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Report/Article Title Studies on Phytocides: I. Diurnal Variation in Effectiveness of "Methoxone"

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Description Notes Item also includes: 1. Muzik, T. J. and J. M. Lawrence. Separation of Specific and Non-Specific Effects of Chemicals on Plants. Nature 163:482, February 14, 1959. And 2. Cover letter from T. J. Muzik to Alvin L. Young, March 11, 1968 and data from Dr. Lawrence

WASHINGTON STATE UNIVERSITY
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DEPARTMENT OF AGRONOMY

March 11, 1968

Mr. Alvin L. Young
Research Assistant
Kansas State University
Department of Agronomy
Manhattan, Kansas 66405

Dear Alvin:

Enclosed are some data from Dr. Lawrence. Apparently this was not published. Dr. Lawrence informs me that he thinks the "figures of low precision and the effects to be probably secondary".

You may be interested in comparing this data with yours, however, since you appear to have somewhat similar results. It is interesting that pipecolic acid appears to be involved.

Yours truly,

Tom Muzik

T. J. Muzik
Professor

TJM:db

cc: John Lawrence

enc.

Table 8. The Effect of a Single 2,4-D Foliage Treatment on the Free Amino Acids in Bindweed Roots
Mg. Amino Acid per mg. amino N.

Treatment	Weeks After Treatment	Asparagine	Glutamine	Aspartic	Glutamic	Proline	Alanine	Serine	Threonine	Pipecolic	Valine	Totals, including glycine, leucines, Arginine
Check	1	.4	1.3	.4	.3	.02	.4	.2	.05	Trace	.3	2.27
	5	3.2	4.1	1.7	.6	.02	.5	.3	.2	None	.3	7.47
	9	5.0	5.6	1.4	1.0	.02	.6	.4	.2	None	.3	9.66
	Mean	2.9	3.7	1.5	.6	.02	.5	.3	.2	Trace	.3	
1# 2,4-D	1	1.2	1.5	.5	.8	.2	.5	.4	.1	1.8	.2	7.55
	5	1.4	4.9	1.7	.6	.05	.4	.4	.2	1.4	.1	6.90
	9	6.3	5.5	1.8	2.1	.02	.5	.4	.2	1.1	.1	13.28
	Mean	3.0	3.7	1.3	1.2	.09	.5	.4	.2	1.4	.1	
2# 2,4-D	1	1.5	0.9	.6	1.0	.2	.6	.5	.1	1.6	.2	7.13
	5	1.7	3.3	1.0	1.0	.1	.6	.3	.2	10.0	.3	18.20
	9	2.5	7.4	2.5	1.0	.01	.6	.4	.2	1.0	.3	9.38
	Mean	1.9	3.9	1.4	1.0	.1	.6	.4	.2	4.5	.3	
4# 2,4-D	1	2.0	1.8	.6	.9	.3	.5	.6	.1	1.0	.3	7.36
	5	3.1	4.0	1.4	.7	.1	.5	.6	.2	7.0	.2	14.28
	9	7.0	7.0	1.4	.9	.01	.4	.3	.2	1.0	.2	12.21
	Mean	4.0	4.3	1.1	.8	.1	.5	.5	.2	3.0	.2	

Glycine, leucines, arginine were also estimated.

Table 9. The Effect of 2,4-D Treatments in Two Successive Years on the Free Amino Acids of Bindweed Roots
Mg. Amino Acid per mg. Amino Nitrogen

Treatment	Weeks After Treatment	Aspartic	Glutamic	Serine	Threonine	Alanine	Valine	Leucines	Proline	Pipecolic	Asparagine
Check	1	0.7	0.8	0.4	0.17	0.7		0.7	0.3	0.8	1.5
	5	1.4	0.6	0.3	0.17	0.5	0.7	0.3	0.2	0.2	1.5
	9	0.8	0.4	0.3	0.12	0.4	0.4	0.2	Trace	0.3	2.9
	Mean	1.0	0.6	0.3	0.15	0.5	0.5	0.4		0.4	2.0
1# 2,4-D	1	0.8	0.8	0.5	0.17	0.6	0.7	0.4	0.2	1.7	2.5
	5	1.1	0.7	0.3	0.15	0.5	0.3	0.2		3.3	3.3
	9	0.7	0.5	0.2	0.11	0.4	0.2	0.1		0.8	3.8
	Mean	0.9	0.7	0.3	0.14	0.5	0.4	0.2		1.9	3.2
2# 2,4-D	1	0.6	0.8	0.5	0.16	0.7	0.5	0.3	0.2	1.7	1.7
	5	1.1	0.6	0.2	0.11	0.4	0.2	0.2	0.2	2.9	2.0
	9	0.9	0.5	0.2	0.12	0.4	0.3	0.1		0.6	3.4
	Mean	0.9	0.6	0.3	0.13	0.5	0.3	0.2		1.8	2.4

Table 10. The Effect of a Single 2,4-D Foliage Treatment on the Protein Amino Acids in Bindweed Roots
Mg. amino acid per mg. insoluble N

Treatment	Weeks After Treatment	Aspartic	Glutamic	Alanine	Leucines	Valine	Serine	Threonine	Arginine	Lysine	Proline	Hydroxyproline	Glycine	Totals, including tyrosine and histidine
Check	1	.86	.66	.50	1.00	.36	.50	.42	.47	.36	.30	.34	.22	6.38
	5	.70	.82	.50	1.71	.45	.59	.48	.62	.59	.40	.28	.34	7.81
	9	.76	.76	.63	1.39	.46	.57	.46	.68	.54	.41	.22	.32	7.80
	Mean	.77	.75	.54	1.37	.42	.55	.45	.59	.50	.37	.28	.29	
1# 2,4-D	1	.84	.94	.50	1.38	.54	.58	.47	.78	.34	.42	.27	.36	8.29
	5	.54	.93	.54	.95	.46	.52	.37	.65	.60	.43	.30	.39	7.05
	9	.70	1.15	.51	1.51	.52	.63	.61	.79	.61	.45	.32	.38	8.86
	Mean	.69	.99	.52	1.28	.51	.58	.48	.74	.52	.43	.30	.38	
2# 2,4-D	1	.83	.83	.49	1.45	.40	.49	.42	.68	.42	.36	.26	.30	7.37
	5	.47	.93	.55	1.46	.54	.48	.37	.61	.57	.47	.22	.35	7.54
	9	.55	.82	.55		.61	.51	.40	.57	.46	.36	.19	.33	
	Mean	.62	.86	.53	1.45	.52	.49	.40	.62	.48	.40	.22	.33	
4# 2,4-D	1	.52	.90	.67	2.55	.52	.44	.36	.64	.48	.38	.22	.36	8.94
	5	.48	.65	.63	2.03	.52	.30	.30	.67	.54	.42	.19	.38	7.61
	9	.81	1.10	.72	1.89	.58	.56	.56	.76	.74	.45	.32	.36	9.52
	Mean	.60	.88	.67	2.16	.54	.43	.41	.69	.59	.42	.24	.37	

Histidine and tyrosine were also estimated