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EXTRACTION AND ESTIMATION OF PROTEIN CONTENT GOAL TREATED SEEDINGS OF *Medicago sativa* Linn.

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ABSTRACT :

Effect of herbicide Goal (2-Chloro-4'-trifluoro methyl phenyl -3- ethoxy-4-4nitro phenyl ether) on macromolecular protein content of treated seeds lings was studied of *Medicago sativa* Linn. The seeds were soaked for 24 hours and germinated inder laboratory conditions. These treated seedlings were studied for protein content. The percentage of protein gradually decreased after herbicidal treatment. As the concentration increased the percentage of protein content decreases. Therefore, protein percentage per seedling was 0.96 at and 0.27 at 500 and 2500 ppm, respectively.

INTRODUCTION:

Seed is the most important unit for the propagation of weeds. Herbicides inhibit the macromolecular activity with seedling growth. Kolhe (1979) in farm weeds, Jain (1993) observed in *chenopodium album* and R Mahakhode (2010) in *Psoraleacorylifolia*. The activity of pre-emergence herbicides was studied.

In present study the effect of Goal on protein content has been studied.

MATERIAL AND METHODS

Extraction and estimation of protein:

The seeds were treated with various concentrations of 2, 4-D: The treated seeds were washed thoroughly with distilled water and kept for germination in Petri dish lined with double layers of moistened filter paper under laboratory conditions Seeds soaked in distilled water were used as control. The treated seeds and untreated seeds were allowed to grow for seven days.

Each sample containing 1 gram fresh weight was taken for estimation of protein. The method suggested by Schneider (1945) was adopted for protein extraction.

Extraction and Estimation of Total proteins the weighed samples of seedlings were dried and were than taken in Kjeldhal flask, 30ml of concentrated sulphuric acid, 1 gram of copper sulphate with potassium sulphate were added in the flask. The flask was slightly inclined and heated till the content was completely and cleared digested.

The flask then removed and allowed to cool and contents were transferred to another flask of 1 litre capacity. The round bottom flask then fitted with a dropping funnel and kjeldahl trap. A vertical condenser was attached vertic to the Kjeldahl trap and the other end of condenser was dipped in a beaker contai ml of 0.1 N sulphuric drop of and a of meu indicator, 100 ml of sodium hydroxide was added from dropping funnel and flask was heated Ammonia was evolved when not more ammonia was evolved from the Kjeldahl solution. The beaker containing sulphuric acid solution was removed and titrated with standard alkali (0.1 N NaoH) solution and readings were noted.

The percentage of nitrogen in the seedlings was calculated by using formula: Ne (Normality of standard acid solution x volume of acid) - Normality of alkali x volume of alkali) x 14/1000 x 100/weight of sample the total protein of the sample was calculated from obtained N, percentage.

Total protein N percentage x 6.25.

RESULTS AND DISCUSSION

After treatments with Goal the protein content of seedlings decreased with an increasing concentration. At 500 and 2500 ppm was 0.96 and 0.27%. respectively (Table 1).

Table 1

Effect of Goal on protein content of seeding of *Medicagosativa*

Herbicide	Concentration in PPM	Percentage of protein per seedling	Standard error (±)
Goal	Control	4.13	0.01
	500	0.96	0.01
	1000	0.56	0.02
	1500	0.34	0.06
	2000	0.31	0.03
	2500	0.27	0.01

In the present study the reduction in protein content of Goal treated seedlings was observed as concentrations increased the protein content decreased. Similar findings reported by Ashton and Crafts (1973) and hypothesized that herbicide reduced ATP are strong inhibitor of protein synthesis.

In general, protein is a major storage reserve in many plant seeds. These storage proteins are hydrolysed during seeds germination by proteolytic enzymes, which is essential for seedling growth. This may be due to the herbicide action on reduction in reserve materials and on the control of the process during germination might be one of the factors responsible for the seedlings susceptibility to herbicides. Similar findings observed by Taduwadi (2004) and Tulankar A.G. (1998) respectively.

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