

Phase 2

Table 1: Effect of Wellia 1 on Body Weight and Fasting Blood Glucose in Streptozotocin-Nicotinamide induced diabetes mellitus in rats:

Parameter	Vehicle Control	Diabetic control	Standard Metformin 300 mg/Kg	Wellia 1 (998mg/kg) (Therapeutic)	Wellia 1 (998mg/kg) (Prophylactic)
Body Weight (gm)					
DAY 21	216± 10.12	156.17± 3.33#	170.67± 5.75	156.17± 6.93	158.50 ± 9.69
DAY 28	218.83± 10.30	153.67 ± 4.61#	164.83 ± 4.47	152.17± 7.12	156.33 ± 10.07
DAY 35	225± 10.68	150 ± 2.90#	165.17± 6.13	156.50± 7.67	164.83 ± 11.56
DAY 42	229.67± 11.43	150.83± 3.32#	166.50± 4.71	161.00± 8.15	174.80 ± 7.20
DAY 49	216.50± 7.01	151.20± 6.22#	176.67± 6.18	161.50± 5.89	186.50 ± 10.61
DAY 56	213.17± 5.22	137.40± 11.94#	182± 9.83*	160.33± 9.02	181.25 ± 16.24
DAY 63	220.33 ± 4.69	144.40± 11.18#	182± 10.71*	148.00± 8.98	196.75± 17.31**
DAY 70	216.20 ± 5.33	142.60 ± 8.61#	190.25± 13.15*	149.25± 12.50	204.75 ± 18.91**
DAY 77	216.20 ± 5.33	142.60± 8.61#	190.25± 13.15*	149.25± 12.50	209.00 ± 20.82***
DAY 84	221.60 ± 6.30	142.60± 6.64#	195± 14*	149.25± 12.50	211.50± 23.41***
Blood Glucose (mg/dL)					
DAY 21	134.33± 3.26	340.17± 11.56#	254.8± 9.92***	282.17± 2.72**	282.67± 5.98**

DAY 28	140.33± 4.13	309.67 ± 6.04#	196.8± 17.07***	238.00 ± 12.60***	226.50± 13.69***
DAY 35	130.50 ± 7.16	310.50 ± 10.08#	180.2± 15.38***	224.00 ± 10.82***	215.50± 9.73***
DAY 42	122.17 ± 6.68	280.00± 12.45#	175.3± 14.34***	219.17± 10.45**	208.00± 11.82***
DAY 49	126.67 ± 10.95	282.20± 8.33#	179.8± 11.72***	213.33± 10.68***	201.50± 15.96***
DAY 56	128.50 ± 8.82	281.20 ± 7.76#	175.3± 10.70***	208.17± 10.77***	197.00± 13.57***
DAY 63	123.50 ± 6.67	308.00 ± 14.95#	173.4± 10.90***	184.60 ± 14.16***	151.00± 15.60***
DAY 70	121.00 ± 5.66	313.60 ± 12.30#	156.8± 9.06***	192.75± 11.46***	145.00± 15.38***
DAY 77	121.00 ± 5.66	313.60 ± 12.30#	159.5± 8.82***	191.00± 11.12***	141.50± 15.11***
DAY 84	118.40 ± 3.87	296.20 ± 5.09#	161.08 ± 8.80***	192.25± 9.66***	150.00± 18.44***

Values are expressed as mean ± SEM, n= 6.

Two-way ANOVA followed by Bonferroni t-test.

#p<0.001 when compared to Vehicle control;

*p<0.05, **p<0.01, ***p<0.001 when compared to Diabetic control

Wellia 1 and Metformin were administered orally.

Table 2: Effect of Wellia 1 on complete blood count in Streptozotocin-Nicotinamide induced diabetes mellitus in rats:

Parameter	Vehicle Control	Diabetic control	Standard Metformin 300 mg/Kg	Wellia 1 998 mg/Kg (Therapeutic)	Wellia 1 998 mg/Kg (Prophylactic)
RBC (mill/cu mm)	7.43± 0.18	6.82± 0.34	7.72± 0.49	7.51± 0.25	7.92± 0.21
WBC (mill/cu mm)	13160± 1067.2	10480± 1573.4	15035.25± 615.3	10477.5± 278.2	13575± 1047.8
Neutrophil count (/cu mm)	2581± 329.66	1788.2± 265.49	2570± 411.62	2667.5± 404.38	2336± 202.41
Lymphocyte count (/cu mm)	9553.4± 1058.80	6504± 1630.68	13684± 1837.85	6537.5± 263.69	11224± 1233.18
Eosinophil count (/cu mm)	486.2± 65.35	195.2± 69.73	428.75± 57.45	145.25± 19.60	479.5± 104.32
Monocyte Count (/cu mm)	539.4± 107.50	932.6± 150.42	655.75± 194.67	582.25± 94.05	535.5± 198.40
Platelet Count (/cu mm)	1081820± 39583.25	623000± 59403.70	2757250± 1508141.96	721250± 72980.63	1002750± 57779.08
Hemoglobin (gm/dL)	12.72± 0.24	11.8± 0.62	12.58± 0.22	12.83± 0.36	13.6± 0.59

Values are expressed as mean ± SEM, n= 6.

One way ANOVA followed by Bonferroni t-test.

No significant change when compared to Vehicle control;

No significant change when compared to Diabetic control

Wellia 1 and Metformin were administered orally.

RBC- Red Blood Cell; WBC-White Blood Cell

Table 3: Effect of Wellia 1 on Urine Volume, Bone strength and Blood Pressure in Streptozotocin-Nicotinamide induced diabetes mellitus in rats:

Parameter	Vehicle Control	Diabetic control	Standard Metformin 300 mg/Kg	Wellia 1 998 mg/Kg (Therapeutic)	Wellia 1 998 mg/Kg (Prophylactic)
Urine Volume (ml)	4.8± 0.44	38.6± 3.72 ^{###}	11± 1.77 ^{**}	45.25± 7.71	6± 1.17 ^{***}
Bone Strength (Kg)	8.56± 0.31	3.68± 0.39 ^{###}	8.73± 0.38 ^{***}	6.6± 0.37 ^{**}	8.7± 0.76 ^{***}
SBP (mm Hg)	122.2± 1.78	224.2± 3.76 ^{###}	130.75± 1.60 ^{***}	135± 4.11 ^{***}	135.25± 1.85 ^{***}
DBP (mm Hg)	81.2± 1.37	102± 1.90 ^{###}	88.25± 1.56 ^{***}	89.75± 1.47 ^{***}	94.25± 0.89

Values are expressed as mean ± SEM, n= 6.

One way ANOVA followed by Bonferroni t-test.

^{###}p<0.001 when compared to Vehicle control;

^{**}p<0.01, ^{***}p<0.001 when compared to Diabetic control

Wellia 1 and Metformin were administered orally.

SBP- Systolic Blood Pressure; DBP- Diastolic Blood Pressure

Table 4: Effect of Wellia 1 on Liver, Kidney and Lipid profile Streptozotocin-Nicotinamide induced diabetes mellitus in rats:

Parameter	Vehicle Control	Diabetic control	Standard Metformin 300 mg/Kg	Wellia 1 998 mg/Kg (Therapeutic)	Wellia 1 998 mg/Kg (Prophylactic)
AST (U/L)	30.6± 3.55	133.6± 2.09 ^{###}	109.75± 4.81 ^{**}	94.5± 2.08 ^{***}	71± 1.80 ^{***}
ALT (U/L)	29± 1.06	127± 16.72 ^{###}	84.75± 7.22	76.75± 7.09 [*]	66.75± 3.91 [*]
ALP (U/L)	180.8± 36.01	747.4± 41.68 ^{###}	188± 9.85 ^{***}	268.25± 15.64 ^{***}	224.75± 39.68 ^{***}
BUN (mg/dL)	14.38± 0.89	30.4± 1.15 ^{###}	18.65± 0.44 ^{***}	22.34± 1.25 ^{**}	14.25± 1.29 ^{***}
Serum Creatinine (mg/dL)	0.54± 0.02	1.27± 0.11 ^{###}	0.47± 0.03 ^{***}	0.50± 0.01 ^{***}	0.39± 0.02 ^{***}
HDL (mg/dL)	45.6± 2.07	15.8± 1.18 ^{###}	42.25± 3.07 ^{***}	36.5± 0.75 ^{***}	46.25± 2.36 ^{***}
LDL (mg/dL)	90.28± 0.54	165.2± 1.91 ^{###}	87.73± 1.98 ^{***}	87.5± 0.74 ^{***}	86.9± 2.62 ^{***}
VLDL (mg/dL)	32.72± 3.50	48.12± 1.62 ^{##}	31.5± 1.57 ^{**}	37.55± 1.37	31.15± 0.34 ^{**}
TC (mg/dL)	117.4± 4.30	149± 2.15 ^{###}	133.25± 5.49	135.5± 1.48	125± 3.02 ^{**}
TG (mg/dL)	163.6± 17.51	240.6± 8.10 ^{##}	157.5± 7.83 ^{**}	187.75± 6.87	155.75± 1.71 ^{**}

Values are expressed as mean ± SEM, n= 6.

One way ANOVA followed by Bonferroni t-test.

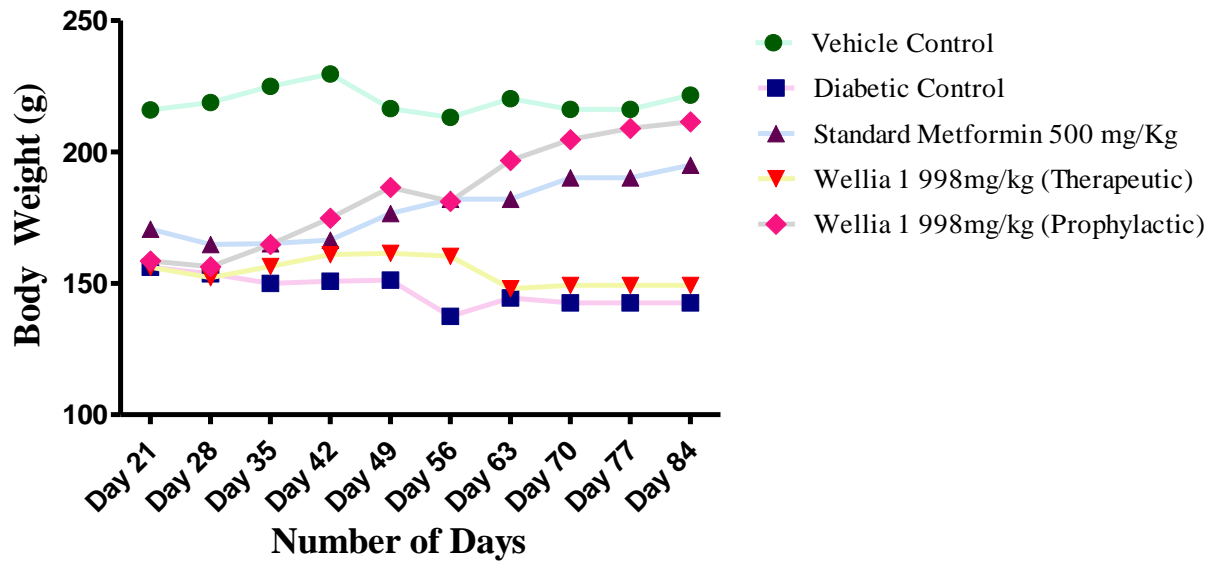
^{##}p<0.01, ^{###}p<0.001 when compared to Vehicle control;

^{**}p<0.01, ^{***}p<0.001 when compared to Diabetic control

Wellia 1 and Metformin were administered orally.

AST- Aspartate Aminotransferase; ALT- Alanine Aminotransferase; ALP - Alkaline Phosphatase; BUN- Blood Urea Nitrogen; TC – Total Cholesterol, LDL – Low density lipoprotein; TG – Triglycerides; HDL – High density lipoprotein; VLDL- Very low-density lipoprotein

Figure 1: Effect of Wellia 1 on Body weight (g) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats

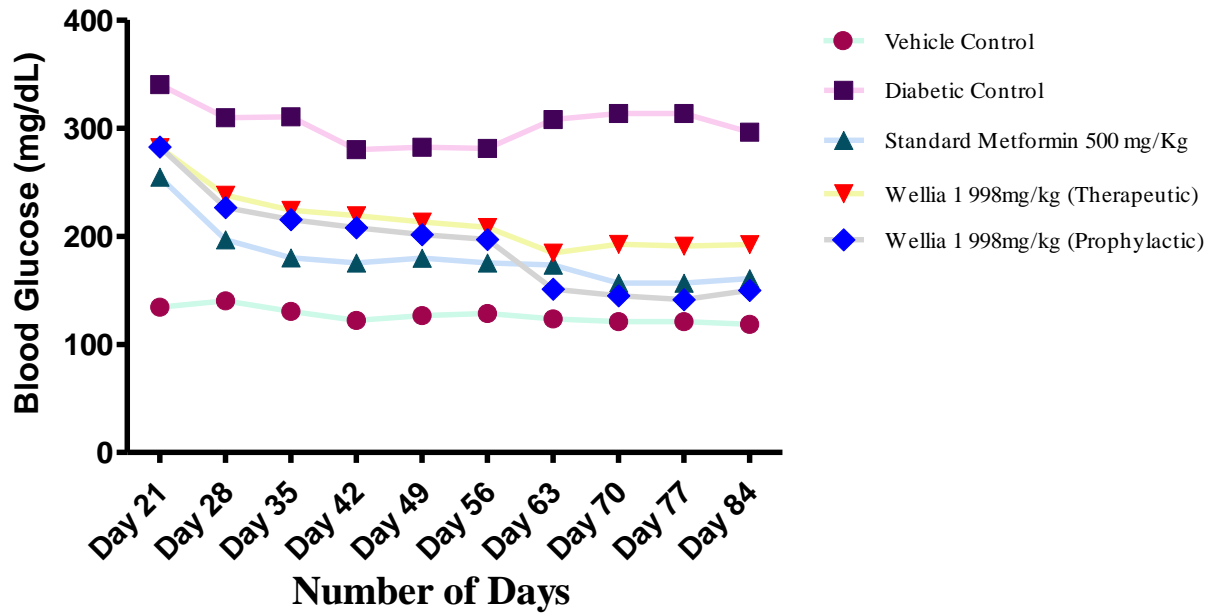


Values are expressed as mean \pm SEM, n= 6.

Two-way ANOVA followed by Bonferroni t-test.

Wellia 1 and Metformin were administered orally.

Figure 2: Effect of Wellia 1 on Blood glucose (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats

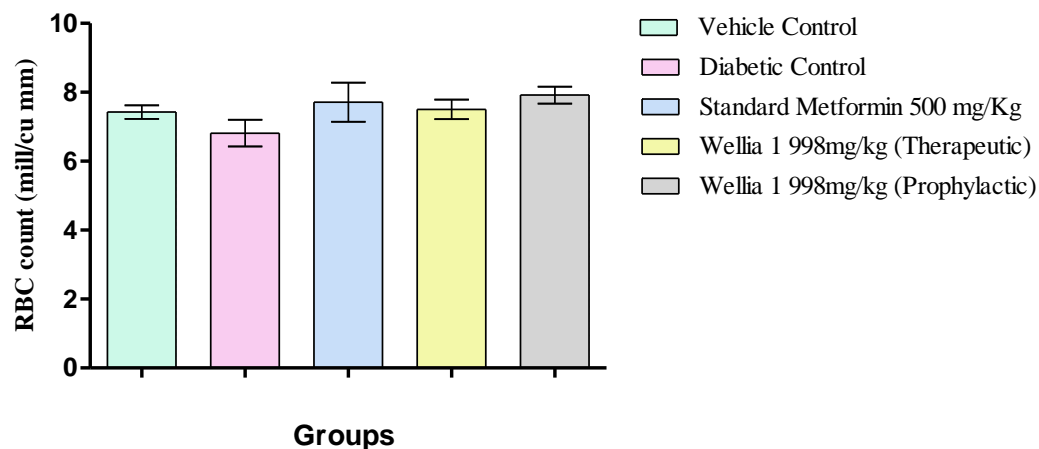


Values are expressed as mean \pm SEM, n= 6.

Two-way ANOVA followed by Bonferroni t-test.

Wellia 1 and Metformin were administered orally.

Figure 3: Effect of Wellia 1 on RBC (mill/cu mm) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.

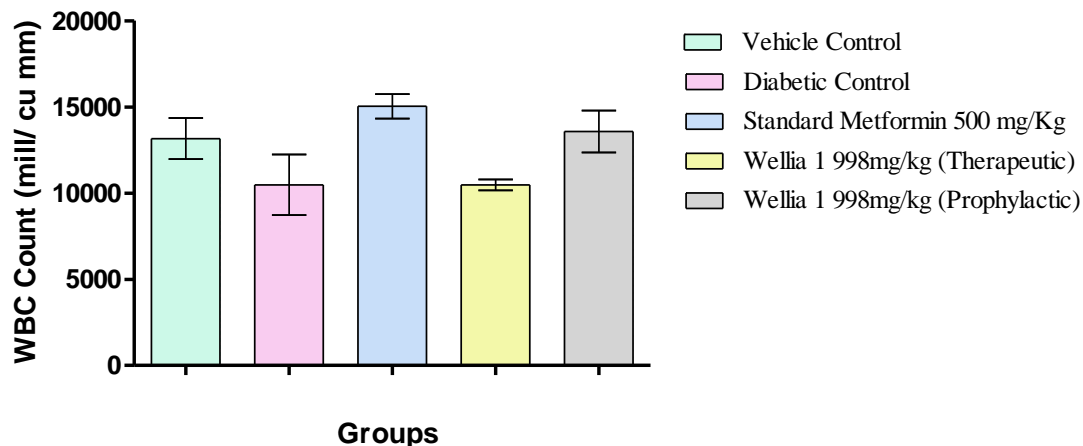
One way ANOVA followed by Bonferroni's t-test.

No significant change when compared to Vehicle control;

No significant change when compared to Diabetic control

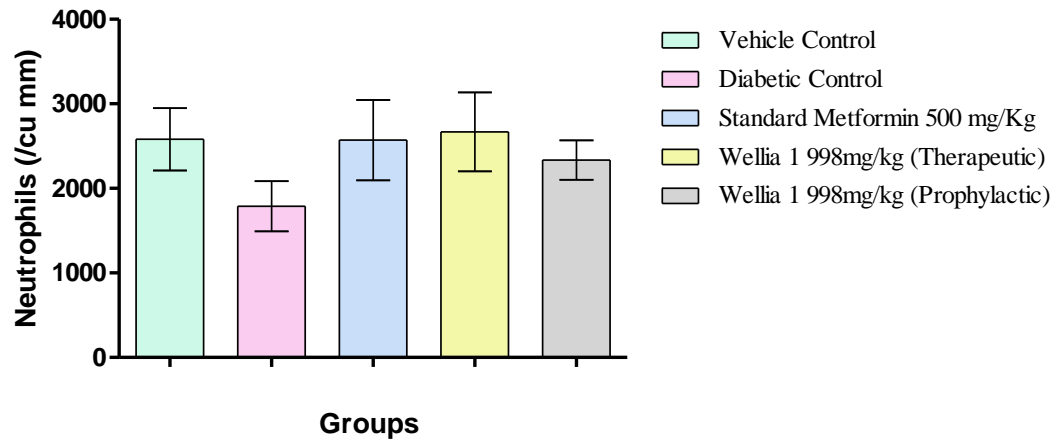
Wellia 1 and Metformin were administered orally.

Figure 4: Effect of Wellia 1 on WBC (mill/cu mm) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



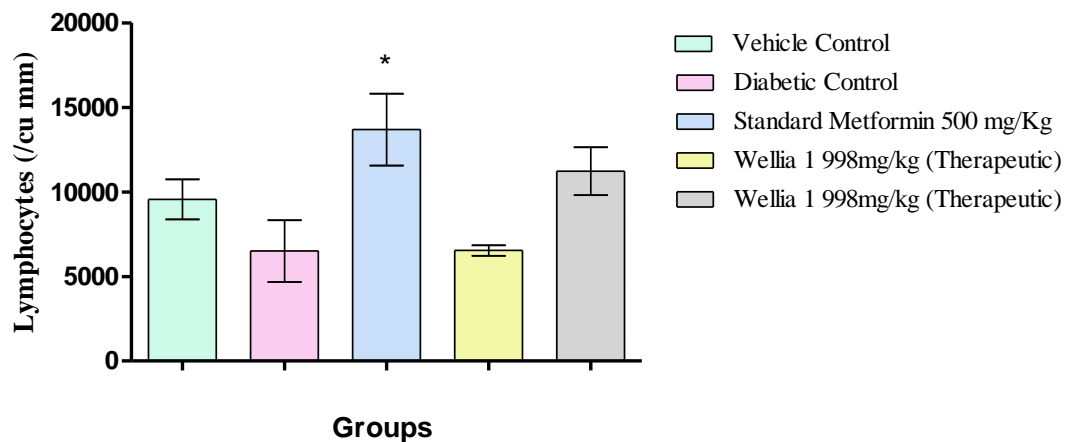
Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
No significant change when compared to Vehicle control;
No significant change when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 5: Effect of Wellia 1 on Neutrophils count (/cu mm) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
No significant change when compared to Vehicle control;
No significant change when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 6: Effect of Wellia 1 on Lymphocytes count (/cu mm) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.

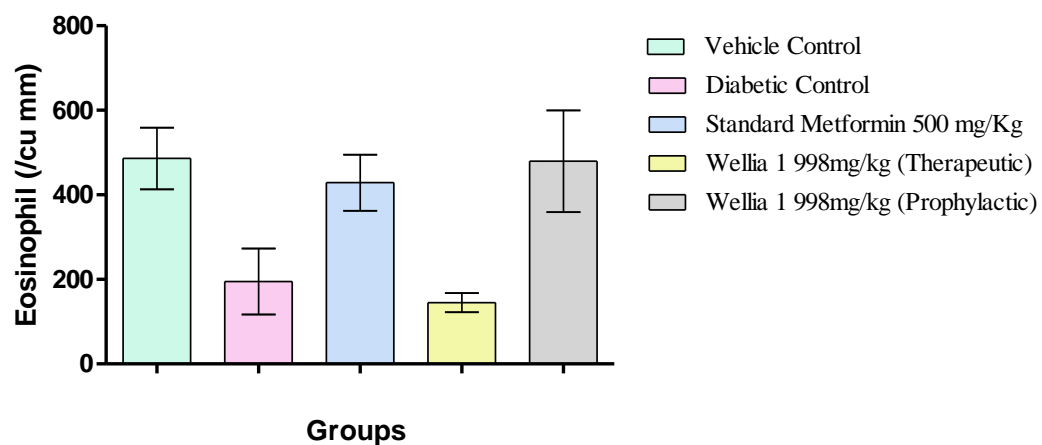
One-way ANOVA followed by Bonferroni's t-test.

No significant change when compared to Vehicle control;

No significant change when compared to Diabetic control

Wellia 1 and Metformin were administered orally

Figure 7: Effect of Wellia 1 on Eosinophil count (/cu mm) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats

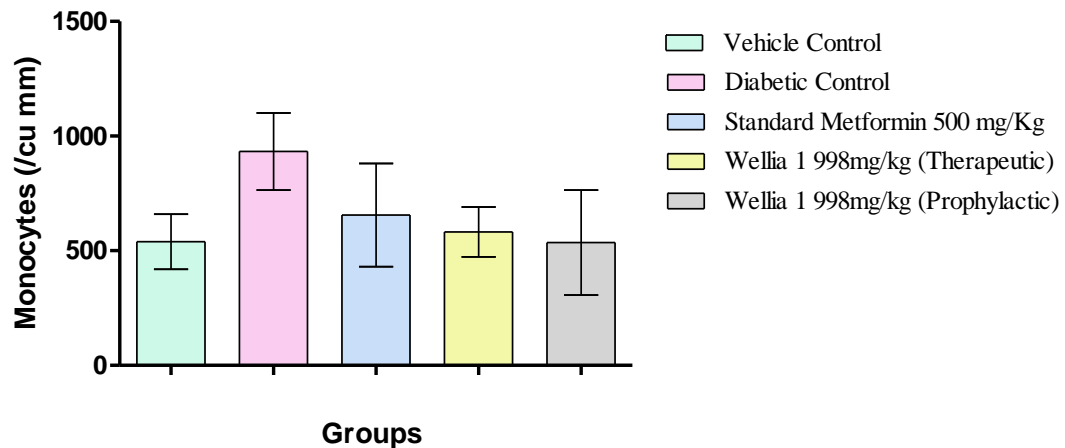


Values are expressed as mean \pm SEM, n= 6.

One-way ANOVA followed by Bonferroni's t-test.

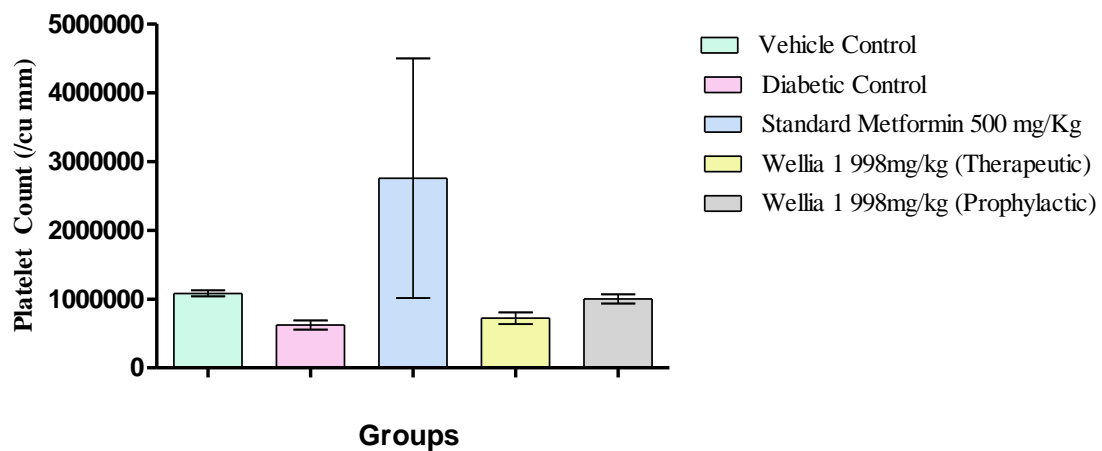
No significant change when compared to Vehicle control;
No significant change when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 8: Effect of Wellia 1 on Monocyte count (/cu mm) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



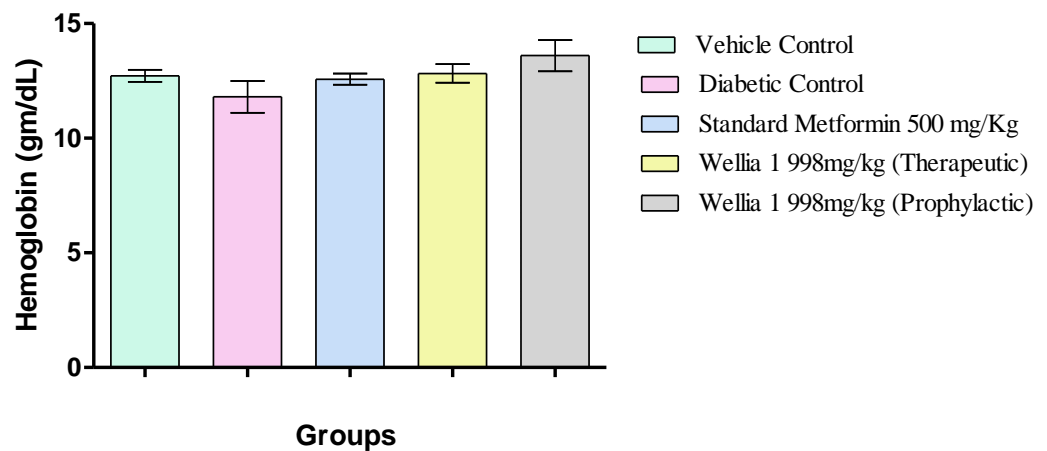
Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
No significant change when compared to Vehicle control;
No significant change when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 9: Effect of Wellia 1 on Platelet count (/cu mm) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



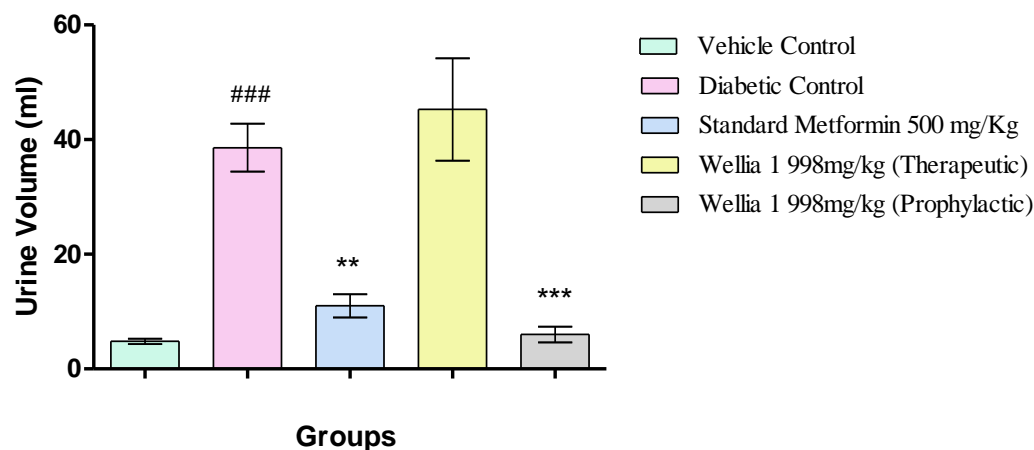
Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
No significant change when compared to Vehicle control;
No significant change when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 10: Effect of Wellia 1 on Hemoglobin (gm/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
No significant change when compared to Vehicle control;
No significant change when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 11: Effect of Wellia 1 on Urine Volume (ml) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.

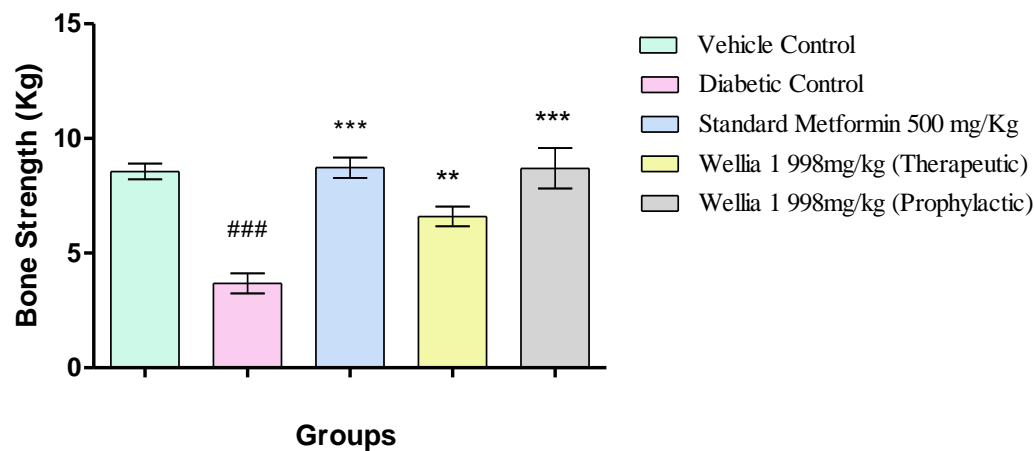
One-way ANOVA followed by Bonferroni's t-test.

###p<0.001 when compared to Vehicle control;

p<0.01, *p<0.001 when compared to Diabetic control

Wellia 1 and Metformin were administered orally

Figure 12: Effect of Wellia 1 on Bone strength (Kg) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats

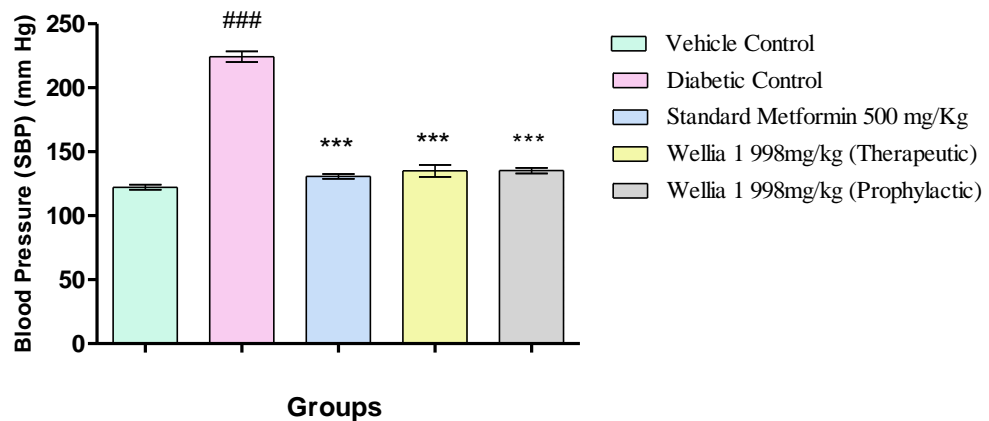


Values are expressed as mean \pm SEM, n= 6.

One-way ANOVA followed by Bonferroni's t-test.

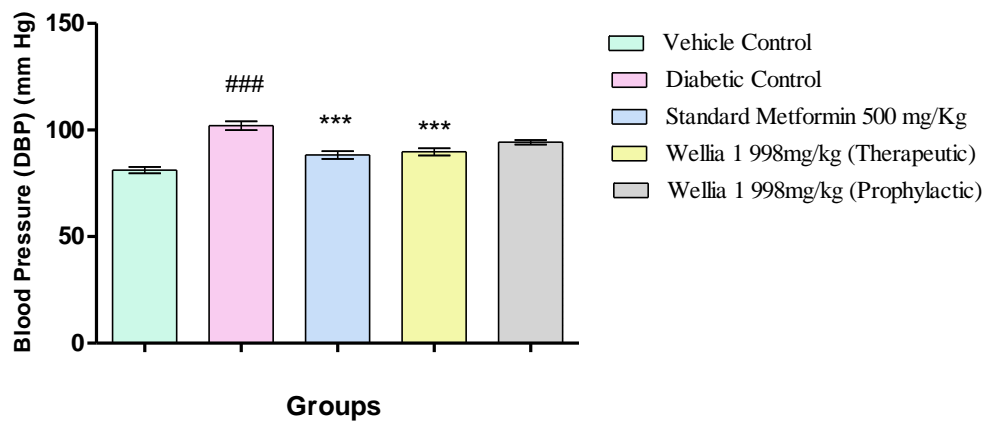
###p<0.001 when compared to Vehicle control;
 p<0.01, *p<0.001 when compared to Diabetic control
 Wellia 1 and Metformin were administered orally

Figure 13: Effect of Wellia 1 on Systolic Blood Pressure (mm Hg) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



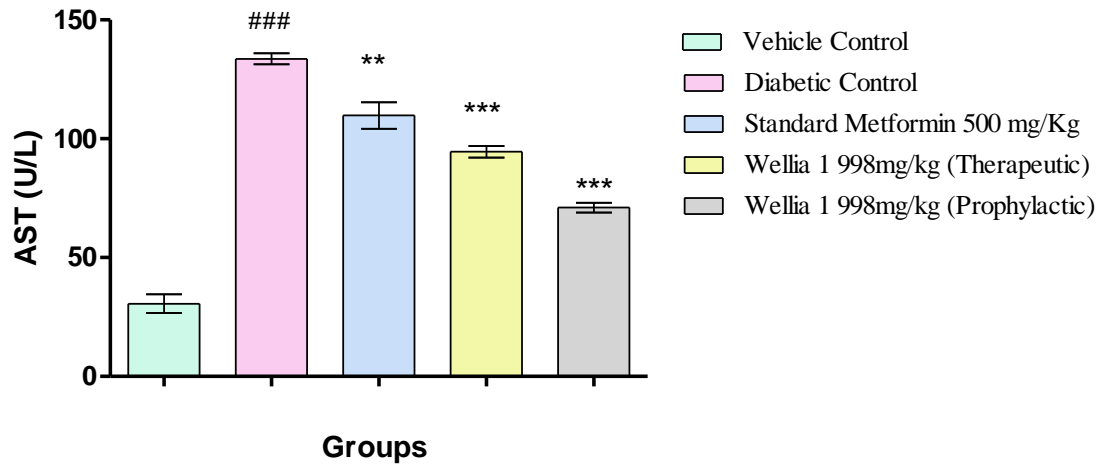
Values are expressed as mean \pm SEM, n= 6.
 One-way ANOVA followed by Bonferroni's t-test.
 ###p<0.001 when compared to Vehicle control;
 ***p<0.001 when compared to Diabetic control
 Wellia 1 and Metformin were administered orally

Figure 14: Effect of Wellia 1 on Diastolic Blood Pressure (mm Hg) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



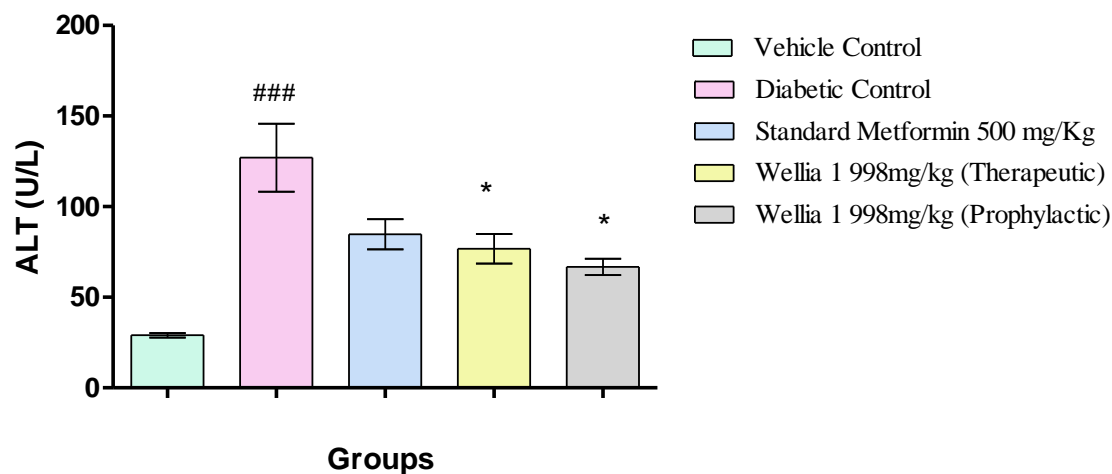
Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
###p<0.001 when compared to Vehicle control;
***p<0.001 when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 15: Effect of Wellia 1 on AST (U/L) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
###p<0.001 when compared to Vehicle control;
p<0.01, *p<0.001 when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 16: Effect of Wellia 1 on ALT (U/L) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.

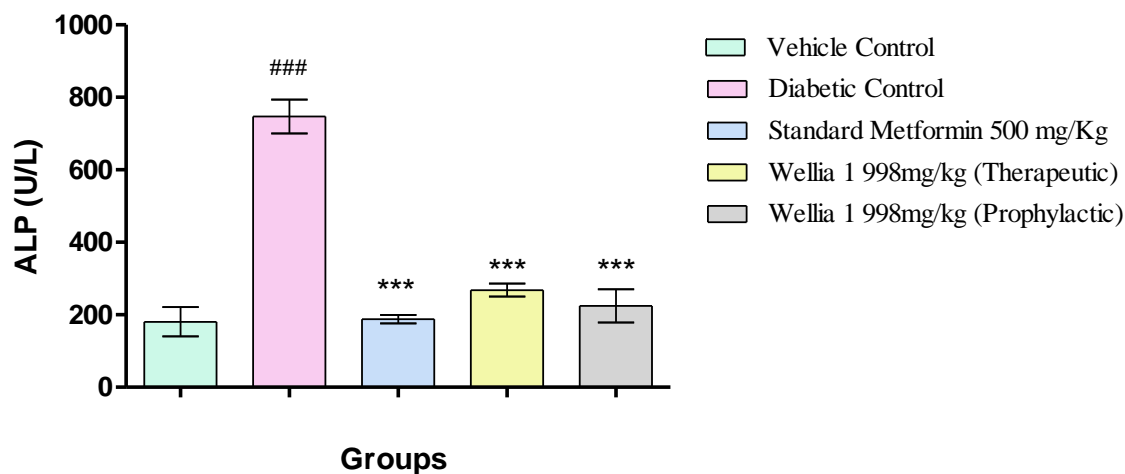
One-way ANOVA followed by Bonferroni's t-test.

###p<0.001 when compared to Vehicle control;

*p<0.05 when compared to Diabetic control

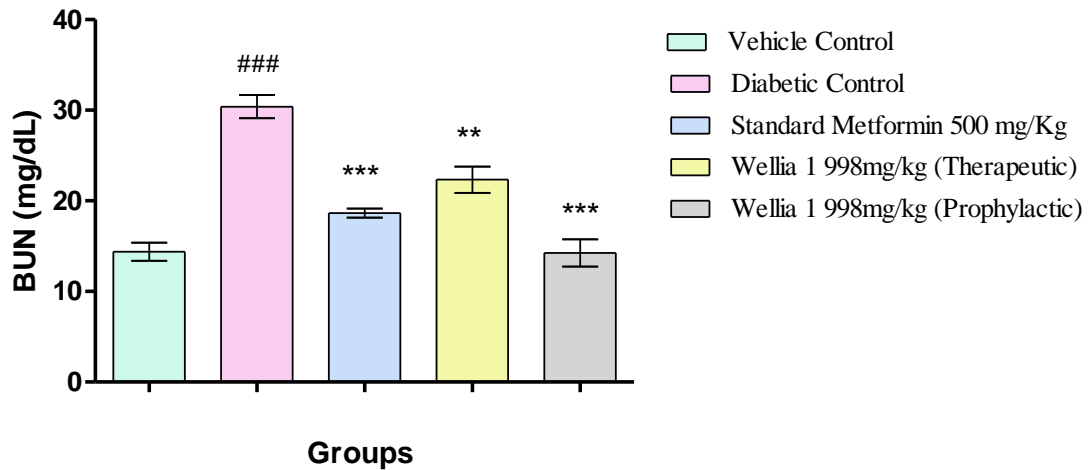
Wellia 1 and Metformin were administered orally

Figure 17: Effect of Wellia 1 on ALP (U/L) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



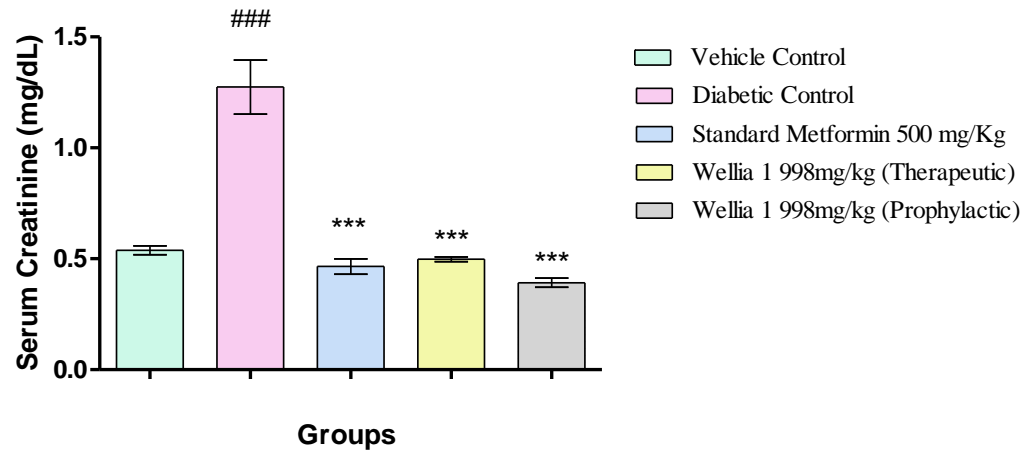
Values are expressed as mean \pm SEM, n= 6.
 One-way ANOVA followed by Bonferroni's t-test.
 ###p<0.001 when compared to Vehicle control;
 ***p<0.001 when compared to Diabetic control
 Wellia 1 and Metformin were administered orally

Figure 18: Effect of Wellia 1 on BUN (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.
 One-way ANOVA followed by Bonferroni's t-test.
 ###p<0.001 when compared to Vehicle control;
 p<0.01, *p<0.001 when compared to Diabetic control
 Wellia 1 and Metformin were administered orally

Figure 19: Effect of Wellia 1 on Serum Creatinine (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.

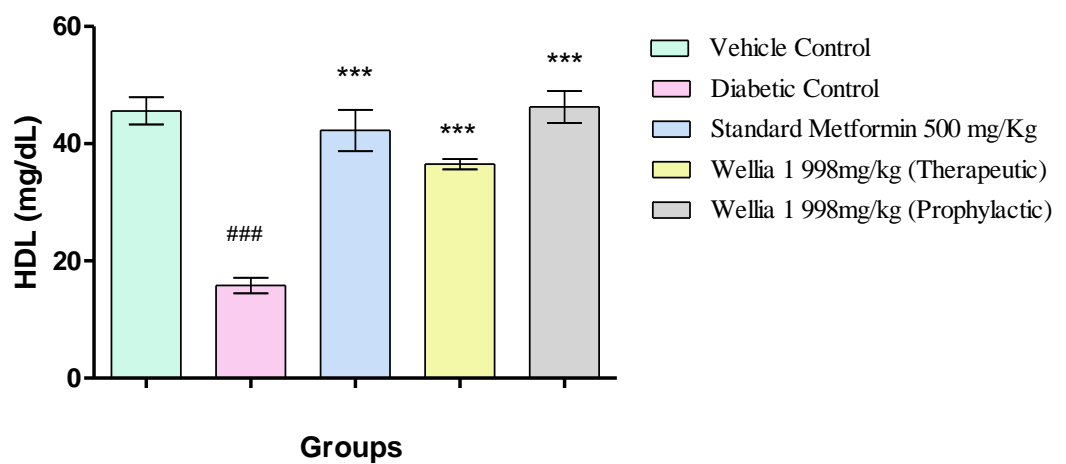
One-way ANOVA followed by Bonferroni's t-test.

###p<0.001 when compared to Vehicle control;

***p<0.001 when compared to Diabetic control

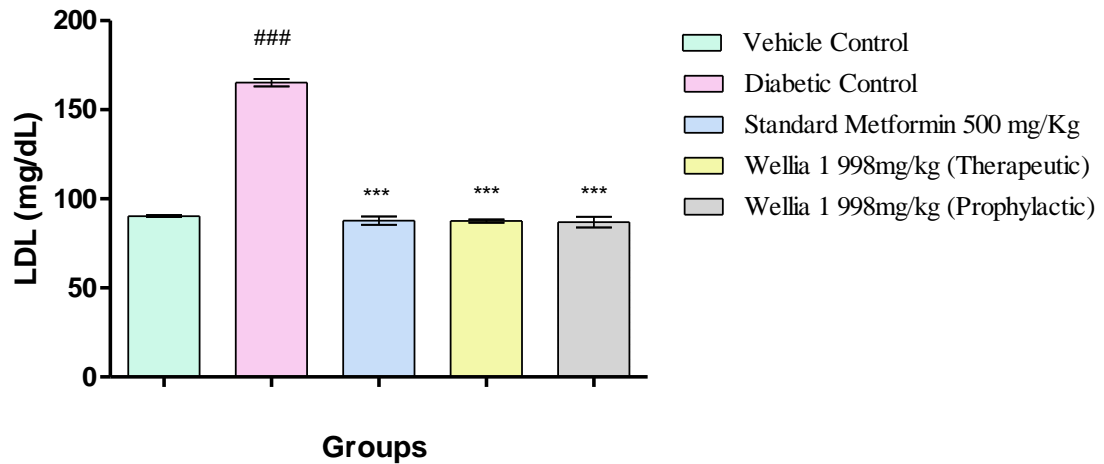
Wellia 1 and Metformin were administered orally

Figure 20: Effect of Wellia 1 on HDL (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



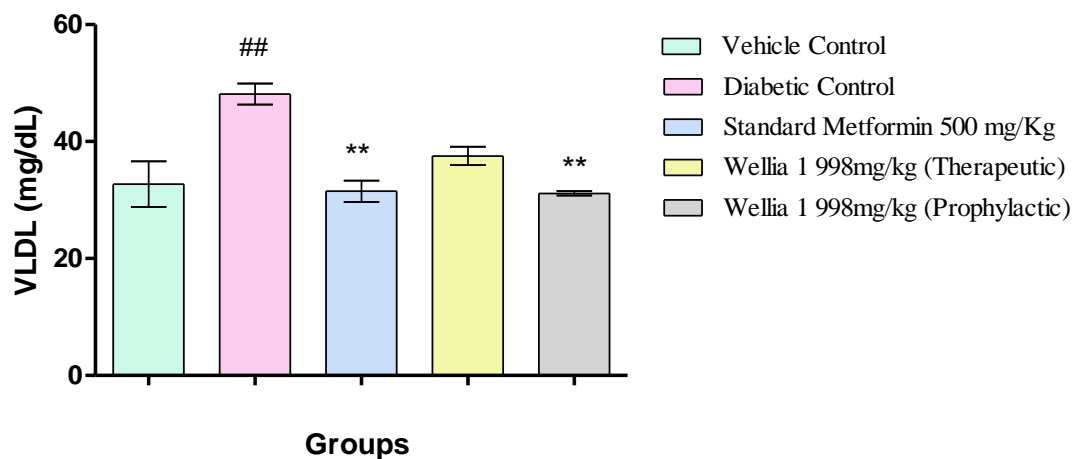
Values are expressed as mean \pm SEM, n= 6.
 One-way ANOVA followed by Bonferroni's t-test.
 ###p<0.001 when compared to Vehicle control;
 ***p<0.001 when compared to Diabetic control
 Wellia 1 and Metformin were administered orally

Figure 21: Effect of Wellia 1 on LDL (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.
 One-way ANOVA followed by Bonferroni's t-test.
 ###p<0.001 when compared to Vehicle control;
 ***p<0.001 when compared to Diabetic control
 Wellia 1 and Metformin were administered orally

Figure 22: Effect of Wellia 1 on VLDL (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.

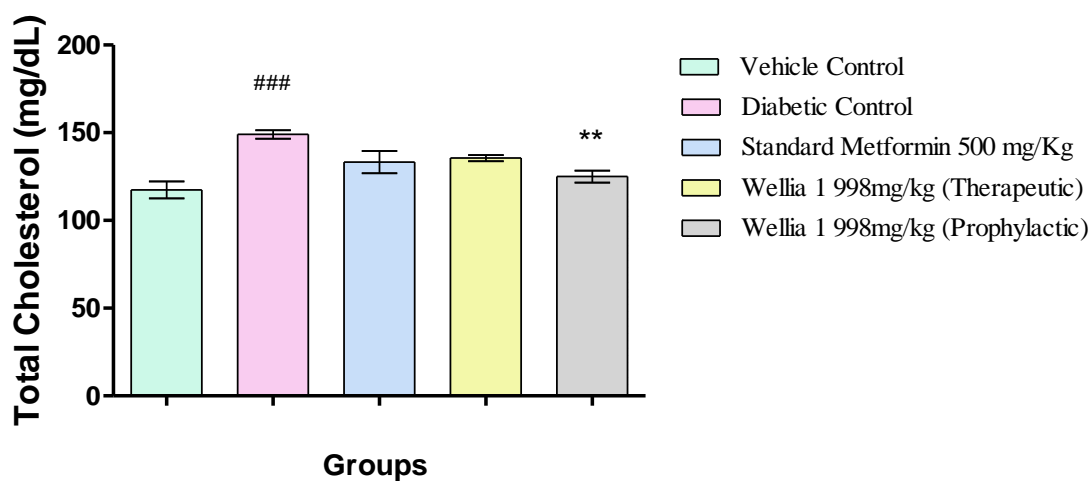
One-way ANOVA followed by Bonferroni's t-test.

^{##}p<0.01 when compared to Vehicle control;

^{**}p<0.01 when compared to Diabetic control

Wellia 1 and Metformin were administered orally

Figure 23: Effect of Wellia 1 on TC (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats

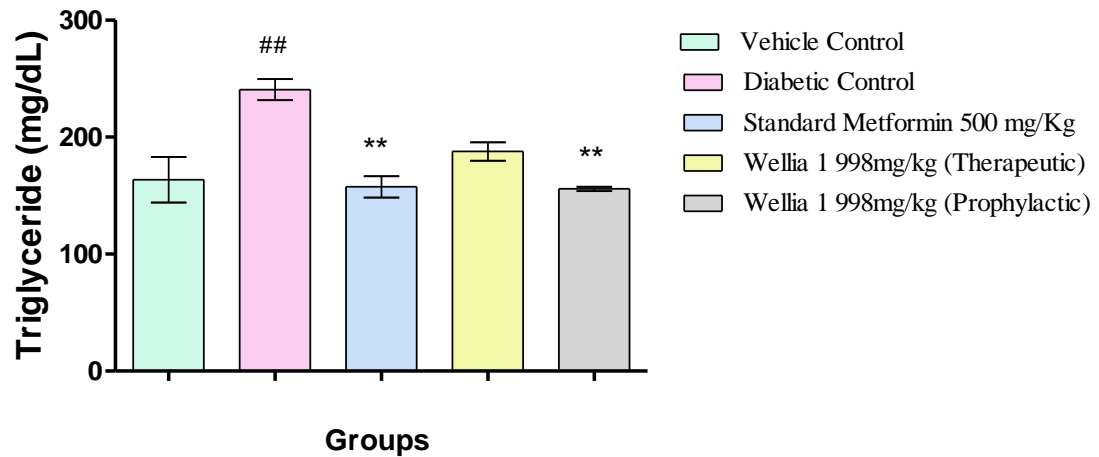


Values are expressed as mean \pm SEM, n= 6.

One-way ANOVA followed by Bonferroni's t-test.

###p<0.001 when compared to Vehicle control;
**p<0.01 when compared to Diabetic control
Wellia 1 and Metformin were administered orally

Figure 24: Effect of Wellia 1 on TG (mg/dL) in Streptozotocin-Nicotinamide induced diabetes mellitus in rats



Values are expressed as mean \pm SEM, n= 6.
One-way ANOVA followed by Bonferroni's t-test.
##p<0.01 when compared to Vehicle control;
**p<0.01 when compared to Diabetic control
Wellia 1 and Metformin were administered orally