

Studies on Control of the Problem Weed *Amischohacelus axillaris* (Linn.) R. Rao et Kamm.¹

INTRODUCTION

Amischohacelus axillaris is a common problem weed of Kharif in this area and has been reported from Andhra Pradesh, Maharashtra and Uttar Pradesh (Joshi 1974). The general practice is the hand removal. As the chemical control has been reported (Dubey and Mall 1972, Lall and Choudhary 1974, Amritphale 1976) for many weeds with vegetative propagation an attempt for the chemical control of this weed has been made.

MATERIALS AND METHODS

The herbicides, (a), Atrataf (2 chloro-4-ethyl amino-6-isopropyl amino-S-triazine, 50% W.P.), (b) Aresin (3 (4-chlorophenyl)-1-methoxy-1-methyl urea, 50% W.P.) and (c) Bladex (2, (4 chloro-6-ethylamino-S-triazine-2-ylamino)-2-methyl propionitrile, 50% W.P.) were selected. Trials were conducted in one sq.m. plots in fields heavily infested with *A. axillaris*. The herbicide suspensions were given with the rates of 1, 2, and 5 kg/ha. The experiment was replicated thrice.

The herbicidal effect was assessed visually on an arbitrary scale of 0-10, where zero means no effect and 10 means complete kill. For biomass studies weeds were harvested from one fourth area of each replicate at 7, 15 and 30th day. Samples were weighed fresh and also after drying for 48 h. at 80°C. Chlorophyll estimations were done from the 5th node leaves of plants following Dexbury and Yentsch (1956).

RESULTS AND DISCUSSION

The results of herbicidal treatments based on visual observations (Table 1) indicate that with 1 kg/ha the order of success was bladex, aresin, atrataf however aresin was more effective at 2 kg/ha. The observations were in accordance to the results of weed biomass (Table 2), which was reduced to 64, 58.6 and 44.5% after one month of the treatment with bladex, aresin and atrataf respectively. A further

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Table 1. Effect of three herbicides and their dosages on established *A. axillaris*

Treatments	Rate (kg/ha)	Assessment : days after treatment*		
		7th day	15th day	30th day
<i>Bladex</i>	1	5.8	7.8	8.9
	2	7.8	9.0	9.0
	5	8.9	10.0	10.0
<i>Atrataf</i>	1	3.8	4.5	5.6
	2	5.9	7.8	8.8
	5	7.7	8.9	9.7
<i>Aresin</i>	1	3.2	4.8	6.5
	2	6.7	8.9	9.6
	5	7.9	10.0	10.0

* Visual ranging from 0=no effect & 10=complete kill

Table 2. Biomass (fresh and dry weights gm⁻²) of the sprayed plots at different intervals

Treatments	Rate (kg/ha)	ABOVE GROUND BIOMASS ON					
		7th day		15th day		30th day	
		Fresh	Dry	Fresh	Dry	Fresh	Dry
<i>Bladex</i>	1.0	212.4	20.7	147.9	15.7	109.7	11.2
<i>Atrataf</i>	1.0	267.1	23.8	238.6	20.2	170.8	15.6
<i>Aresin</i>	1.0	270.4	25.2	187.4	19.1	127.4	12.0
<i>Bladex</i>	2.0	134.8	11.8	112.5	8.6	62.8	7.3
<i>Atrataf</i>	2.0	195.3	17.7	142.3	15.3	111.7	11.3
<i>Aresin</i>	2.0	163.7	14.9	117.6	11.8	70.3	8.2
<i>Bladex</i>	5.0	97.5	5.8	57.3	4.2	21.5	3.1
<i>Atrataf</i>	5.0	144.1	12.5	108.3	10.9	78.6	8.9
<i>Aresin</i>	5.0	103.0	9.7	61.7	6.8	34.7	4.9
INITIAL BIOMASS:		308.5	28.3				
Control (untreated)		312.6	30.2	317.4	31.8	325.6	33.3

reduction in weed biomass could be achieved *i.e.* 77.2 and 63.7% by the application of 2 kg/ha of aresin and atrataf respectively. However these results of biomass reduction in fresh and dry weight both can be explained in light of the chlorophyll content of the weed samples from treated plots (Table 3). Even 1 kg/ha dose of bladex and aresin was sufficient to reduce the chlorophyll content by about 50%, supports Gorden and Monselise (1967) and Moreland (1969) that these compounds can damage the chlorophyll. The loss in chlorophyll content in

Table 3. Chlorophyll content of the weed on 15th day after herbicidal sprays

Herbicide	Total chlorophyll content mg/g. fr. wt.					
	1 kg/ha	% Red	2 kg/ha	% Red	5 kg/ha	% Red
1. Bladex	0.2879	(50.9)	0.1347	(77.05)	0.0121	(97.9)
2. Aresin	0.2984	(49.1)	0.1758	(70.06)	0.0513	(91.2)
3. Atrataf	0.3921	(33.2)	0.2386	(59.2)	0.0982	(83.2)
Untreated	0.5873					

susceptible plants, due to triazines has been suggested earlier also by Wheeler and Hamilton (1968). Naturally as observed, at higher doses severe losses in chlorophyll content and weed biomass could be expected. As the higher doses of herbicides created residual problems in the soils of this area (Rao and Dubey, 1976), control of this weed with lower dosage is suggested as these doses are also enough effective.

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