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Research note:

Evaluation of herbicides against *Alternaria porri* (Ellis) Cif. causing purple blotch of onion

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Onion (*Allium cepa* L.) belongs to the family Alliaceae. It is one of the most important commercial vegetable crop grown in India. Onion is a good source of vit. A, B and C. The regular use of onion reduces the insulin requirement of diabetic patient (Billore *et al*., 2004). Though there are several factors responsible for low productivity in which purple blotch (*Alternaria porri* (Ellis) Cif.) of onion causes considerable losses. In the year 1993 in Maharashtra state 60 to 80 per cent losses were reported due to purple blotch (Rawal *et al*., 2003). It is also important disease causing economical damage to onion seed crop in Gujarat (*Kanzaria et al*., 2003). Certain herbicides can inhibit the growth of *Alternaria* sp. and other fungi *in vitro* (Bagga and Vineet Kumar, 2000). The objective of this research was to determine the effect of common herbicides on the fungal growth of *Alternaria porri in vitro.*

Different herbicides were tested for their effect on growth of *A. porri* using poisoned food technique (Sinclair and Dhingra, 1985). PDA was used as a besal medium. The required quantiy of each herbicide was incorporated aseptically in 100 ml of PDA. The medium was shaken well to give uniform dispersal of the chemical and then in each Petriplate 20 ml of medium was poured aspectically and allowed to solidify. Petri plates were inoculated with 10-day old fungus cultures. The mycelial disc of 4 mm cut from peripheral region was placed in the centre of the plates in an inverted position and incubated at 25 $\pm$ 1^{O}C for 12 days. Control was maintained by growing the fungus on chemical free PDA. Observations on linear growth were recorded when full growth of fungus was observed in control Petriplates. Per cent inhibition of fungal growth for each treatment was calculated.

Poinsoned food techniqure was employed for testing the herbicidal effect against *Alternaria porri in vitro*. The growth of fungus in each treatment including control was taken and per cent inhibition was calculated.

Data regarding the per cent inhibition of mycelial growth for different concentrations of different herbicides are presented in the Table 1.

The persual of data shown in the Table 1 revealed that all the herbicides tested were capable of inhibiting the growth of *A. porri* as compared to control. The mean per cent inhibition indicated that the most and the least effective herbicides were pendimethalin (74.2) and 2-4, D (22.3%), respectively. The next effective herbicide was fluchloralin (64.6%). However, the inhibition increased with an increase in concentration in case of all the herbicides. The highest concentration (2000 ppm) of all herbicides significantly inhibited the growth of fungus as

Table 1 : Per cent growth inhibition over control of *A. porri* at different concentrations of herbicides *in vitro*

Herbicides	* Concentration (ppm)				Mean Inhibition (%)	Toxicity Index #
	500	1000	1500	2000		
Pendimethalin	64.4	72.7	73.5	86.3	74.2	296.8
Fluchloralin	55.6	57.5	68.1	77.4	64.6	258.5
Glyphosate	47.5	48.6	53.3	65.6	53.7	215.0
Metasulfuron	26.1	27.4	38.1	42.5	33.5	134.1
2-4,D	14.5	18.5	25.9	30.5	22.3	89.3
S. E. $\pm$		Between herbicide			Within herbicide	
					0.37	
C.D. (P=0.05)		0.45		1.27	1.04	

* Average of three replications. # Maximum toxicity index: 400.

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