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EFFECT OF FOLIAR APPLICATION OF 2,4-D ON VITAMIN C CONTENT IN LEAVES OF *VIGNA MUNGO* (L.) HEPPER

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Effect of foliar application of 2,4-D on vitamin C content in leaves of *Vigna mungo* was studied. In the 45 days old crop 5 µg/ml 2,4-D stimulated the content of vitamin C.

Keywords: 2,4-D; *Vigna mungo;* Vitamin C.

2,4-Dichlorophenoxy acetic acid is very commonly used as a herbicide and because of its commercial value, much of the ealry work was concerned with changes initiated by its lethal doses. However, because of its dual function as auxin and herbicide, responses to sub-lethal levels are frequently of different nature.

Vigna mungo (L.) Hepper is commonly cultivated throughout the country. 2,4-D was sprayed to the point of run-off using a pinch of sodium lauryl sulphate as the wetting agent. The foliar application was made twice within the duration of 2 hours to make it more effective. The control plants were not sprayed since no appreciable differences were observed in preliminary experiments between plants sprayed with the wetting agent alone and those which were not sprayed. The spary treatment was made by an air-compressor by taking the maximum precaution to avoid contamination from one another. The treatments were given at preflowering stage (3 weeks old crop). The crop was harvested with an interval of 15 days. On the whole 3 harvestings were made. The harvested crop was analysed for the content of vitamin C (ascorbic acid) following the method of Bessey and King[1]. The data was statistically analysed applying 't' test.

It is worth to note that the sets harvested after 1st and 2nd fortnights of treatments, all the concentrations of herbicides tried (1,5,10,25,50,100 µg/ml) inhibited the content of vitamin C (Table 1).It is only in the 3rd harvested crop 5µg/ml 2,4-D stimulated the content of vitamin C. It should also be noted that 100 µg/ml 2,4-D caused cent percent mortality of *Vigna mungo* plants. Freeman[2] stated that because of herbicide,

Table 1. Effect of spray applications of 2,4-D on vitamin C content in leaves of *Vigna mungo*. (Values given are mean ± SE of 5)

TI in fortnights	Conc. in µg/ml	Vitamin C mg/gm fresh weight
I	Control	1.00 ± 0.04
	1	0.64 ± 0.06
	5	0.53 ± 0.02
	10	0.41 ± 0.03
	25	0.40 ± 0.02
	50	0.40 ± 0.05
	100	0.39 ± 0.08
II	Control	1.44 ± 0.05
	1	1.21 ± 0.03
	5	0.80 ± 0.04
	10	0.69 ± 0.04
	25	0.52 ± 0.03
	50	0.30 ± 0.03
	100	0.20 ± 0.08
III	Control	1.21 ± 0.05
	1	1.21 ± 0.05
	5	1.37 ± 0.06
	10	1.21 ± 0.05
	25	0.50 ± 0.06
	50	0.20 ± 0.07
	100	cent percent mortality - - -

TI, time interval between spray applications and estimation of Vitamin C.

ascorbic acid content was increased in raspberries.

References

1. Bessey O A and C G King 1933, *J. Biol. Chem. 103* 687
2. Freeman J A 1967, *Can. J. Plant Sci. 47* 25