APPENDIX

APPENDIX 1 DESCRIPTIVE STATISTCS

Insecticide Potency of Sulfur on Fire Ants

Concentrations	Hours	Mean	Std. Deviation	N
negative control	1	.0000	.00000	4
	2	.0000	.00000	4
	3	.0000	.00000	4
	4	.0000	.00000	4
	5	.0000	.00000	4
	6	.0000	.00000	4
	24	.0000	.00000	4
	Total	.0000	.00000	28
0.5%	1	.0000	.00000	4
	2	1.2500	2.50000	4
	3	8.7500	6.85390	4
	4	24.1675	7.39357	4
	5	49.5825	8.85798	4
	6	68.7500	10.66033	4
	24	1.0000E2	.00000	4
	Total	36.0714	36.44202	28
1.5%	1	.0000	.00000	4
	2	2.5000	5.00000	4
	3	14.5850	13.29021	4
	4	35.0000	6.38169	4
	5	51.2500	6.85390	4
	6	67.0825	8.64522	4
	24	1.0000E2	.00000	4
	Total	38.6311	35.27066	28

2.5%	1	1.2500	2.50000	4
	2	9.5825	12.04701	4
	3	20.8325	8.76916	4
	4	39.5850	9.06438	4
	5	55.8325	5.00056	4
	6	76.6650	13.87671	4
	24	1.0000E2	.00000	4
	Total	43.3925	35.07619	28
positive control	1	1.0000E2	.00000	4
	2	1.0000E2	.00000	4
	3	1.0000E2	.00000	4
	4	1.0000E2	.00000	4
	5	1.0000E2	.00000	4
	6	1.0000E2	.00000	4
	24	98.7500	2.50000	4
	Total	99.8214	.94491	28
Total	1	20.2500	40.92596	20
	2	22.6665	40.16563	20
	3	28.8335	37.81340	20
	4	39.7505	34.36245	20
	5	51.3330	32.89442	20
	6	62.4995	35.12060	20
	24	79.7500	40.92596	20
	Total	43.5833	42.12849	140

APPENDIX 2

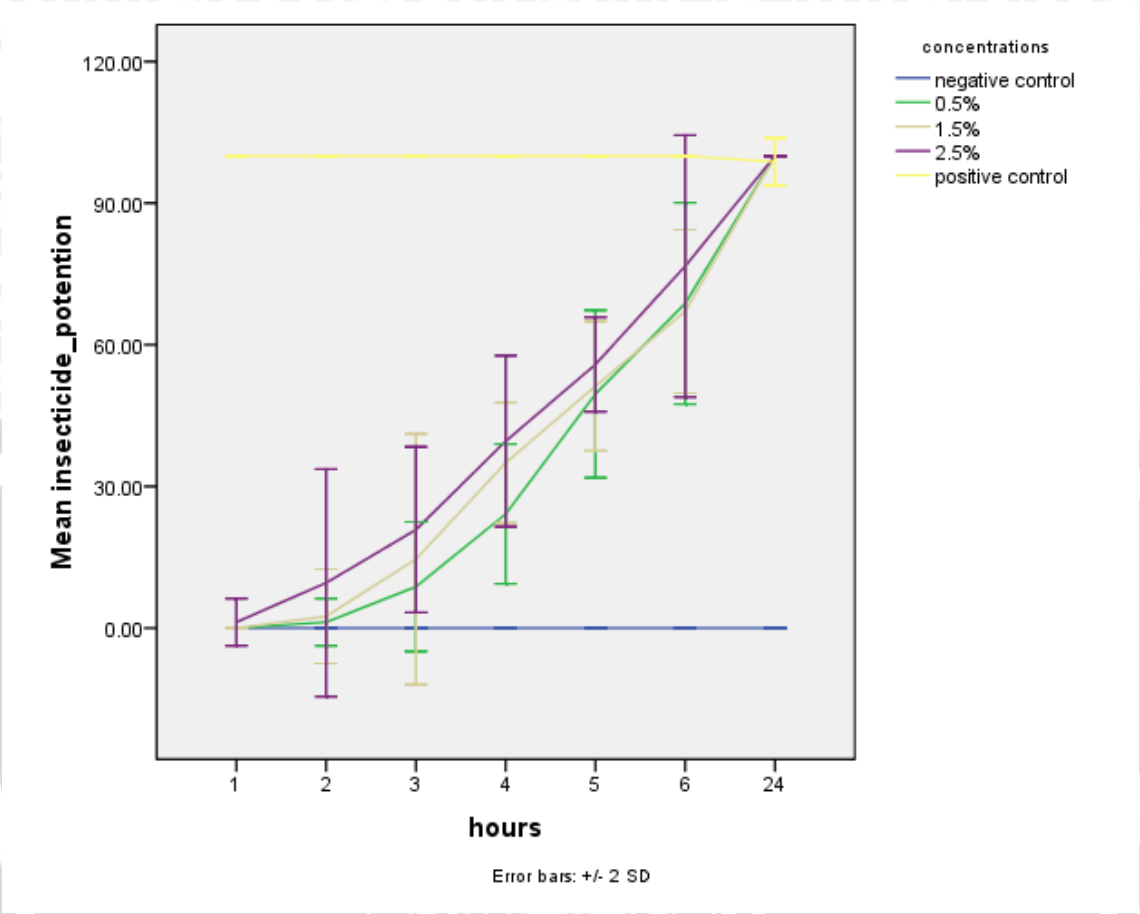

Figure 5.1. Line Chart of Insecticide Potency in Every Treatment per Hour

APPENDIX 3

KOLGOROV SMIRNOV NORMALITY TEST

One-Sample Kolmogorov-Smirnov Test

		insecticide_potention
N		140
Normal Parameters[a]	Mean	43.5833
	Std. Deviation	42.12849
Most Extreme Differences	Absolute	.200
	Positive	.200
	Negative	-.188
Kolmogorov-Smirnov Z		2.361
Asymp. Sig. (2-tailed)		.200

a. Test distribution is Normal.

HOMOGENEITY TEST OF VARIANCE

Levene's Test of Equality of Error Variances[a]

Dependent Variable:insecticide_potention

F	df1	df2	Sig.
7.613	34	105	.067

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + concentrations + hours + concentrations * hours

APPENDIX 4 ONE WAY ANOVA TEST

ANOVA 1ST HOUR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31805.000	4	7951.250	6.361E3	.000
Within Groups	18.750	15	1.250		
Total	31823.750	19			

ANOVA 2nd HOUR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30123.143	4	7530.786	213.481	.000
Within Groups	529.142	15	35.276		
Total	30652.284	19			

ANOVA 3rd HOUR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26265.697	4	6566.424	109.257	.000
Within Groups	901.511	15	60.101		
Total	27167.208	19			

ANOVA 4th HOUR

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	21902.116	4	5475.529	154.194	.000
Within Groups	532.661	15	35.511		
Total	22434.777	19			

ANOVA 5th HOUR

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	20107.482	4	5026.870	167.066	.000
Within Groups	451.336	15	30.089		
Total	20558.818	19			

ANOVA 6th HOUR

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	22292.836	4	5573.209	73.150	.000
Within Groups	1142.836	15	76.189		
Total	23435.672	19			

ANOVA 24th HOUR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31805.000	4	7951.250	6.361E3	.000
Within Groups	18.750	15	1.250		
Total	31823.750	19			

APPENDIX 5 MULTI COMPARISON POS HOC TUKEY TEST

concentrations

Multiple Comparisons

insecticide_potention

Tukey HSD

(I) concentrations	(J) concentrations	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
negative control	0.5%	-36.0714*	1.56383	.000	-40.4122	-31.7306
	1.5%	-38.6311*	1.56383	.000	-42.9719	-34.2903
	2.5%	-43.3925*	1.56383	.000	-47.7333	-39.0517
	positive control	-99.8214*	1.56383	.000	-104.1622	-95.4806
0.5%	negative control	36.0714*	1.56383	.000	31.7306	40.4122
	1.5%	-2.5596	1.56383	.478	-6.9004	1.7812
	2.5%	-7.3211*	1.56383	.000	-11.6619	-2.9803
	positive control	-63.7500*	1.56383	.000	-68.0908	-59.4092
1.5%	negative control	38.6311*	1.56383	.000	34.2903	42.9719
	0.5%	2.5596	1.56383	.478	-1.7812	6.9004
	2.5%	-4.7614*	1.56383	.024	-9.1022	-.4206
	positive control	-61.1904*	1.56383	.000	-65.5312	-56.8496
2.5%	negative control	43.3925*	1.56383	.000	39.0517	47.7333
	0.5%	7.3211*	1.56383	.000	2.9803	11.6619
	1.5%	4.7614*	1.56383	.024	.4206	9.1022
	positive control	-56.4289*	1.56383	.000	-60.7697	-52.0881

positive control	negative control	99.8214*	1.56383	.000	95.4806	104.1622
	0.5%	63.7500*	1.56383	.000	59.4092	68.0908
	1.5%	61.1904*	1.56383	.000	56.8496	65.5312
	2.5%	56.4289*	1.56383	.000	52.0881	60.7697

Based on observed means.
The error term is Mean Square(Error) = 34.238.

* The mean difference is significant at the .05 level.

Homogeneous Subsets

insecticide_potention

Tukey HSD

concentrations	N	Subset 1	2	3	4
negative control	28	.0000			
0.5%	28		36.0714		
1.5%	28		38.6311		
2.5%	28			43.3925	
positive control	28				99.8214
Sig.		1.000	.478	1.000	1.000

Means for groups in homogeneous subsets are displayed.
Based on observed means.
The error term is Mean Square(Error) = 34.238.

Hours

Multiple Comparisons

insecticide_potention

Tukey HSD

(I) hours	(J) hours	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-2.4165	1.85035	.848	-7.9792	3.1462
	3	-8.5835*	1.85035	.000	-14.1462	-3.0208
	4	-19.5005*	1.85035	.000	-25.0632	-13.9378
	5	-31.0830*	1.85035	.000	-36.6457	-25.5203
	6	-42.2495*	1.85035	.000	-47.8122	-36.6868
	24	-59.5000*	1.85035	.000	-65.0627	-53.9373
2	1	2.4165	1.85035	.848	-3.1462	7.9792
	3	-6.1670*	1.85035	.020	-11.7297	-.6043
	4	-17.0840*	1.85035	.000	-22.6467	-11.5213
	5	-28.6665*	1.85035	.000	-34.2292	-23.1038
	6	-39.8330*	1.85035	.000	-45.3957	-34.2703
	24	-57.0835*	1.85035	.000	-62.6462	-51.5208
3	1	8.5835*	1.85035	.000	3.0208	14.1462
	2	6.1670*	1.85035	.020	.6043	11.7297
	4	-10.9170*	1.85035	.000	-16.4797	-5.3543
	5	-22.4995*	1.85035	.000	-28.0622	-16.9368
	6	-33.6660*	1.85035	.000	-39.2287	-28.1033
	24	-50.9165*	1.85035	.000	-56.4792	-45.3538
4	1	19.5005*	1.85035	.000	13.9378	25.0632
	2	17.0840*	1.85035	.000	11.5213	22.6467
	3	10.9170*	1.85035	.000	5.3543	16.4797
	5	-11.5825*	1.85035	.000	-17.1452	-6.0198

	6	-22.7490*	1.85035	.000	-28.3117	-17.1863
	24	-39.9995*	1.85035	.000	-45.5622	-34.4368
5	1	31.0830*	1.85035	.000	25.5203	36.6457
	2	28.6665*	1.85035	.000	23.1038	34.2292
	3	22.4995*	1.85035	.000	16.9368	28.0622
	4	11.5825*	1.85035	.000	6.0198	17.1452
	6	-11.1665*	1.85035	.000	-16.7292	-5.6038
	24	-28.4170*	1.85035	.000	-33.9797	-22.8543
6	1	42.2495*	1.85035	.000	36.6868	47.8122
	2	39.8330*	1.85035	.000	34.2703	45.3957
	3	33.6660*	1.85035	.000	28.1033	39.2287
	4	22.7490*	1.85035	.000	17.1863	28.3117
	5	11.1665*	1.85035	.000	5.6038	16.7292
	24	-17.2505*	1.85035	.000	-22.8132	-11.6878
24	1	59.5000*	1.85035	.000	53.9373	65.0627
	2	57.0835*	1.85035	.000	51.5208	62.6462
	3	50.9165*	1.85035	.000	45.3538	56.4792
	4	39.9995*	1.85035	.000	34.4368	45.5622
	5	28.4170*	1.85035	.000	22.8543	33.9797
	6	17.2505*	1.85035	.000	11.6878	22.8132

Based on observed means.

The error term is Mean Square(Error) = 34.238.

*The mean difference is significant at the .05 level.

Homogeneous Subsets

insecticide_potention

Tukey HSD

hours	N	Subset 1	2	3	4	5	6
1	20	20.2500					
2	20	22.6665					
3	20		28.8335				
4	20			39.7505			
5	20				51.3330		
6	20					62.4995	
24	20						79.7500
Sig.		.848	1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Based on observed means.

The error term is Mean Square(Error) = 34.238.

APPENDIX 6 PEARSON CORRELATION TEST

Correlations

		insecticide_potention
concentration	Pearson Correlation	.786**
	Sig. (2-tailed)	.000
	N	112
hours	Pearson Correlation	.628**
	Sig. (2-tailed)	.000
	N	112

**. Correlation is significant at the 0.01 level (2-tailed).

APPENDIX 7 LINEAR REGRESSION TEST

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	hours, concentration[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: insecticide_potention

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.861[a]	.743	.735	23.87988

a. Predictors: (Constant), hours, concentration

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	73821.798	2	36910.899	64.728	.000[a]
	Residual	62157.111	109	570.249		
	Total	135978.908	111			

a. Predictors: (Constant), hours, concentration

b. Dependent Variable: insecticide_potention

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-5.366	3.998		-1.342	.182
	concentration	13.995	2.350	.386	5.955	.000
	hours	2.978	.307	.628	9.695	.000

a. Dependent Variable: insecticide_potention

APPENDIX 8 DOCUMENTATION

Figure 1: Weighing Sulfur Powder

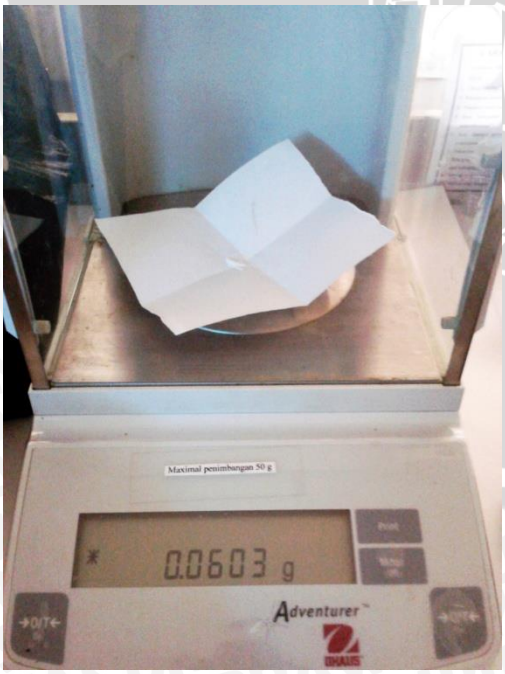

Figure 2: Weighing Sulfur Powder

Figure 3: Preparing Sulfur Solution

Figure 4: Spraying Bottles Filled with 4cc of 0.5%, 1.5%, 2.5% of Sulfur, Aquades and 0.28% of Malathion

Figure 5: Experiment in Progress (Containers Sprayed with Sulfur Solutions with Different Concentrations)

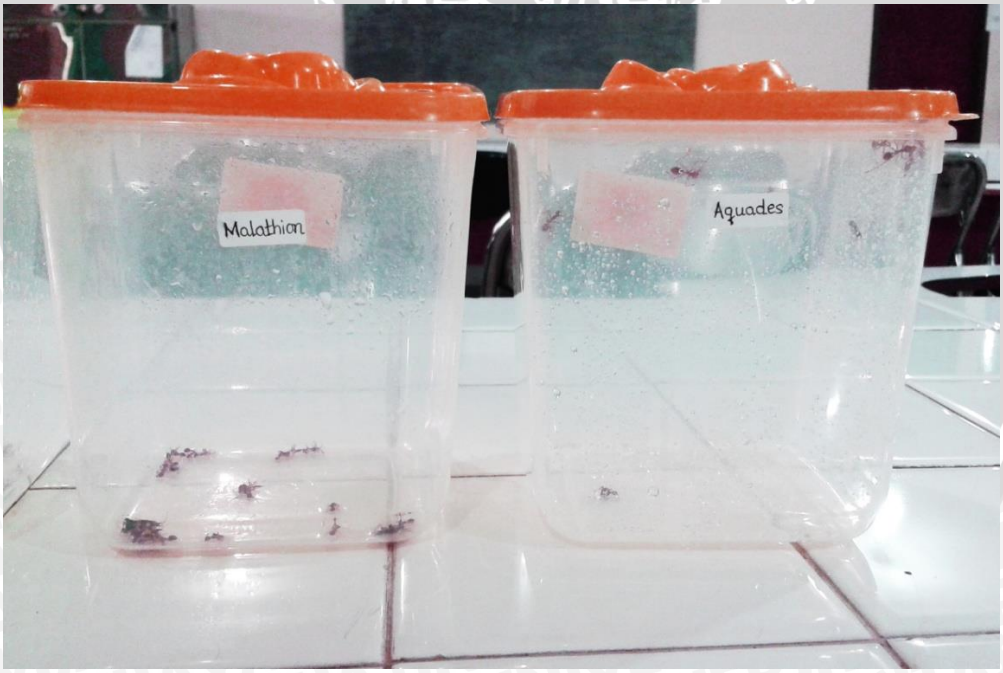

Figure 5: Experiment in Progress (Containers Sprayed with Positive Control (Malathion) and Negative Control (Aquades))