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Changes in the blood lipid profile of wistar albino rats fed rich cholesterol diet

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ABSTRACT

The juice of Solanum anomalum leaf and fruit, Solanum macrocapon fruit and Solanum melongena fruit were investigated for their possible hypolipidemic potentials in hypercholesterolemia induced albino rats by feeding the animals with normal diet supplemented with 1% egg yolk and 1% groundnut oil for 2weeks. Hypercholesterolemic rats were thereafter treated with normal diet and oral administration of 2ml/day of each sample juice at different percentages of 30% (30:70, whole juice: water); 60% (60:40, whole juice: water); 90% (90:10, whole juice: water); for 4weeks. Rats fed with normal diet and cholesterol-rich diets throughout the experiment were used as negative and test controls respectively. Assay of the lipid profile were determined in blood obtained from animals sacrificed at zero, 2weeks, 4weeks and 6weeks of the feeding study. There was a significant (P>0.05) increase in the weight of the hypercholesterlemic rats (after two weeks of feeding the test groups and test control with high-cholesterol diet) compared to the negative control. It was observed from the results obtained that all the solanum species used in this study at 30%, 60% and 90% significantly (P>0.05) reduced plasma total cholesterol, low density lipoprotein, triglyceride and increased high density lipoprotein compared to the test control. Hence, these solanum juices at its various concentrations have hypolipidemic effect thus indicating the possible use of these solanum species (egg plant) in the treatment of diseases associated with hyperlipidemia such as ischaemic heart disease and arteriosclerosis.

Key words: hypolipidemic, cholesterol, solanum juice

INTRODUCTION

Many clinical trials, [1,2] has demonstrated the relationship between coronary heart diseases and arteriosclerosis with hypercholesterolemia. Hence its almost accepted that arteriosclerosis is a disorder of lipid transport and metabolism. Some studies have shown that the reduction of low density lipoproiein levels and the increase in high density lipoprotein reduce the risk of cardiovascular events and overall mortality [3,4]. On such evidence, the reduction of cholesterol level in the blood is of importance to the control of diseases associated with hyperlipidemia such as coronary heart disease and arteriosclerosis.

This fact has led to more aggressive treatment of hypercholesterolemia and to a renewed focus on modification of life styles and diet. Studies on experimetal animals indicate that the addition of different dietary fibre may have different effects on cholesterol metabolism [5,6,7].

Eggplants (*Solanum* fruits) are widely consumed in Nigeria. Solanum is one of the largest genera of plants with over 10,000 species of erect or climbing herbs, shrubs or rarely small trees in the temperate and tropical regions throughout the world. Several cultivars of solanum fruites (*Solanum anomalum* , *Solanum macrocapon* and *Solanum*

melongena etc) are found throuhout Nigeria and cultivated domestically. *Solanum* contains steriod alkaliod flavonoid. *Solanum* fruits contain approximately 92.5% of water, 0.3% fat, 6% carbohydrate and 1% protein [8]. Considering the high cost of medicine used in reducing blood cholesterol level and the effects of its prolonged use this study investigates the possible hypocholesterolemic potential of the juices of *Solanum anomalum* fruit and leaf, *Solanum macrocapon* fruit and *Solanum melongena* fruit and their possible use in the treatment of diseases associated with hyperlipidemia.

MATERIALS AND METHODS

Plant material collection and preparation: The *solanum* fruits and leaves used for the test were purchased from Oyigbo market in Oyigbo L.G.A, Rivers State. The botanical identification of the species was done in the department of botany, University of Port Harcourt. The samples were sorted to remove spoilt fruits and leaves. The uninfected samples were washed and homogenized using an electric grinding machine (model MX 491N, National). The juice extract was obtained by pressing the homogenate through a sieve and then filtered with whatman No. 1 filter paper. The juices were stored in air tight plastic containers at 5^{o}C in the refrigerator until required for use.

Experimental design: A total of 168 albino rats were used in the feeding study that lasted forty two days (6 weeks). The rats were weighed, acclimatized for 7 days and reweighed. The weight after 7 days acclimatization served as the initial weight for the feeding experiment. Rats were then allocated to 14 groups of 12 rats each in well ventilated cages with facility for food and water. Feed and water were given to the rats ad libitum for the 42-day period of the study. The feed used for the study was growers feed manufactured by Top feeds ltd, Sapele, Delta state, Nigeria. Negative control group were fed only the grower feed. The positive control group was fed grower feed supplemented with 1% egg yolk and 1% groundnut oil throughout the feeding study. The other 12 test groups (3 concentrations sub groups for each of the 4 species) were fed the grower feed supplemented with egg yolk and groundnut oil at 1% each, for the first 2 weeks of the feeding study to induce hyperlipidemia, and subsequently with only the grower feed and 2ml of the sample juice at 30% (30:70, whole juice: water), 60% (60: 40, whole juice: water), 90% (90:10, whole juice: water), orally (as treatment) for the remaining 4 weeks of the feeding study. Rats were weighed bi-weekly for the 6 weeks feeding period.

Collection and preparation of blood samples: Three rats were sacrificed from each group at the end of the acclimatization period (phase 1), after 2 weeks of supplemented diet (phase 2), after 2 weeks of sonalum juice treatment (phase 3) and after 4 weeks of sonalum juice treatment at the end of the study (phase 4). Blood collection for the four phases was performed by sacrificing the animals under anesthesia (chloroform suffocation). The blood samples were collected and stored in lithium heparin anti-coagulant bottles and mixed properly with the anti-coagulant lithium heparin. The blood samples were centrifuged at 2000 revolution per minute (rpm) for 10 minutes to separate the blood cells from plasma. The plasma was collected using pasture pipette and stored in sample containers for the blood lipids assay.

Biochemical analysis: serum high density lipoprotein (HDL) was determined using Randox laboratories (England) kit. The serum total cholesterol was determined using Randox laboratories (England) kit based on enzymatic end point method. Serum triglyceride was determined using Hi-tech diagnostic kit. The low density lipoprotein level was calculated from the value of serum HDL, cholesterol and triglyceride level as described by.[9]

Statistical analysis: the result are expressed as mean ± SD. Analysis of variance (ANOVA) was used to test for differences in the groups and multiple range test of significance were used [10].

RESULTS AND DISCUSSION

Results

The body weight gain of the rats at the initial and at the end of six weeks period of the study is presented in table 1. A significant weight gain was observered in rats feed high cholesterol diet compared to rats on normal animal diet alone (negative control). However, weight gain was reduced in rats fed with different concentration of juices of the solanum species compared to the hypercholesterolemic rats (positive control) in phase 3 and 4.

Table 1: Initial and final weights (grams) of rats fed egg yolk with groundnut oil and *solanum* juice.

Diet group	Phase 1	Phase 2	Phase 3	Phase 4
Negative control	100.0±5.00	105.0±5.00 [b]	115±5.00[b]	123.3±12.6 [b]
Test control	115.0±5.00	166.7±14.4[a]	175.0±15 .0[a]	190.0±10.0 [a]
L_{30}	100.0±17.3	174.3±1.15[a]	125.0±13.2 [b]	113.3±12.6 [b]
L_{60}	100.0±10.0	150.0±0.00[a]	125.0±5.00 [b]	106.7±11.6 [b]
L_{90}	105.0±8.66	150.0±0.00[a]	130.0±10.0 [b]	116.7±15.3 [b]
F_{30}	110.0±17.3	208.3±14.3[a,b]	150.0±13.2 [a,b]	125.0±5.00 [b]
F_{60}	100.0±10.0	175.0±0.00[a]	140.0±22.9 [a,b]	120.0±13.2 [b]
F_{90}	105.5±5.00	173.3±2.89[a]	135.0±13.2 [b]	116.7±10.4 [b]
Y_{30}	110.0±5.00	150.0±0.00[a]	120.0±8.66 [b]	111.7±12.6 [b]
Y_{60}	105.0±5.00	133.3±28.9[a,b]	115.0±5.00 [b]	108.3±14.4 [b]
Y_{90}	115.0±5.00	166.7±14.4[a]	125.0±18.0 [b]	108.3±14.4 [b]
Z_{30}	103.3±2.89	166.7±14.4[a]	125.0±10.0 [b]	110.0±13.2 [b]
Z_{60}	105.5±5.00	175.0±0.00[a]	130.0±21.8 [b]	110.0±13.2 [b]
Z_{90}	110.0±17.3	141.7±14.4[a,b]	120.0±13.2 [b]	110.0±13.2 [b]

The results are expressed as mean ± standard deviation, n=3. Values with (a) are significantly different from negative control at p> 0.05. Values with (b) are significantly different from test control at p> 0.05. Negative control= rats fed grower feed only, test control= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil. L_{30}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 30% *S. anomalum* leaf juice. L_{60}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 60% *S. anomalum* leaf juice. L_{90}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 90% *S. anomalum* leaf juice. F_{30}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 30% *S. anomalum* fruit juice. F_{60}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 60% *S. anomalum* fruit juice. F_{90}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 90% *S. anomalum* fruit juice. Y_{30}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 30% *S. melongena* fruit juice. Y_{60}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 60% *S. melongena* fruit juice. Y_{90}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 90% *S. melongena* fruit juice. Z_{30}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 30% *S. macrocapon* fruit juice. Z_{60}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 60% *S. macrocapon* fruit juice. Z_{90}= rats fed grower feed supplemented with 1% eggyolk and 1% groundnut oil and 90% *S. macrocapon* fruit juice.

Table 2: Total cholesterol levels (mmol/l) of rats fed egg yolk with groundnut oil and *Solanum* juice.

Diet group	Initial	After 2 weeks	After 4 weeks	After 6 weeks
Negative control	2.25±0.14 [b]	2.30±0,02 [b]	2.35±0.04 [b]	2.40±0.14 [b]
Test control	2.96±0.18 [a]	4.31±0.04 [a]	4.90±0.10 [a]	5.24±0.06 [a]
L_{30}	2.90±0.27 [a]	4.15±0.10 [a,b]	2.22±0.09 [a,b]	2.16±0.13 [a,b]
L_{60}	2.84±0.45 [a]	4.05±0.10 [a,b]	2.17±0.05 [a,b]	2.09±0.08 [a,b]
L_{90}	2.66±0.11 [a]	4.02±0.11 [a,b]	2.08±0.05 [a,b]	2.07±0.08 [a,b]
F_{30}	2.65±0.23 [a]	4.06±0.08 [a,b]	2.19±0.07 [a,b]	2.14±0.03 [a,b]
F_{60}	2.61±0.26 [a]	3.90±0.07 [a,b]	2.19±0.03 [a,b]	2.11±0.13 [a,b]
F_{90}	2.58±0.30 [a]	3.83±0.05 [a,b]	2.12±0.04 [a,b]	2.07±0.14 [a,b]
Y_{30}	2.52±0.10 [b]	3.89±0.05 [a,b]	2.14±0.07 [a,b]	2.11±0.04 [a,b]
Y_{60}	2.54±0.35 [b]	3.80±0.14 [a,b]	2.11±0.07 [a,b]	2.10±0.10 [a,b]
Y_{90}	2.52±0.24 [b]	3.66±0.10 [a,b]	2.03±0.09 [a,b]	2.01±0.06 [a,b]
Z_{30}	2.30±0.24 [b]	3.40±0.07 [a,b]	2.04±0.05 [a,b]	2.07±0.05 [a,b]
Z_{60}	2.25±0.14 [b]	3.39±0.05 [a,b]	2.00±0.04 [a,b]	2.07±0.02 [a,b]
Z_{90}	2.23±0.19 [b]	3.71±0.50 [a,b]	1.95±0.03 [a,b]	2.01±0.04 [a,b]

The results are expressed as mean ±standard deviation, n=3. Values with (a) are significantly different from negative control at p> 0.05. Values with (b) are significantly different from test control at p> 0.05.

Table 2 presents the serum total cholesterol level of the rats in the diet groups. Addition of cholesterol in the diet of the rats, significantly (p> 0.05) raised serum total cholesterol levels. Oral ingestion of diferent concentration of these *Solanum* juices significantly (p> 0.05) reduced total cholesterol when compared to the negative control. The serum HDL levels in the different rat groups is shown in table 3. There was significant (p> 0.05) decrease in the serum HDL level of the test groups (hypercholesterolemic rats) after two weeks of feeding on high cholesterol diet. A progressive significant (p> 0.05) decrease in serum HDL was observed in the positive control rats when compared with negative control rats. HDL level increased significantly (p> 0.05) on feeding with different concentrations of

these solanum species juices. The levels of serum triglyceride increased significantly (p> 0.05) in diet groups fed high cholesterol diet in relation to the negative control as shown in table 4 and it reduced significantly (p> 0.05) in the test groups when compared with the positive control after two weeks of treating with diferent concentration of juices of *Solanum* species. A similar pattern was observed for serum LDL levels of experimental rats (table 5). It was observed that the juices of these *Solanum* species caused significant decrease in total cholesterol, triglyceride and LDL and increase in the serum HDL levels of the test groups.

Table 3: High Density Lipoprotein (HDL) (mmol/l) level of rats fed egg yolk with groundnut oil and *Solanum* juice.

Diet group	Initial	After 2 weeks	After 4 weeks	After 6 weeks
Negative control	1.27±0.21 [b]	1.25±0.02 [b]	1.28±0.03	1.31±0.04 [b]
Test control	1.81±0.09 [a]	1.37±0.05 [a]	1.21±0.05	1.04±0.07 [a]
L_{30}	1.63±0.10 [a,b]	1.37±0.05 [a]	1.21±0.05	1.45±0.11 [a,b]
L_{60}	1.64±0.05 [a]	1.24±0.08 [b]	1.45±0.08 [a,b]	1.51±0.09 [a,b]
L_{90}	1.58±0.07 [a,b]	1.17±0.17 [a,b]	1.40±0.05 [a,b]	1.54±0.13 [a,b]
F_{30}	1.54±0.13 [a,b]	1.14±0.01 [a,b]	1.42±0.14 [b]	1.56±0.01 [a,b]
F_{60}	1.44±0.14 [b]	1.08±0.01 [a,b]	1.38±0.10 [a,b]	1.45±0.08 [a,b]
F_{90}	1.37±0.13 [b]	1.20±0.05 [b]	1.50±0.03 [b]	1.56±0.05 [a,b]
Y_{30}	1.35±0.08 [b]	1.09±0.11 [a,b]	1.32±0.09 [b]	1.41±0.01 [b]
Y_{60}	1.27±0.05 [b]	1.07±0.04 [a,b]	1.30±0.07	1.41±0.08 [b]
Y_{90}	1.29±0.03 [b]	1.02±0.05 [a,b]	1.30±0.01	1.54±0.07 [a,b]
Z_{30}	1.32±0.06 [b]	1.15±0.01 [a,b]	1.31±0.04	1.51±0.03 [a,b]
Z_{60}	1.43±0.14 [b]	1.09±0.01 [a,b]	1.41±0.09 [a,b]	1.59±0.03 [a,b]
Z_{90}	1.40±0.10 [b]	1.01±0.03 [a,b]	1.35±0.11 [b]	1.58±0.02 [a,b]

The results are expressed as mean ±standard deviation, n=3. Values with (a) are significantly different from negative control at p> 0.05. Values with (b) are significantly different from test control at p> 0.05.

Table 4: Triglyceride (mmol/l) level of rats fed egg yolk with groundnut oil and *Solanum* juice.

Diet group	Initial	After 2 weeks	After 4 weeks	After 6 weeks
Negative control	0.45±0.04	0.47±0.03 [b]	0.51±0.03 [b]	0.87±0.61 [b]
Test control	0.44±0.02	0.66±0.04 [a]	0.97±0.03 [a]	1.15±0.03 [a]
L_{30}	0.52±0.03 [a,b]	0.71±0.03 [a]	0.52±0.03 [b]	0.39±0.03 [a,b]
L_{60}	0.51±0.03 [a,b]	0.66±0.04 [a]	0.49±0.03 [b]	0.37±0.01 [a,b]
L_{90}	0.50±0.03 [a,b]	0.63±0.02 [a]	0.46±0.03 [a,b]	0.34±0.01 [a,b]
F_{30}	0.52±0.10 [a,b]	0.69±0.42 [a]	0.51±0.02	0.37±0.02 [a,b]
F_{60}	0.48±0.02	0.59±0.03 [a,b]	0.44±0.03 [a,b]	0.35±0.05 [a,b]
F_{90}	0.47±0.02	0.65±0.08 [a]	0.46±0.03 [a,b]	0.32±0.01 [a,b]
Y_{30}	0.41±0.05	0.65±0.04 [a]	0.47±0.04 [b]	0.34±0.05 [a,b]
Y_{60}	0.44±0.02	0.63±0.03 [a]	0.45±0.02 [a,b]	0.32±0.02 [a,b]
Y_{90}	0.46±0.03	0.60±0.03	0.42±0.00 [a,b]	0.29±0.04 [a,b]
Z_{30}	0.48±0.02	0.64±0.04 [a]	0.47±0.01 [b]	0.32±0.03 [a,b]
Z_{60}	0.47±0.01	0.61±0.03 [a]	0.44±0.04 [a,b]	0.27±0.02 [a,b]
Z_{90}	0.46±0.03	0.59±0.02 [a,b]	0.47±0.02 [a,b]	0.24±0.02 [a,b]

The results are expressed as mean ±standard deviation, n=3. Values with (a) are significantly different from negative control at p> 0.05. Values with (b) are significantly different from test control at p> 0.05.

Table 5: Low density lipoproteins (LDL) (mmol/l) level of rats fed egg yolk with groundnut oil and *Solanum* juice.

Diet group	Initial	After 2 weeks	After 4 weeks	After 6 weeks
Negative control	0.74±0.34	0.80±0.03 [b]	0.81±0.09	0.82±0.16 [b]
Test control	1.08±0.19	2.61±0.02 [a]	3.20±0.09	3.63±0.10 [a]
L_{30}	1.01±0.30	2.42±0.16 [a]	0.76±0.07 [b]	0.51±0.13 [a,b]
L_{60}	0.94±0.41	2.48±0.10 [a]	0.47±0.05 [a,b]	0.40±0.17 [a,b]
L_{90}	0.97±0.30	2.48±0.07 [a]	0.45±0.09 [a,b]	0.36±0.05 [a,b]
F_{30}	0.85±0.19	2.57±0.10 [a]	0.51±0.21 [a,b]	0.41±0.07 [a,b]
F_{60}	1.08±0.51	2.52±0.05 [a]	0.59±0.01 [a,b]	0.48±0.17 [a,b]
F_{90}	0.97±0.18	2.41±0.04 [a]	0.40±0.07 [a,b]	0.35±0.20 [a,b]
Y_{30}	1.01±0.11	2.37±0.32 [a]	0.58±0.08 [a,b]	0.52±0.05 [a,b]
Y_{60}	1.04±0.34	2.40±0.09 [a]	0.57±0.15 [a,b]	0.47±0.11 [a,b]
Y_{90}	1.00±0.24	2.27±0.11 [a,b]	0.52±0.08 [a,b]	0.33±0.13 [a,b]
Z_{30}	0.73±0.28	1.93±0.08 [a,b]	0.50±0.03 [a,b]	0.38±0.10 [a,b]
Z_{60}	0.58±0.22	1.73±0.50 [a,b]	0.38±0.07 [a,b]	0.35±0.04 [a,b]
Z_{90}	0.60±0.23	2.01±0.05 [a,b]	0.37±0.11 [a,b]	0.31±0.03 [a,b]

The results are expressed as mean ±standard deviation, n=3. Values with (a) are significantly different from negative control at p> 0.05. Values with (b) are significantly different from test control at p> 0.05.

DISCUSSION

The prevalence of cardiovascular disease (CVD) related deaths in the world is on the increase and high blood pressure is one of the major contributor of these diseases. The clinical concequences of these conditions are severe and exert major research efforts to improve knowledge of its pathogenesis and thereby provide a more rationed approch to its prophylaxis and therapy [11]. Although some studies have demonstrated the hypocholesterolemic effect of eggplant fruit in experimental animal, there is no mention in the literature on the effect of different concentration of *Solanum* (eggplant) juice analysed in this study, in animal experimentation.

Body weight gain in test control (hyperlipidemic) rats (Table 1) was significantly (P>0.05) higher than weight gain in negative control rats fed with normal diet. The treatment of the test groups with diferent concentrations of the solanum(eggplant) juices showed significant (P>0.05) reduced weight gain at the 4th and 6th weeks in this study when compared to the test control group. These infomation in this study that treatment of hyperlipidemic rats with normal diet and *Solanum* juice reduced weight gain indicate that these eggplant juices can be used to control weight gain by obese people hence confirming earlier reports of the use of low cholesterol diet and various plant supplements for diet weight control [12, 13, 14].

The results for the effects on total cholesterol showed significant decrease in the amount of total cholesterol in all the species and concentraions of the juice at the 4th and 6th week (Table 2). This suggested that these *Solanum* juice may have affected cholesterol biosynthesis which resulted to reducton in the level of cholesterol in the blood. The values for the test groups at the 4th and 6th weeks were significantly (p>0.05) different and lower from the negative and test control. These results are in agreement with the work of [15], who carried out work on the effect of eggplant juice on plasma lipid levels. The possible mechanism of action of these solanum species on cholesterol metabolism has not been clarified. Soluble fibers reduce the level of blood cholesterol by 5 to 15% in experimental animals and in humans [16] through a number of mechanism. One possible mechanism may be by the effect of fibre on enterohepatic circulation through sequestration and binding of bile acids.

Another possible mechanism is that soluble fibers are femented in the colon into short chain fatty acids (SCFA) [17]. High plasma high density lipoprotein (HDL) represents an increased mobilization of cholesterol from adipose tissue to the liver where it is mobilized. This is desirable because HDL is usually termed the “good cholesterol” hence its increase indicates a reduced risk of cardiovascular diseases and hypertension. The *Solanum* juice at all concentration in this study increased plasma HDL-cholesterol level compared with the test control (Table 3) and may be beneficial since studies have uneqivically established an inverse relationship between HDL-cholesterol and incidence of cardiovascular diseases [18, 19, 20].

The result of triglyceride increased after 2 weeks of feeding with cholesterol-rich diet. These were significantly (p>0.05) different from the initial values of the rat groups (Table 4). Replacement of the cholesterol-rich diet with normal diet and the different solanum species juice at different concentration for four weeks caused significant (p>0.05) decrease in triglyceride values of the test rat groups (Table 4). This is evidence in support of the view that reduced comsumption or complete elimination of cholesterol from diet will lead to a natural reduction in cholestrol level. [15, 21, 22]

The low density lippoprotein (LDL) values obtianed like that of cholesterol increased after 2 weeks of feeding with rich-cholesteol diet. There was a significaant (p>0.05) decrease at the fourth week (after 2 weeks of *Solanum* juice treatment) at all concentration (Table 5). This was progressive to the sixth week (after 4 weeks of solanum juice treatment) at all concentration. The results also agrees with the work of [21], who worked on the comparative effect of garden egg fruit, oat and apple on serum lipid profile in rats fed a high cholesterol diet and reported that garden egg fruit lowered low density lipoprotein. Controvesy though exists as to the exact effect of eggplant on plasma lipid. [23] showed that a preparation of *S. melongena* prevented both hypercholesterolemia and the formation of atheromas in the aorta of rabbits fed diets containing 1% *S. melongena* fruit or powders. Lately, [15] studied the effect of S.melongena on plasma lipid levels, where they fed rabbits a cholesterol-rich diet and administered 10ml/day of eggplant juice (10:7, whole fruit: water) for 4 weeks and concluded that eggplant juice administed to hypercholesterolemic rabbits significantly reduced weight, plasma cholesterol levels and aortic cholesterol content. A similar observation with garden eggplant infussion has been reported in humans [24]. Thus it is evident from the results in this study that eggplant juice of *S. anomalum* leaf and fruit, *S. macrocarpon* fruit and *S. melongena* fruit all have hypolipidemic effect.

CONCLUSION

The present study has provided some biochemical information on the usefulness of these *Solanum* juices for medicinal purposes as indicated by its hypolipidemic potential. This study justifies the use of these samples as potential medicinal ingredients at least for the treatment of those disease caused by high cholesterol levels in the blood. The decline in levels of total cholesterol, triglyceride and LDL-cholesterol were progressive in this study, with the 6th weeks values being lower than the 4th weeks values after treatment commenced. This may be an indication of progressive metabolic control of the test plants (*Solanum*) on mechanism involved in elimination of the lipids from the body. It also indicates that the hypolipidemic effect of *Solanum* can be detected after two weeks of treatment. Finally, this study indicate that the juice of *S. anomalum* leaf and fruit, *S. macrocarpon* fruit and *S. melongena*, under the conditions of this experiment represent an alternative low cost treatment for obesity and hyperlipidemia.

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