

APPENDIX

APPENDIX 1

MEAN AND STANDARD DEVIATION OF REPELLED FIRE ANTS

Descriptive Statistics

Dependent Variable:repellency

concentrations	hours	Mean	Std. Deviation	N
negative control	1	13.3300	.00000	4
	2	.0000	.00000	4
	3	.0000	.00000	4
	4	.0000	.00000	4
	5	.0000	.00000	4
	6	.0000	.00000	4
	Total		2.2217	5.07464
30%	1	1.0000E2	.00000	4
	2	1.0000E2	.00000	4
	3	88.3325	6.38082	4
	4	85.0025	3.33500	4
	5	76.6650	3.85093	4
	6	70.0000	3.84515	4
	Total		86.6667	11.79536
40%	1	1.0000E2	.00000	4
	2	1.0000E2	.00000	4
	3	96.6650	3.85093	4
	4	86.6675	5.44195	4
	5	83.3350	3.85093	4
	6	78.3325	3.33500	4
	Total		90.8333	9.18137
50%	1	1.0000E2	.00000	4
	2	1.0000E2	.00000	4



	3	98.3325	3.33500	4
	4	93.3300	.00000	4
	5	90.0000	3.84515	4
	6	85.0025	3.33500	4
	Total	94.4442	6.11147	24
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
	Total	1.0000E2	.00000	24
Total	1	82.6660	35.56862	20
	2	80.0000	41.03913	20
	3	76.6660	39.67673	20
	4	73.0000	37.92714	20
	5	70.0000	36.86555	20
	6	66.6670	35.73803	20
	Total	74.8332	37.46869	120



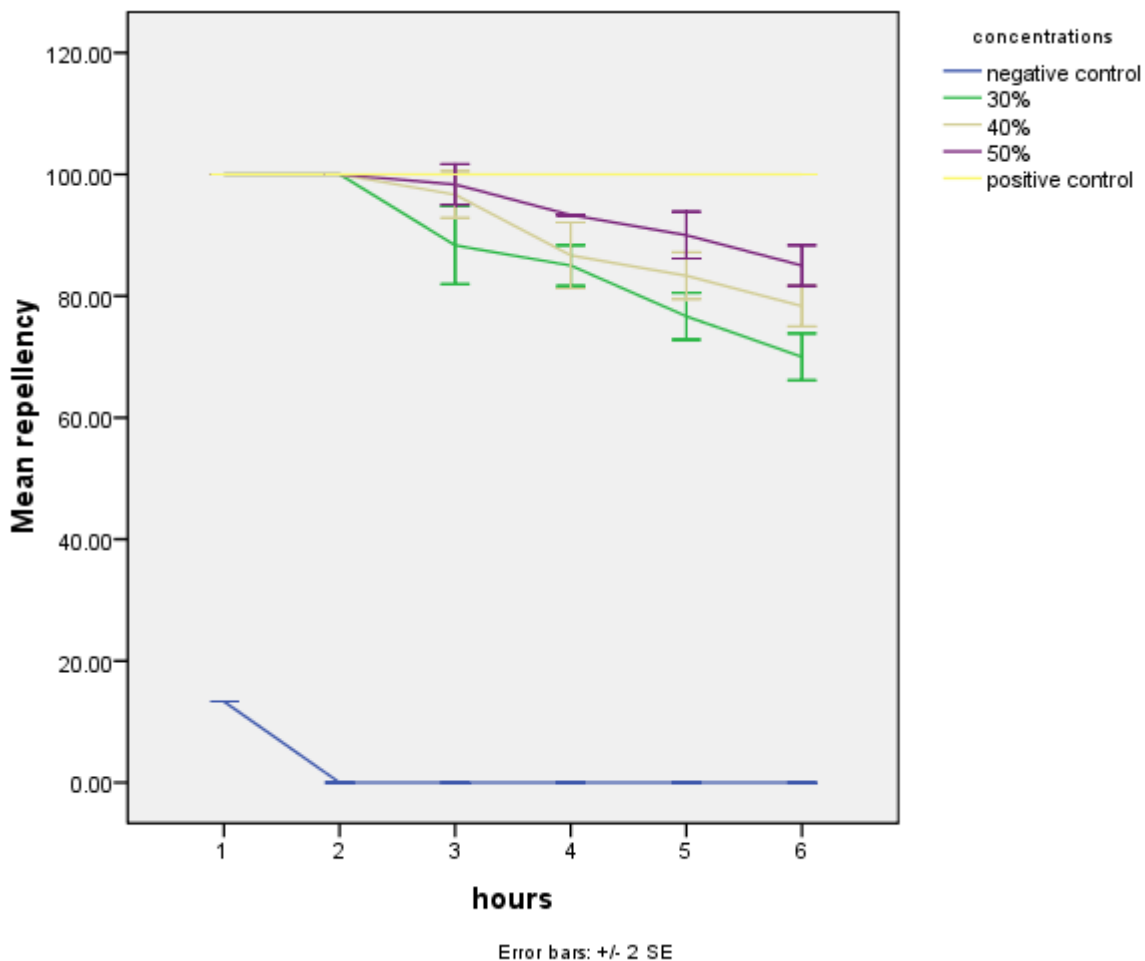


Figure 1 Line Chart of Repellency of Turmeric towards Fire ants per hour

APPENDIX 2

Table 1- KOLMOGOROV SMIRNOV NORMALITY TEST

One-Sample Kolmogorov-Smirnov Test		
		repellency
N		120
Normal Parameters <sup>a</sup>	Mean	74.8332
	Std. Deviation	37.46869
Most Extreme Differences	Absolute	.297
	Positive	.251
	Negative	-.297
Kolmogorov-Smirnov Z		3.248
Asymp. Sig. (2-tailed)		.097
a. Test distribution is Normal.		

Table 2- HOMOGENEITY TEST OF VARIANCE

**Levene's Test of Equality of Error Variances<sup>a</sup>**

Dependent Variable:repellency

F	df1	df2	Sig.
9.412	29	90	.053

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

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

**APPENDIX 3**

**ONE WAY ANOVA TEST**

**Table- 1**

ANOVA 1 <sup>ST</sup> HOUR					
Repellency	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24037.404	4	6009.351	3.425E35	.000
Within Groups	.000	15	.000		
Total	24037.404	19			

**Table- 2**

ANOVA 2 <sup>ND</sup> HOUR					
Repellency	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32000.000	4	8000.000		
Within Groups	.000	15	.000		
Total	32000.000	19			

**Table- 3**

ANOVA 3 <sup>RD</sup> HOUR					
Repellency	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29710.622	4	7427.656	557.074	.000
Within Groups	200.000	15	13.333		
Total	29910.622	19			



**Table- 4**

ANOVA 4 <sup>TH</sup> HOUR					
repellency	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27208.678	4	6802.169	834.887	.000
Within Groups	122.211	15	8.147		
Total	27330.889	19			

**Table- 5**

ANOVA 5 <sup>TH</sup> HOUR					
repellency	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25688.978	4	6422.244	722.502	.000
Within Groups	133.333	15	8.889		
Total	25822.311	19			

**Table- 6**

ANOVA 6 <sup>TH</sup> HOUR					
repellency	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24155.844	4	6038.961	815.422	.000
Within Groups	111.089	15	7.406		
Total	24266.933	19			

**APPENDIX 4**

**MULTI COMPARISON POST HOC TUKEY TEST**

**Table 1**

**Hours**

**Multiple Comparisons**

repellency

Tukey HSD

(I)	(J)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	2.6660 <sup>*</sup>	.79347	.014	.3554	4.9766
	3	6.0000 <sup>*</sup>	.79347	.000	3.6894	8.3106
	4	9.6660 <sup>*</sup>	.79347	.000	7.3554	11.9766
	5	12.6660 <sup>*</sup>	.79347	.000	10.3554	14.9766
	6	15.9990 <sup>*</sup>	.79347	.000	13.6884	18.3096
2	1	-2.6660 <sup>*</sup>	.79347	.014	-4.9766	-.3554
	3	3.3340 <sup>*</sup>	.79347	.001	1.0234	5.6446
	4	7.0000 <sup>*</sup>	.79347	.000	4.6894	9.3106
	5	10.0000 <sup>*</sup>	.79347	.000	7.6894	12.3106
	6	13.3330 <sup>*</sup>	.79347	.000	11.0224	15.6436
3	1	-6.0000 <sup>*</sup>	.79347	.000	-8.3106	-3.6894
	2	-3.3340 <sup>*</sup>	.79347	.001	-5.6446	-1.0234
	4	3.6660 <sup>*</sup>	.79347	.000	1.3554	5.9766
	5	6.6660 <sup>*</sup>	.79347	.000	4.3554	8.9766
	6	9.9990 <sup>*</sup>	.79347	.000	7.6884	12.3096
4	1	-9.6660 <sup>*</sup>	.79347	.000	-11.9766	-7.3554
	2	-7.0000 <sup>*</sup>	.79347	.000	-9.3106	-4.6894
	3	-3.6660 <sup>*</sup>	.79347	.000	-5.9766	-1.3554
	5	3.0000 <sup>*</sup>	.79347	.004	.6894	5.3106
	6	6.3330 <sup>*</sup>	.79347	.000	4.0224	8.6436
5	1	-12.6660 <sup>*</sup>	.79347	.000	-14.9766	-10.3554



2		-10.0000*	.79347	.000	-12.3106	-7.6894
3		-6.6660*	.79347	.000	-8.9766	-4.3554
4		-3.0000*	.79347	.004	-5.3106	-.6894
6		3.3330*	.79347	.001	1.0224	5.6436
6	1	-15.9990*	.79347	.000	-18.3096	-13.6884
	2	-13.3330*	.79347	.000	-15.6436	-11.0224
	3	-9.9990*	.79347	.000	-12.3096	-7.6884
	4	-6.3330*	.79347	.000	-8.6436	-4.0224
	5	-3.3330*	.79347	.001	-5.6436	-1.0224

Based on observed means.

The error term is Mean Square(Error) = 6.296.

\*. The mean difference is significant at the 0.05 level.

**Table 2**

**Homogeneous Subsets**

**repellency**

Tukey HSD

hours	N	Subset					
		1	2	3	4	5	6
6	20	66.6670					
5	20		70.0000				
4	20			73.0000			
3	20				76.6660		
2	20					80.0000	
1	20						82.6660
Sig.		1.000	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) = 6.296.

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**Table 4**  
**Concentrations**

**Multiple Comparisons**

repellency

Tukey HSD

(I) concentrations	(J) concentrations	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
negative control	30%	-84.4450*	.72433	.000	-86.4614	-82.4286
	40%	-88.6117*	.72433	.000	-90.6281	-86.5952
	50%	-92.2225*	.72433	.000	-94.2389	-90.2061
	positive control	-97.7783*	.72433	.000	-99.7948	-95.7619
30%	negative control	84.4450*	.72433	.000	82.4286	86.4614
	40%	-4.1667*	.72433	.000	-6.1831	-2.1502
	50%	-7.7775*	.72433	.000	-9.7939	-5.7611
	positive control	-13.3333*	.72433	.000	-15.3498	-11.3169
40%	negative control	88.6117*	.72433	.000	86.5952	90.6281
	30%	4.1667*	.72433	.000	2.1502	6.1831
	50%	-3.6108*	.72433	.000	-5.6273	-1.5944
	positive control	-9.1667*	.72433	.000	-11.1831	-7.1502
50%	negative control	92.2225*	.72433	.000	90.2061	94.2389
	30%	7.7775*	.72433	.000	5.7611	9.7939
	40%	3.6108*	.72433	.000	1.5944	5.6273
	positive control	-5.5558*	.72433	.000	-7.5723	-3.5394
positive control	negative control	97.7783*	.72433	.000	95.7619	99.7948
	30%	13.3333*	.72433	.000	11.3169	15.3498
	40%	9.1667*	.72433	.000	7.1502	11.1831
	50%	5.5558*	.72433	.000	3.5394	7.5723

Based on observed means.

The error term is Mean Square(Error) = 6.296.

\*. The mean difference is significant at the 0.05 level.

**Table 5**  
**Homogeneous Subsets**

repellency

Tukey HSD

concentrations	N	Subset				
		1	2	3	4	5
negative control	24	2.2217				
30%	24		86.6667			
40%	24			90.8333		
50%	24				94.4442	
positive control	24					1.0000E2
Sig.		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) = 6.296.						



**APPENDIX 5**

**PEARSON CORRELATION TEST**

**Correlations**

		repellency
concentration	Pearson Correlation	.929**
	Sig. (2-tailed)	.000
	N	96
hours	Pearson Correlation	-.177
	Sig. (2-tailed)	.085
	N	96

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



**APPENDIX 6**

**LINIER REGRESSION TEST**

**Table 1**

Variables Entered/Removed <sup>b</sup>			
Model	Variables Entered	Variables Removed	Method
1	hours, concentration <sup>a</sup>		. Enter

a. All requested variables entered.

b. Dependent Variable: repellency

**Table 2**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.946 <sup>a</sup>	.894	.892	12.96499

a. Predictors: (Constant), hours, concentration

**Table 3**

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	132430.911	2	66215.455	393.926	.000 <sup>a</sup>
	Residual	15632.465	93	168.091		
	Total	148063.375	95			

a. Predictors: (Constant), hours, concentration

b. Dependent Variable: repellency



**Table 4**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.237	3.689		6.570	.000
	concentration	1.950	.071	.929	27.575	.000
	hours	-4.059	.775	-.177	-5.239	.000

a. Dependent Variable: repency



APPENDIX 7



Figure 1 – Preparing of the different concentrations of Turmeric solution



Figure 2- Apparatus set used in Experi