LASER INDUCED CHLOROPHYLL FLUORESCENCE SPECTRA OF CAJANUS CAJAN L PLANT GROWING UNDER CADMIUM STRESS

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Laser-induced Chlorophyll fluorescence (LICF) spectra of Cajanus cajan L leaves treated with different concentrations of Cd (0.05, 0.5 and 1 mM) are recorded at 10 and 20 days after first treatment of cadmium. LICF spectra are recorded in the region of 650-780 nm using violet diode laser (405 nm). LICF spectra of plant leaves show two maxima near 685 and 730nm[a]. Fluorescence induction kinetics (FIK) curve are recorded at 685 and 730 nm with red diode laser (635 nm) for excitation. The fluorescence intensity ratios (FIR) F685/F730 are calculated from LICF spectra and vitality index (Rfd) are determined from FIK curve. FIR and Rfd value are good stress indicator of plant health[b],[c]. These parameters along with chlorophyll content are used to analyze the effect of Cd on wheat plants. The result indicates that higher concentrations of Cd hazardous for photosynthetic activity and health of Arhar plants. The lower concentration of 0.05 mM shows stimulatory response up to 10 days while after 20 days this concentration also shows inhibitory response.

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[c]R. Maurya, S. M. Prasad, and R. Gopal *J. Photochem. Photobio. C: Photochem. Rev.* **9**, 29, 2008