

SHORT COMMUNICATION

EFFECT OF U-V(B) ON SENESCENCE (CHLOROPHYLL DEGRADATION) IN WHEAT LEAF DISCS

V.K. JAIN AND A.K. GOYAL

Department of Botany, Govt. P.G. College, Kotdwara-246149 (Garhwal) India.

(Revised : Nov. 25, 1983)

Only few reports are available on the effect of U-V radiation on the process of senescence specially chlorophyll degradation. The biopositive and preventive effects of U-V radiation has been described by few workers (Zelles *et al.*, 1971; Nimann *et al.*, 1976 and Jain and Goyal, 1983). The present study was made to show the effect of U-V radiation on chlorophyll degradation in the process of senescence. Leaf discs were taken from 70 days old (after emergence) wheat (*Triticum aestivum* L.) plants, were floated on distilled water then exposed to U-V radiation (1.3 Jule/m²/sec) for 0,5,10,15,20, 30 and 60 minutes and finally kept in dark. After 4 days keeping in dark different chlorophyll pigments were measured colorimetrically (Koski and Smith, 1948).

Present investigation reveals that (Table I) there is ca. 73% total chlorophyll degradation during senescence in control from initial content and degra-

TABLE 1 : Effect of U-V (B) radiation on chlorophyll content in wheat (*T. aestivum*) leaf discs during senescence

	Chlorophyll content µg/g Fw			
	Proto-chlorophyll	Chl. a	Chl. b	Total chlorophyll
Initial amount	329.70	519.60	723.50	1572.80
U-V exposure time (minutes)				
0 (Control)	125.40	110.50	186.80	422.70
5	238.40	104.90	192.70	536.00
10	79.57	71.30	110.30	261.70
15	79.57	71.30	110.30	261.70
20	93.00	73.90	86.70	253.60
30	93.00	73.90	86.70	253.60
60	45.80	39.20	76.60	161.60

FW=Fresh weight.

gradation of different chlorophyll pigments increases with the duration exposure of U-V. But it is interesting that low doses of U-V (5 minute exposure) delays the chlorophyll degradation as the degradation is about 66% from the initial. This observation indicates the biopositive effect of U-V as reported by Zelles *et al.* (1971) and Nimann *et al.* (1976) in their studies. Enhancement of chlorophyll degradation may be due to the effects of U-V on the structure of chloroplast so that failure in pigment retention and maintenance get affected variously. Speculations and expectations will further be proved by certain confirmatory experiments.

REFERENCES

- Jain, V.K. and Goyal, A.K. (1983). Impact of U-V radiation on chlorophyll development in *C. utilisissimus* cv. Jaunpuri. *Comp. Physiol. Ecol.*, (In Press).
- Koski, V.M. and Smith, J.H.C. (1948). The isolation and spectral observation properties of protochlorophyll from etiolated barley seedlings. *J. Amer. Chem. Soc.*, 70 : 3558-3562.
- Nimann, E.G., Baboth, E. Zelles, L., Ehernberg, L., Felorcsak, I. and Fendrik, I. (1976). Low level radiation effects on plants biochemical aspects of radiation stimulation. In "V Biological and Environmental Effects of Low Level Radiation". Vol. 1, IAEA Vienna.
- Zelles, L., Ernst, D. and Tiffe, H.W. (1971). Stimulation der Keimung von Kiefernpollen durch U-V-Strahlung, *Biophysik*, 7 : 352.