l) and higher (0.04 mg/l) content of epibrassinolide in the epin-extra solution, the stimulating effect of the preparation decreased. Spraying of bean sprouts with epin-extra also led to an increase in the values $(F_M - F_T)/F_T$; a similar effect was observed within one week after spraying.

Thus, the SFI method can be used to evaluate the optimal consumption rates of drugs used in practice in terms of their stimulating effect on the photosynthetic apparatus. Subsequently, this approach was successfully used by us in field and vegetation experiments with cereals.

G-11

CHOOSING AN OPTIMAL SET OF INFORMATIVE FEATURES IN IR SPECTRAL DATA WHILE RETAINING A CLEAR DISTINCTION BETWEEN CLASSES RECOGNIZED

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There are many approaches to the problem of choosing the optimal set of informative features when analyzing multidimensional data. However, small sample sizes and the presence of a correlation between features lead to the fact that sets of informative features depend on random initial conditions, which does not allow making statistically significant conclusions about their importance.

This paper presents a different approaches for choosing an optimal set of features and shows the dependence of the results of using teaching methods on the number of selected features. Model IR spectra based on the HITRAN database were used as data.

This work was supported by the Government of the Russian Federation (proposal No. 2020-220-08-2389 to support scientific research projects implemented under the supervision of leading scientists at Russian institutions, Russian institutions of higher education).

G-12

A NEW DATA ON PRESOWING STIMULATION OF PLANT SEEDS BY UVB RADIATION

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The work is devoted to identifying the features of plant growth and development under laboratory conditions after pre sowing stimulation of seeds of pine (*Pinus sylvestris* L.), thuja (*Thuja occidentalis* L.) and eggplant (*Solanum melongena* L., variety "Universal") by UVB radiation of XeCl excilamp. This work continues our research carried out on other economically valuable plants [1, 2].

In all cases, conditions were identified in which UVB stimulation accelerates the germination of these seeds and the formation of seedlings.

Additionally, microcopying of germinating 10 day old thuja seeds performed on sections shows that the seeds show clear differences compared to the untreated control. If in the control, the seeds were just beginning to germinate (the appearance of the germ root), then in the experimental samples, on average, 5% of the seeds passed to the stage of development and formation of the seedling (according to the Kuleshov-Strons classification [3]), had a developed root, hypocotyl, colored cotyledons, which began to shed the seed rind.

The obtained primary data confirm the prospects of using narrow band UVB radiation of XeCl excilamps for pre sowing stimulation of plant seeds.

The results were obtained during the implementation of the project within the framework of the TSU Competitiveness Improvement Program (8.1.29.2018) and partially within the framework of the State Task of the IHCE SB RAS, Project No. FWRM-2021-0014.

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