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INFLUENCE OF ENHANCED ULTRAVIOLET–B RADIATION ON YIELD AND PHYSIOLOGICAL PARAMETERS OF WHEAT CULTIVARS

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In the Rabi season 2014-15, two cultivars of wheat HD 3043 (drought tolerant) and HD 2985 (normal) were selected for the study. Sowing was done in three replications in randomized plots.Model TL/20W/12 Philips UV-B tubes of 20 watt power and 0.37 ampere current, were used as the source of ultraviolet-B rays. The enhanced ultraviolet-B radiation for 4 hours was given upto 60 days after 20 days of sowing, from the top 50 cm above the wheat plants. The physiological parameters such as plant height (cm), number of tillers per plant, photosynthetic rate, and chlorophyll a and chlorophyll b contents were determined with the standard procedures. The yield attributes such as biomass, harvest index, thousand grain weight and yield per square meter were carried out. From the analysis of data it is obvious that the plant height of elevated ultraviolet-B radiated plants was less by 10% in the case of drought tolerant wheat cultivar (HD 3043). The plant height of normal of wheat cultivar (HD 2895) was also reduced by 16% under the elevated ultraviolet-B condition. These comparisons were made from control to respective wheat cultivars. The photosynthetic rate reduced in the UV-B irradiated plots by (19.5%) in compare to the control plots. The thousand grain weight under elevated ultraviolet-B radiation of HD 3043 (drought tolerant) has decreased by 18.5% and there was no significant reduction in the grain weight of HD 2985(normal) wheat cultivar in compare to the grains of controlled plots. Harvest index was more in the normal sown plots by (21.8%) in compare to the elevated ultraviolet –B radiation in the case of normal wheat cultivar (2985). Similarly the harvest index decreased in the elevated ultraviolet-B radiation by (24.3%) in case of drought tolerant cultivar of wheat (HD 3043) in compare to the control treatment. The grain yield per plant was significantly more in the control than the irradiated plots.