

Additional file 2: Text S1. Statistical analysis to test for significant differences using ANOVA of elevated enzymes and remaining enzyme activities in each location.

Statistical analyses- Biochemical analysis

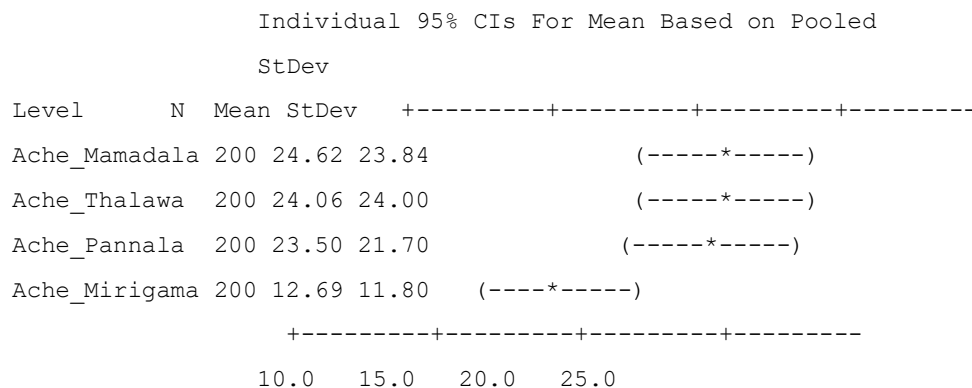
Descriptive statistics in Minitab (version 15) were used to test mean values and standard errors of each assays in each populations (Table 2).

One-way ANOVA was used to compare the acetylcholinesterase remaining activity (Ache), esterase (Est), glutathione-s-transferase (Gst) and monooxygenases activities in four populations (Table 2).

One-way ANOVA: Ache_Mamadala, Ache_Thalawa, Ache_Pannala, Ache_Mirigama

Source	DF	SS	MS	F	P
Factor	3	19412	6471	14.75	0.000
Error	792	347414	439		
Total	795	366826			

S = 20.94 R-Sq = 5.29% R-Sq(adj) = 4.93%



Pooled StDev = 20.94

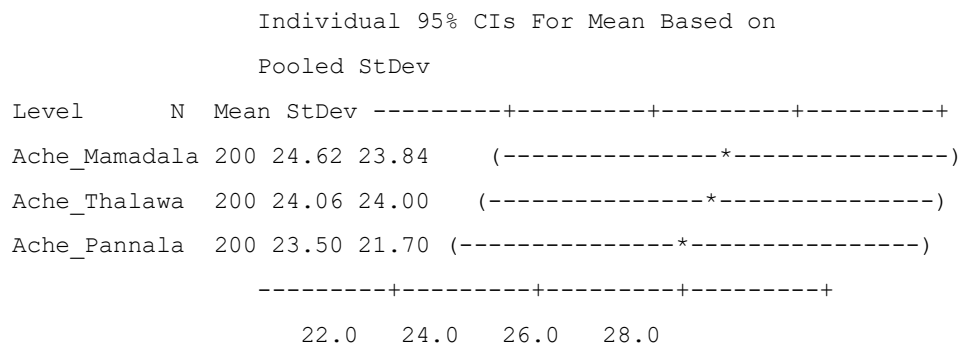
ANOVA: $F_{(3,792)} = 14.75$, $P = 0.000$

The remaining activities of AChE target site were significantly higher when compared with that of flies originated from Mirigama ($P < 0.005$).

One-way ANOVA: Ache_Mamadala, Ache_Thalawa, Ache_Pannala

Source	DF	SS	MS	F	P
Factor	2	125	63	0.12	0.890
Error	594	319827	538		
Total	596	319953			

S = 23.20 R-Sq = 0.04% R-Sq(adj) = 0.00%



Pooled StDev = 23.20

ANOVA: $F_{(2, 594)} = 0.12, P = 0.890$

The remaining activities of AChE target site were comparable in those flies that originated from Mamadala, Thalawa and Pannala ($P > 0.05$).

One-way ANOVA: Est_Mamadala, Est_Thalawa, Est_Pannala, Est_Mirigama

Source	DF	SS	MS	F	P
Factor	3	0.2086	0.0695	5.00	0.002
Error	792	11.0181	0.0139		
Total	795	11.2266			

S = 0.1179 R-Sq = 1.86% R-Sq(adj) = 1.49%

				Individual 95% CIs For Mean Based on Pooled StDev
Level	N	Mean	StDev	-----+-----+-----+-----+-----
Est_Mamadala	199	0.1082	0.1315	(-----*-----)
Est_Thalawa	199	0.1054	0.1306	(-----*-----)
Est_Pannala	199	0.1055	0.1307	(-----*-----)
Est_Mirigama	199	0.0690	0.0649	(-----*-----)
				-----+-----+-----+-----+-----
				0.060 0.080 0.100 0.120

Pooled StDev = 0.1179

ANOVA: $F_{(3, 792)} = 5.00$, $P = 0.002$

The mean activities of esterases were significantly higher when compared with that of flies originated from Mirigama ($P < 0.005$).

One-way ANOVA: Est_Mamadala, Est_Thalawa, Est_Pannala

Source	DF	SS	MS	F	P
Factor	2	0.0010	0.0005	0.03	0.972
Error	594	10.1834	0.0171		
Total	596	10.1844			

S = 0.1309 R-Sq = 0.01% R-Sq(adj) = 0.00%

				Individual 95% CIs For Mean Based on Pooled StDev
Level	N	Mean	StDev	-----+-----+-----+-----+-----
Est_Mamadala	199	0.1082	0.1315	(-----*-----)

Est_Thalawa	199	0.1054	0.1306	(-----*-----)
Est_Pannala	199	0.1055	0.1307	(-----*-----)
				-----+-----+-----+-----
				0.090 0.100 0.110 0.120

Pooled StDev = 0.1309

ANOVA: $F_{(2, 594)} = 0.03$, $P = 0.972$

The mean activities of esterases were comparable in those flies that originated from Mamadala, Thalawa and Pannala ($P > 0.05$).

One-way ANOVA: Gst_Mamadala, Gst_Thalawa, Gst_Pannala, Gst_Mirigama

Source	DF	SS	MS	F	P
Factor	3	0.2405	0.0802	2.02	0.110
Error	788	31.3213	0.0397		
Total	791	31.5618			

S = 0.1994 R-Sq = 0.76% R-Sq(adj) = 0.38%

				Individual 95% CIs For Mean Based on	
				Pooled StDev	
Level	N	Mean	StDev	---+-----+-----+-----+-----	
Gst_Mamadala	198	0.1984	0.2036	(-----*-----)	
Gst_Thalawa	198	0.2213	0.2333	(-----*-----)	
Gst_Pannala	198	0.1984	0.2036	(-----*-----)	
Gst_Mirigama	198	0.1721	0.1472	(-----*-----)	
				---+-----+-----+-----+-----	
				0.150 0.180 0.210 0.240	

Pooled StDev = 0.1994

ANOVA: $F_{(3, 788)} = 2.02$, $P = 0.110$

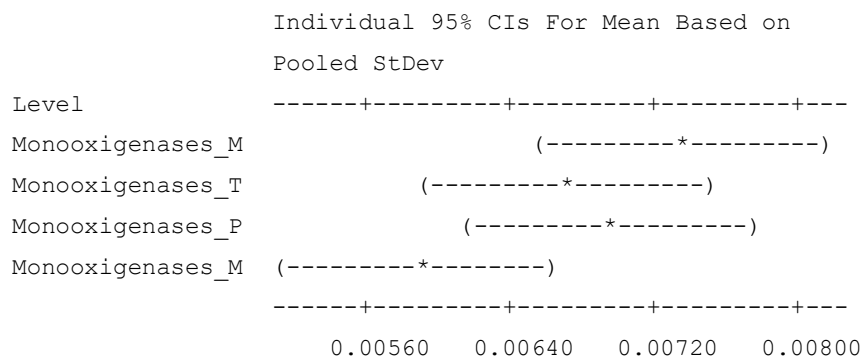
The mean activities of glutathione-s-transferases were comparable in those flies that originated from Mamadala, Thalawa, Pannala and Mirigama ($P > 0.05$).

One-way ANOVA: Monooxygenas, Monooxygenas, Monooxygenas, Monooxygenas

Source	DF	SS	MS	F	P
Factor	3	0.0002311	0.0000770	2.46	0.062
Error	792	0.0248051	0.0000313		
Total	795	0.0250362			

S = 0.005596 R-Sq = 0.92% R-Sq(adj) = 0.55%

Level	N	Mean	StDev
Monooxygenases_M	199	0.007374	0.005902
Monooxygenases_T	199	0.006726	0.005877
Monooxygenases_P	199	0.006943	0.006010
Monooxygenases_M	199	0.005893	0.004448



Pooled StDev = 0.005596

ANOVA: $F_{(3, 792)} = 2.46$, $P = 0.062$

The mean activities of monooxygenases were comparable in those flies that originated from Mamadala, Thalawa, Pannala and Mirigama ($P > 0.05$).