

**The Non-radiative Relaxation Time of Barley Seeds (*Hordeum vulgare*)
Investigated by Photoacoustic Spectroscopy**

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In processes of laser biostimulation of agricultural seeds, *i.e.* application of photonic energy into wavelengths and doses specific which produce a macro or micro effect, this bioeffects could be function of the characteristics of the seeds, as is the non-radiative relaxation time [1,2]. Therefore, the objective of the present research was to determine the non-radiative relaxation time (t) of two barley seed conditions: natural seed and dyed seed, at wavelength irradiations (λ) of 632, and 650 nm which correspond to the typical lasers used in seeds treatments pre-sowing. The t values were determined by photoacoustic spectroscopy measurements. The obtained t values could be important in the exposition times used in biostimulation by laser irradiation to improve the efficiency of these processes, due to the fact that the cells in the seeds are able to absorb, transform and use the energy of light photons in short times. The non-radiative relaxation [3] time values were correlated with the results found in a physiological quality test where pre-sowing seed was irradiated with laser diode 650 nm.

References

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