



Thaumatococcus daniellii Seed Improves Lipid Profile in Male Wistar Rats

Franklyn N. Iheagwam, Shalom N. Chinedu*, Opeyemi C. Emiloju, Chisom J. Anichebem and Ositadinma K. Okolie

Department of Biological Sciences, Covenant University, P. M. B. 1023, Canaanland, Ota, Ogun State, Nigeria.

*Corresponding author: shalom.chinedu@covenantuniversity.edu.ng Tel: +234-8065940573



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INTRODUCTION

Thaumatococcus daniellii (Benn.) Benth, a rainforest berry of West Africa produces fruits containing black, hard, impervious seeds surrounded by a jelly coat. The seeds are reported to have some therapeutic effects. The seed is used as an emetic and for pulmonary problems. The seeds of *T. daniellii* also produce a jelly that swells to 10 times its own weight and hence, has been suggested as a substitute for agar (Onwueme *et al.*, 1979). This study examined the effect of ethanolic seed extract of *T. daniellii* on the lipid profile in male Wistar rats.

MATERIALS AND METHODS

Plant samples were collected and identified. Crude extract was prepared using 80% ethanol. Male Wistar rats were divided in five groups. A group served as control while the other four (4) groups were administered with Vitamin C (10mg/Kg bw), seed extracts (500, 1000 and 1500mg/kg bw) respectively in a single dose for 14 days. Rats were sacrificed, organs were harvested; s. Blood, heart, brain and testes were excised and lipid profile was determined. Results were statistically analysed using one way analysis of variance (ANOVA) supplemented with Duncan multiple range test (DMRT).

RESULTS AND DISCUSSION

There was a significant ($p < 0.05$) difference in weight gain, but no significant difference in organ weight between the control and the test groups as shown in Tab. 1 and Fig. 1.

RESULTS AND DISCUSSION

Fig. 2 showed a significant ($p < 0.05$) decrease in brain and heart CHOL level in groups. While a significant ($p < 0.05$) increase in brain, heart, testes and plasma HDL in the treatment groups was observed in fig. 3. According to fig. 4 and 5, a significant decrease ($p < 0.05$) was observed in TRIG and LDL levels of the brain, heart, testes and plasma respectively. Decrease in triglyceride levels could be due to the enhanced catabolism of triglyceride. An increased stimulation of lipolytic activity of plasma lipoprotein lipase (LPL) causes the catabolic metabolism of triglycerides (Roy *et al.*, 2014). The increase in HDL might be as a result of *T. daniellii* extracts influence in liver metabolism of HDL-C due to its antioxidant effect (Rajib *et al.*, 2015). The reduction of LDL-C might be as a result of flavonoids acting on the liver cells by binding to apolipoprotein B, increase LDL receptor densities making them more efficient to remove LDL-C from blood (Pourghassem-Gargari *et al.*, 2009).

Group	Treatment	Concentration (mg/kg BW)	Weight Gain (g)	Percentage Weight Gain (%)
Group D	Distilled Water		27.33 ± 2.03 ^b	49.25 ± 12.12 ^a
Group E	Vitamin C	10	22.25 ± 3.97 ^{ab}	34.99 ± 5.13 ^a
Group B1	Seed Extract	500	14.00 ± 2.04 ^a	27.18 ± 6.99 ^a
Group B2	Seed Extract	1000	21.67 ± 6.49 ^{ab}	34.52 ± 11.57 ^a
Group B3	Seed Extract	1500	16.33 ± 3.33 ^{ab}	24.57 ± 6.60 ^a

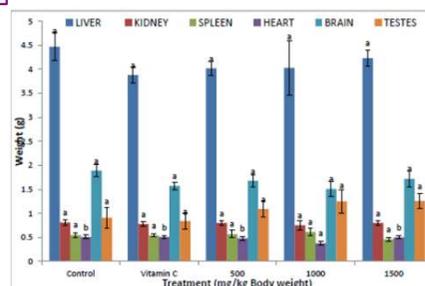
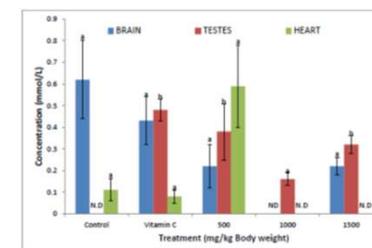


FIG. 1: Effect of ethanolic extract of *T. daniellii* seed on organ weight.

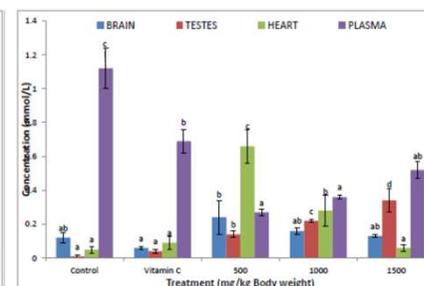


FIG. 3: Effect of ethanolic extract of *T. daniellii* seed on HDL level in brain, testes, heart and plasma.

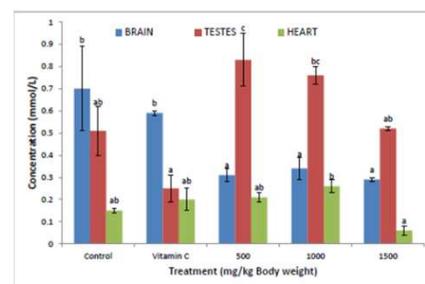


FIG. 2: Effect of ethanolic extract of *T. daniellii* seed on CHOL level in brain, testes and heart.

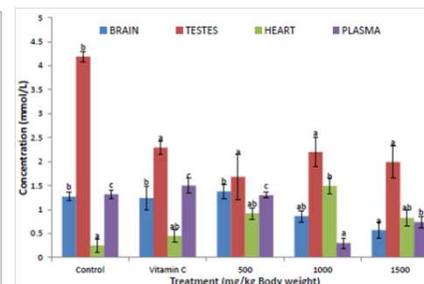


FIG. 4: Effect of ethanolic extract of *T. daniellii* seed on TRIG level in brain, testes, heart and plasma.

CONCLUSION

This research has shown that *Thaumatococcus daniellii* seed may be further exploited for its hypolipidemic properties in management and treatment of cardiovascular diseases. In future, more investigations may be carried out on isolation and characterization of phytoconstituents and mechanism of action of the plant as regards its hypolipidemic effect.

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