

Effect of some herbicides on the chlorophyll content of *Parthenium hysterophorus* L.

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ABSTRACT: The present investigation deals with effect of two herbicides 2, 4-D chlorophenoxy acetic acid (2, 4-D) 2, 4, 5-Trichlorophenoxy acetic acid (2, 4, 5-T) on the chlorophyll content of an obnoxious weed partheniumhysterophorus L. There is very little information almost nil on the effect of herbicides on the chlorophyll content of weeds. In the light of the observation made during this study it can be concluded that 75 ppm of 2, 4, 5-T is the most effective treatment in controlling the growth of this weed.

I. INTRODUCTION

Partheniumhysterophorus L. is one of ten worst weeds in the world. It is a herbaceous annual or ephemeral member of the ASTERACEAE, reaching a height of 2 m in good soil and flowering within 4-6 weeks of germination.

P.hysterophorus is popularly known as congress weed,starweed,carrot weed, ramphool etc. Adverse effects of parthenium on human as well as on animals have been well documented. It is known to cause asthma, bronchitis and hay- fever in man and live – stock. *Partheniumhysterophorus* was accidently introduced in India in around 1956 and has since spread over most part of the country.

There is very little information, on the effect of herbicides on the biochemical constituents of weeds.

The present investigation deals with the effect of two herbicides 2, 4-D Chlorophenoxy acetic acid (2, 4-D) and 2, 4, 5-Trichlorophenoxy acetic acid

(2, 4, 5-T) on chlorophyll content of partheniumhysterophorus L.

II. MATERIAL AND METHOD

Chlorophyll estimation of parthenium hysterophorus L. was done according to the standard method of Arnon (1949). The amount of chlorophyll a, chlorophyll b, and total chlorophyll was determined by taking optical density of the aliquots at the wavelength 645 nm and 663 nm with help of systronic103 spectro colorimeter.

III. RESULTS AND DISCUSSION

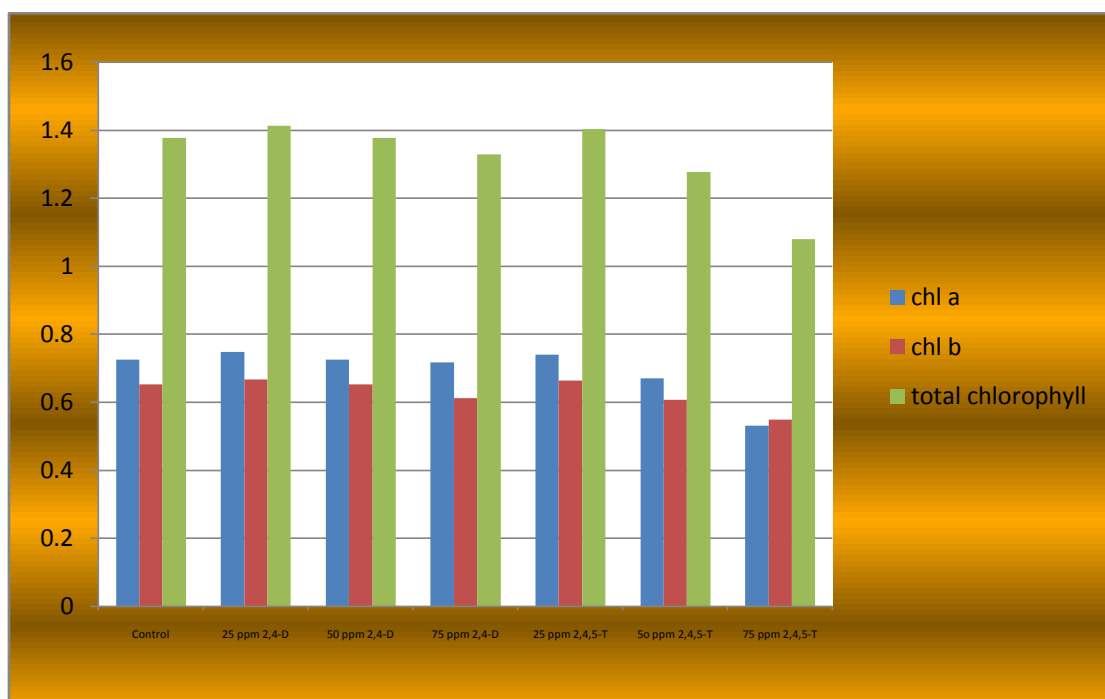
It was found that 50 ppm and 75 ppm of 2, 4, 5,-T significantly reduced total chlorophyll as well as chlorophyll a and b in *P.hysterophorus*. On the other hand 25 ppm 2, 4, 5,-T has marginally increased chlorophyll a and chlorophyll b and total chlorophyll content. In case of 2, 4- D, 25 ppm of the same has increased all the three fractions of chlorophyll. There was no change in chlorophyll content due to the effect of 50 ppm of 2, 4, D. 70 ppm 2,4, D has marginally decreased the chlorophyll fractions.

In the light of the observations made on the effect of herbicides on the chlorophyll content of partheniumhysterophorus L. It can be concluded that 75 ppm of 2, 4, 5-T is the most effective treatment in controlling the growth of weed.

The amount of chlorophyll a, chlorophyll b and total chlorophyll content in the leaves of partheniumhysterophorus subjected to different treatments of the two herbicides has been given in table - 1 and depicted in histogram - 1.

TABLE – 1
Chlorophyll Content mg/g fresh weight

Observation/ Treatment	Chlorophyll a	Chlorophyll b	Total Chlorophyll	Chlorophyll a/b
Control	0.72522	0.65292	1.37772	1.11
2,4-D 25 ppm	0.74793	0.66648	1.41396	1.12
2,4-D 50 ppm	0.72522	0.65292	1.37772	1.11
2,4-D 75 ppm	0.71790	0.61180	1.3293	1.18
2,4,5-T 25 ppm	0.74015	0.66330	1.40345	1.11
2,4,5-T 50 ppm	0.66979	0.60762	1.27702	1.10
2,4,5-T 75 ppm	0.53084	0.54928	1.07978	0.96



HISTOGRAM-1 Showing Chlorophyll a and Chlorophyll b contents in control and different treated plants

IV. ACKNOWLEDGMENT

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