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Antihyperlipidemic potential of roots of *bauhinia tomentosa* in High-fat diet fed rats

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ABSTRACT

The present study was designed to investigate antihyperlipidemic activity of ethanolic & aqueous extract of roots of *Bauhinia Tomentosa* (EEBT & AEBT). High fat diet was prepared and the treatment schedule was followed for the respective group of animals for 40 days. Daily all the animals were given high fat diet with drug treatment of aqueous and ethanolic root extracts of *Bauhinia tomentosa.* After 40 days the antihyperlipidemic parameters were evaluated. The EEBT & AEBT significantly reduced lipid profile (TC, TGL, LDL and VLDL) and increased HDL level. EEBT and AEBT both 200 mg/kg and 400 mg/kg and standard drug exhibited significant decrease in blood sugar and total protein. EEBT at 200 mg/kg and 400 mg/kg and standard drug showed significant Increase in SGOT levels, AEBT at 400mg/kg/p.o showed significant decrease in SGOT levels. The EEBT and AEBT at dose levels 200 mg/kg/p.o showed significant decrease in SGPT levels. At two dose levels the extract showed significant increase in serotonin levels in HFD fed rats. It could be predicted that *Bauhinia tomentosa* root extracts exerted significant hypolipidemic effect along with hypoglycemic and in rats fed on high fat diet.

Keywords: *Bauhinia Tomentosa,* Antihyperlipidemic, HFD, EEBT, AEBT

INTRODUCTION

The largest incidence of disease globally is caused by cardiovascular diseases (CVDs) [1]. In developed and developing countries, they are the leading causes of death, morbidity, and health costs, accounting for about 30% of global annual mortality and 10% of global health burden [2]. The rise in plasma lipids, including total cholesterol (TC) and triglycerides (TG), is hyperlipidemia and constitutes one of the key factors contributing to CVDs. The most popular marker for susceptibility to atherosclerotic heart disease has also been recorded to be [3]. Atherosclerosis, a disorder in which arterial damage can lead to ischemic heart

disease, myocardial infarction, and cerebrovascular coincidences, is a common characteristic with elevated levels of plasma lipids, predominantly cholesterol [4]. Despite many therapeutic steps, the emphasis has now been focused on developing successful preventive strategies for the detection and management of cardiovascular risk factors [5]. It has been projected that more than 24 million individuals will suffer from cardiovascular disorders every year by 2030 [6]. Around 12 million people die each year worldwide due to CVDs. Factors such as diet high in saturated fats and cholesterol, age, family history, high blood pressure, and lifestyle are significant, but high cholesterol levels, particularly low-density lipoprotein (LDL-C) cholesterol, are primarily responsible for the incidence of CVDs [7]. The currently used classes of lipid-lowering agents are statins, fibrates, and sequestrants of bile acids. Such synthetic agents, along with their lipid-lowering action, have beneficial effects; however, their use may be associated with unintended side effects, including rhabdomyolysis, myopathy, and increased risk of gallstones [8]. The production of new lipid-lowering agents with high therapeutic value and no or minimal side effects is therefore important [9].

Bauhinia tomentosa belongs to the Caesalpiniaceae family, usually referred to as Bauhinia yellow (Eng). The medium to large shrub produces lovely, bright yellow flowers with black to maroon coloured centres in summer with its elegant, light green, two-lobed leaves. Up to 4m in height, medium to large shrub to small tree. Leaves are divided into two lobes, light green in colour, with a leathery feel, borne on branches that sometimes droop. In mid to late summer, it produces large bell-shaped, bright yellow flowers with a black to deep maroon base (from December to March). Slim and velvety, the fruits are pea-like pods. They are light green with age and are developed from January to June or even later, becoming a pale brown. The bark is brown or grey [10]. The wood is used in traditional medicine in Africa and India to make rafters for huts and the dried leaves and flower buds and the roots and bark are used. For anything from coughs, convulsions and constipation to pneumonia and venereal diseases, three other species of Bauhinia are often used medicinally. (*Bauhinia galpinii, Bauhinia petersiana*, *Bauhinia thonningii*) [11].

MATERIALS AND METHODS

Collection and authentication of plant material

The root part of *Bauhinia tomentosa* was collected from Namakkal district, Tamil Nadu. The plant material was identified and authenticated by Dr. P.Jayaraman, Plant anatomy research centre, Chennai.

Preparation of alcoholic plant extract

Freshly collected root of *Bauhinia tomentosa* was dried in shade and pulverized to get a coarse powder. A weighed quantity of the powder (1200g) was passed through sieve number 40 and subjected to hot solvent extraction in a soxhlet apparatus using ethanol, at a temperature range of 55^0C to 65^0C. Before and after every extraction the marc was completely dried and weighed. The filtrate was evaporated to dryness at 40^0C under reduced pressure in a rotary vacuum evaporator. The percentage yield of ethanolic extract was 8.83% w/w.

Preparation of aqueous plant extract

Freshly collected root of *Bauhinia tomentosa* was dried in shade and pulverized to get a coarse powder. A weighed quantity of the powder (200g) was passed through sieve number 40 and subjected to cold maceration extraction in a simple apparatus using 1000ml water kept in refrigerator. Compound was immersed in cold water and stirred occasionally during a period of 48 hours. After 48 hours filter the extract and press the mark. Pressed extract was added to previous extract. The filtrate was evaporated to dryness at 40^0C under reduced pressure in a rotary vacuum evaporator. The percentage yield of aqueous extract was 12% w/w.

Experimental animal

Colony inbred strains of wistar rats female weighing 150-180g were used for the pharmacological studies. The animals were kept under standard conditions (day/night rhythm) 8.00 am to 8.00 p.m, 22 ± 2^0C room temperature, in polypropylene cages. The animals were feed on standard pelleted diet (Pranav Agro industries, Sangli) and tap water *ad libitum*. The experimental protocol was approved by the Institutional Animal Ethical Committee (IAEC) of CPCSEA (Committee for the Purpose of Control and Supervision of Experimental Animals)

ANTI HYPERLIPIDEMIC ACTIVITY

High fat diet formula: (12-24)

The high fat diet contains the casein, D,L methionine, corn starch, sucrose, cellulose powder, mineral mixture, vitamin mixture, choline bitartrate, corn oil, lard oil. The composition is given in the Table-1.

Table-1: High Fat Diet Formula

S.No	Nutrient	Percentage
1	casein	20%
2	D,L methionine	0.3%
3	corn starch	15%
4	sucrose	27.5%
5	cellulose powder	5%
6	mineral mixture	3.5%
7	vitamin mixture	1%
8	choline bitartrate	0.2%
9	corn oil	9.9%
10	lard oil	17.6%

Mineral mixture

The mineral mixture contains Calcium Phosphate- 500 gm/kg, Sodium chloride 74 gm/kg, Potassium sulphate - 52 gm/kg, Potassium citrate - 220 gm/kg, Magnesium oxide - 24 gm/kg, Ferric citrate - 66 gm/kg, Zinc carbonate - 1.6 gm/kg, Cupric carbonate - 0.3 gm/kg, Potassium iodate - 0.01 gm/kg, Sodium selenite - 0.01, Chromium potassium sulphate - 0.55 gm/kg, Sucrose finely powdered - 118.03 gm/kg.

Vitamin mixture

The vitamin mixture contains Thiamine HCL- 0.6 gm/kg, Riboflavin - 0.6 gm/kg, Pyridoxine - 0.7 gm/kg, Cyanocobalamin - 1.0 gm/kg, Sucrose fine powder - 981.01 gm/kg. This diet was administered and weight gain was observed in rats on third day, therefore confirming the development of obesity in rats. Study was continued for 40 days.

Preparation of diet

High fat diet is a hyper caloric diet and was prepared by mixing the above constituents in fixed percentage. The above mentioned percentage is for 100g diet. The feed was prepared, dried, powdered and administered every day in morning to animals with water *ad libitum*.

Female wistar rats (150-180g) were given high fat diet for 40 days. Forty two rats were randomly divided into7 groups of six animals each. The following schedule of dose, diet administration in experimental groups was followed: Group: I animals received 0.9% saline (5ml/kg/p.o) and served as normal control. Group: II animals received only high fat diet and served as negative control. Group: III animals received high fat diet and treated with AEBT (200mg/kg/ p.o) suspended in in 0.9% saline. Group: IV animals received high fat diet and treated with AEBT (400mg/kg/ p.o) suspended in in 0.9% saline. Group: V animals received high fat diet and treated with EEBT (200mg/kg p.o) suspended in 0.9% saline. Group: VI animals received high fat diet and treated with EEBT (400mg/kg /p.o) suspended in 0.9% saline. Group: VII animals received sibutramine (5mg/kg/p.o) suspended in 0.9% saline and high fat diet.

The treatment schedule was followed for the respective group of animals for 40 days. Daily all the animals were given high fat diet with drug treatment of aqueous and ethanolic root extracts of *Bauhinia tomentosa*. The anti-obesity parameters were evaluated as follows

Biochemical studies

On day 41 of experiment the animals were sacrificed by cervical dislocation and blood samples were collected by carotid bleeding separately into sterilized dry centrifugation tubes and allowed to stand for 30 minutes at 37^{o}C. The clear serum was separated at 2500 rpm for 10min using micro centrifuge and following biochemical investigation were carried out: Cholesterol, HDL-C, Triglycerides, LDL-C, VLDL-C, Atherogenic

index, percentage protection, SGOT, SGPT, Blood glucose, Total protein, Brain Serotonin

Total cholesterol in serum was estimated by using total cholesterol kit. HDL-cholesterol was estimated in the serum by using of test kit, HDL-cholesterol was estimated in the serum by using of test kit, Low density lipoproteins were estimated using formula, LDL =Total triglyceride- HDL-C/5, Very low density lipoproteins were estimated using formula, VLDL =Total triglyceride /5, Atherogenic index was calculated using formula Atherogenic index=Total serum triglyceride/total serum HDL – cholesterol. Percentage protection was calculated using formula Percentage protection= (Atherogenic index of control Atherogenic index of treated groups/Atherogenic index of control) X 100. SGOT levels were estimated in the serum by using of test kit. SGPT levels were estimated in the serum by using of test kit. Blood glucose in serum was estimated by using blood glucose test kit. Total proteins in serum were estimated by using total protein test kit. All the enzymes assay were read at particular nm using shimadzu spectrophotometer, UV-1601 model.

ESTIMATION OF SEROTONIN LEVEL IN RAT BRAIN BY SPECTROFLUORIMETRY [25, 26]

Preparation of tissue extract

Rats were sacrificed, whole brain was dissected out striatum and hypothalamus was separated from the brain. Weighed a specific quantity of tissue from striatum and hypothalamus was homogenized in 3ml HCL butanol in a cool environment. The sample was then centrifuged for 10 min at 2000 rpm. 0.8ml supernatant phase was removed and added to an eppendorf reagent tube containing 2 ml of heptane and 0.25 ml 0.1 M HCL. After 10 min, shake the tube and centrifuged under same conditions to separate two phases. Upper organic phase was discarded and the aqueous phase was used for serotonin assay.

Serotonin assay

Tissues extract 0.5ml and 0.625ml of Orthopthaldialdehyde reagent was heated to 100^{O}c for 10 minutes. After the samples reached equilibrium with ambient temperature, excitation/emission spectra readings at 360-470 nm were taken.

Organ weights

At the end of the experiment the animal's organs were removed and different organs (Kidney, liver, heart and spleen) were weighed on digital balance.

Statistical analysis

The Statistical Analysis was carried our using analyses of variance (ANOVA) followed by Dunnett's test. p values <0.05 were considered as significant.

RESULT

Anti-hyperlipidemic activity

Total cholesterol

Group II animals fed with HFD exhibited significant ($p<0.01$) increase in total cholesterol when compared with group I animals. Group III to group VI animals exhibited a significant ($p<0.01$) decrease total cholesterol when compared with group II animals. Result are shown in Tab:1, Fig:1.

Table: 1: Effect of EEBT and AEBT on Serum total Cholesterol in rats

Groups	Treatment	Total cholesterol(mg/dl)
Group I	Control (Normal saline)	66.37±1.58
Group II	Diet Control	154.08±2.35**
Group III	AEBT (200mg)	125.82±1.79**
Group IV	AEBT (400mg)	113.92±1.23**
Group V	EEBT (200mg)	104.37±0.92**
Group VI	EEBT (400mg)	94.47±0.71**
Group VII	Sibutramine (5mg)	77.36±1.45**

Values are mean ± SEM of 6 animals, Statistical significance test for comparisons was done by ANOVA, followed by Dunnet's test. Comparisons were made between: a) Group I vs Group II b) Group III, IV, V, VI, VII vs Group II ** p value< 0.01.

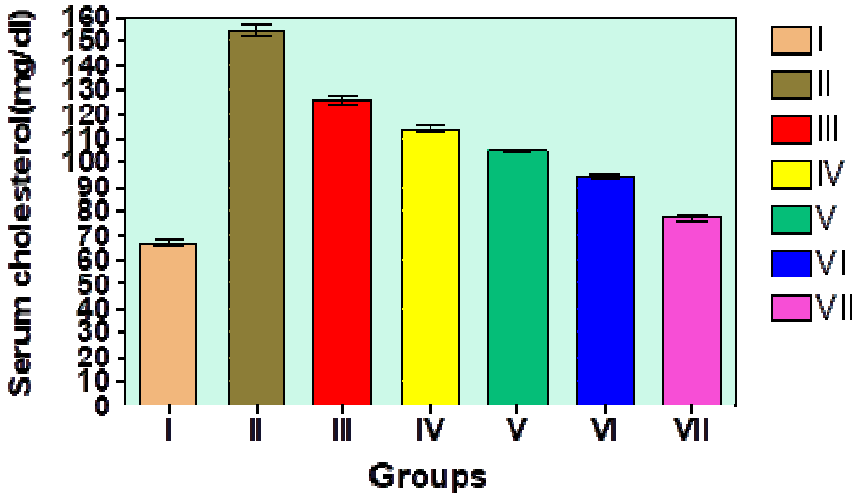

Fig 1: Effect of EEBT and AEBT on Serum total Cholesterol

HDL

The group II animals exhibited significant ($p<0.01$) reduction in HDL cholesterol when compared with group I animals. The Group III animals (AEBT 200 mg/ kg/p.o) when compared to group II animals did not exhibit any significant changes. Group IV with group VI animals exhibited significant ($p<0.01$) increase HDL when compared to Group II animals. Result are shown Tab: 2, Fig:2.

Table 2: Effect of EEBT and AEBT on Serum HDL Cholesterol in rats

Groups	Treatment	HDL-C(mg/dl)
Group I	Control (Normal saline)	43.17±0.94
Group II	Diet Control	32.44±1.11**
Group III	AEBT (200mg)	34.47 ± 0.36^{ns}
Group IV	AEBT (400mg)	37.37±0.42**
Group V	EEBT (200mg)	37.27±0.42**
Group VI	EEBT (400mg)	40.39±0.62**
Group VII	Sibutramine (5mg)	45.18±0.41**

Values are mean ± SEM of 6 animals, Statistical significance test for comparisons was done by ANOVA, followed by Dunnet's test. Comparisons were made between: a) Group I vs Group II, b) Group III, IV, V, VI, VII vs Group II. ** p value< 0.01, ns non-significant.

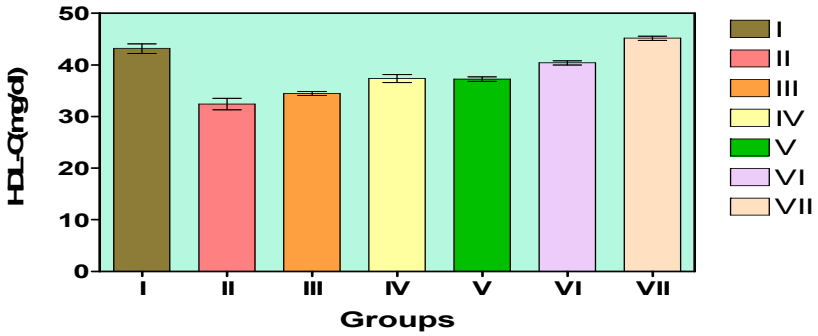

Fig 2: Effect of EEBT and AEBT on Serum HDL Cholesterol in rats

Triglycerides

Group II animals exhibited significant ($p<0.01$) increase in triglycerides when compared with group I animals. Group III exhibited significant ($p<0.05$) decrease in triglycerides when compared group II animals. Group IV to Group VI caused significant ($p<0.01$) decrease in triglycerides when compared with group II animals. Result are shown in Tab: 3, Fig:3.

Table 3: Effect of EEBT and AEBT on Serum Triglycerides in rats

Groups	Treatment	Triglycerides (mg/dl)
Group I	Control (Normal saline)	173±2.21
Group II	Diet Control	250.2±4.61**
Group III	AEBT (200mg)	237.6±1.96*
Group IV	AEBT (400mg)	229.2±2.56**
Group V	EEBT (200mg)	223.7±219**
Group VI	EEBT (400mg)	208.8±2.67**
Group VII	Sibutramine (5mg)	192.2±1.92**

Values are mean ± SEM of 6 animals. Statistical significance test for comparisons was done by ANOVA, followed by Dunnet's test. Comparisons were made between: a) Group I vs Group II. b) Group III, IV, V, VI, VII vs Group II. ** p value< 0.01, *p<0.05.

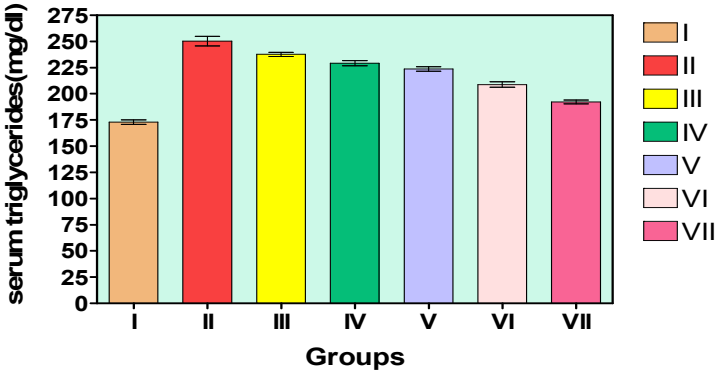

Fig 3: Effect of EEBT and AEBT on Serum Triglycerides in rats

LDL

Group II animals when compared with group I animals exhibited Significant ($p<0.01$) increase in LDL levels. Group III exhibited significant ($p<0.05$) decrease when compared to group II animals. Group IV to group VI animals compared with group II animals exhibited significant

($p<0.01$) decrease LDL levels. Results are shown Tab.4, Fig. 4.

Table 4: Effects of EEBT and AEBT on Serum LDL-C levels in rats

Groups	Treatment	LDL-C(mg/dl)
Groups I	Control (Normal saline)	25.48±0.51
Group II	Diet Control	43.12±0.90**
Group III	AEBT (200mg)	40.64±0.40*
Group IV	AEBT (400mg)	38.35±0.62**
Group V	EEBT (200mg)	37.29±0.47**
Group VI	EEBT (400mg)	33.68±0.53**
Group VII	Sibutramine (5mg)	29.37±0.39**

Values are mean ± SEM of 6 animals. Statistical significance test for comparisons was done by ANOVA, followed by Dunnet's test. Comparisons were made between: a) Group I vs Group II. b) Group III, IV, V, VI, VII vs Group II. ** p value< 0.01, *p<0.05.

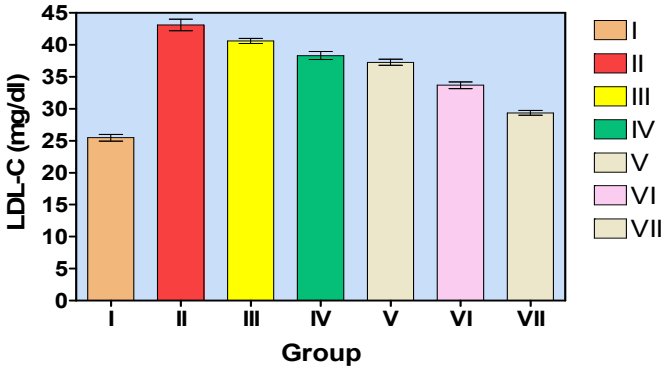

Fig 4: Effect of EEBT and AEBT on Serum LDL-C levels in rats

VLDL

Group II animals when compared with group I animals exhibited significant ($p<0.01$) increase VLDL level. Group III animals when compared with group II exhibited significant ($p<0.05$) decrease in VLDL levels. Group IV to Group VI when compared with group II animals exhibited significant ($p<0.01$) decrease in VLDL levels. Results are shown Tab:5, Fig.5.

Table 5: Effects of EEBT and AEBT on Serum VLDL-C levels in rats

Groups	Treatment	VLDL-C(mg/dl)
Group I	Control (Normal saline)	34.61±0.44
Group II	Diet Control	50.08±0.91**
Group III	AEBT (200mg)	47.53±0.39*
Group IV	AEBT (400mg)	45.83±0.51**
Group V	EEBT (200mg)	44.74±0.43**
Group VI	EEBT (400mg)	41.76±0.53**
Group VII	Sibutramine (5mg)	38.46±0.39**

Values are mean ± SEM of 6 animals. Statistical significance test for comparisons was done by ANOVA, followed by Dunnet's test. Comparisons were made between: a) Group I vs Group II. b) Group III, IV, V, VI, VII vs Group II ** p value< 0.01, *p<0.05.

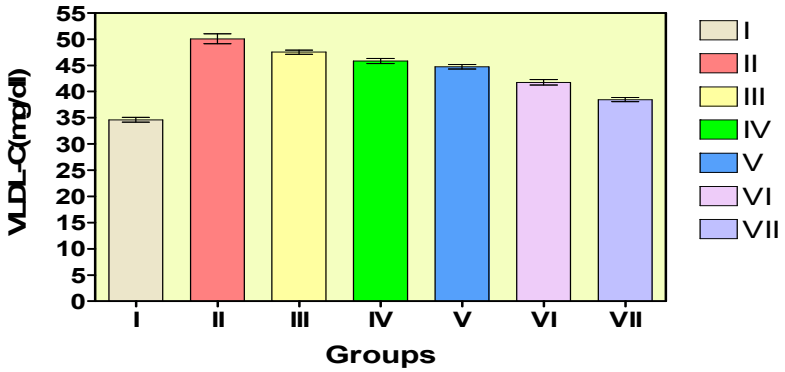

Fig 5: Effect of EEBT and AEBT on Serum VLDL-C levels in rats

ATHEROGENIC INDEX AND PERCENTAGE PROTECTION

There was decrease in atherogenic index in all the treated groups. Percentage protection for Group III (14.31%), Group IV (20.50%) Group V (19.5%) and Group VI (33.64%). Results are shown in Tab:6.

Table 6: Atherogenic index and percentage protection in various groups of rats

Groups	Treatment	Atherogenic index	% protection
Group I	Control (Normal saline)	4.00	-
Group II	Diet Control	7.71	-
Group III	AEBT (200mg)	6.61	14.31
Group IV	AEBT (400mg)	6.13	20.50
Group V	EEBT (200mg)	6.23	19.15
Group VI	EEBT (400mg)	5.12	33.64
Group VII	Sibutramine (5mg)	4.25	44.90

LIVER FUNCTION TESTS

SGOT

The SGOT levels in Group II animals were significantly ($p<0.01$) increased when compared with group I animals. Group IV animals when compared with Group II animals did not show significant charge. Group III animals exhibited a significant ($p<0.01$) decrease when compared with group II animals. Group V, group VI exhibited a significant ($p<0.01$) increase when compared with group II animals. Results are shown in Fig. 6.

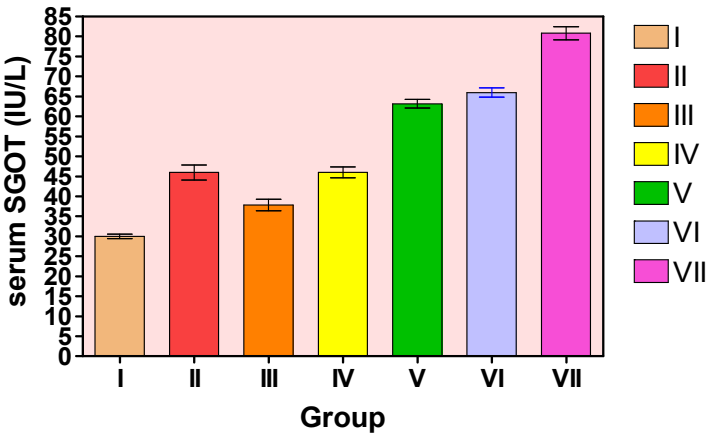

Fig 6: Effect of EEBT and AEBT on Serum SGOT levels in rats

SGPT

The SGPT levels of group II animals were increased significantly ($p<0.01$) when compared with Group I animals. Group III exhibited a significant ($p<0.01$) decrease in SGPT levels when compared with Group II animals. Group IV, VI animals when compared to Group II animals did not show significant changes. Group V exhibited a significant ($p<0.05$) decrease when compared with group II animals. Results are shown in Fig: 7.

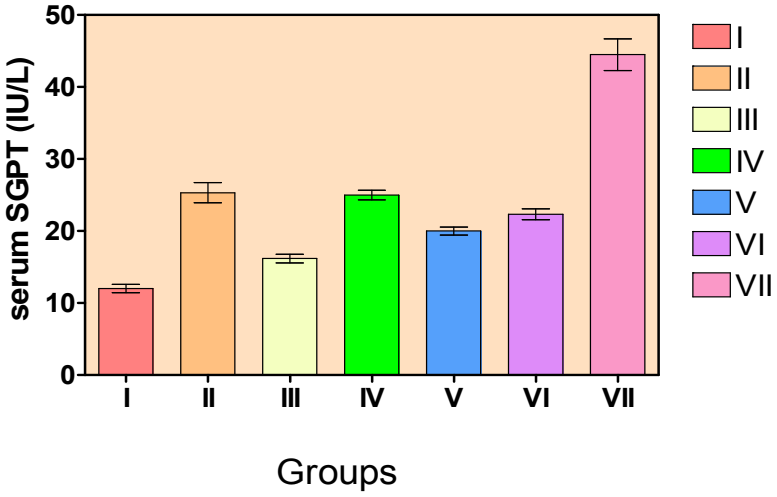

Fig 7: Effect of EEBT and AEBT on Serum SGPT levels in rats

Blood Glucose

The Blood Glucose levels in Group II animals were significantly ($p<0.01$) increased when compared with Group I. Group III, IV, V, VI exhibited a significant ($p<0.01$) decrease when compared with Group II animals. Results are show in Fig: 8.

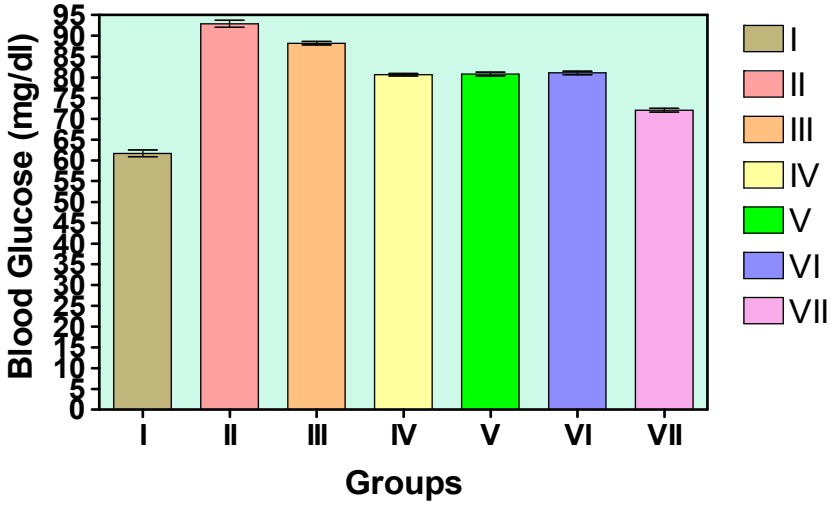

Fig: 8: Effect of EEBT and AEBT on Serum Blood glucose levels in rats

Total Proteins

The total Proteins levels of Group II animals were increased significantly ($p<0.01$) as compared with Group I. Group III, IV, V, VI animals exhibited a significant ($p<0.01$) decrease when compared with group II animals. Results are shown in Fig: 9.

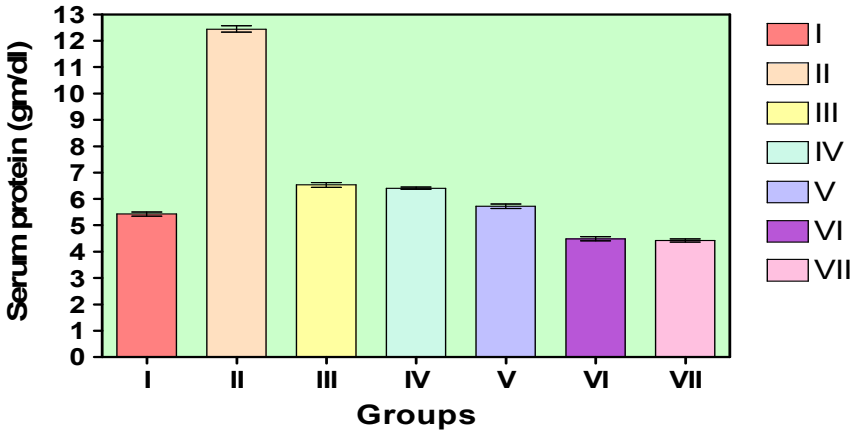

Fig 9: Effect of EEBT and AEBT on Serum total protein in rats

Brain Serotonin

The Brain Serotonin levels of group II animals were decreased significantly ($p<0.01$) when compared with Group I animals. Group III animals when compared with group II animals did not show significant change. Group IV, V, VI animals exhibited a significant ($p<0.01$) increase when compared with group II animals. Results are shown Tab: 7, Fig: 10.

Table 7: Effects of EEBT and AEBT on Brain serotonin Levels in rats

Groups	Treatment	Brain serotonin (ng/mg)
Group I	Control (Normal saline)	375±10.75
Group II	Diet Control	175±5.42**
Group III	AEBT (200mg)	176±6.42^{ns}
Group IV	AEBT (400mg)	225±7.85**
Group V	EEBT (200mg)	252±7.82**
Group VI	EEBT (400mg)	277±7.66**
Group VII	Sibutramine (5mg)	328±7.45**

Values are mean ± SEM of 6 animals. Statistical significance test for comparisons was done by ANOVA, followed by Dunnett's test. Comparisons were made between: a) Group I vs Group II. b) Group III, IV, V, VI, VII Vs Group II ** p value< 0.01, ns-non significant.

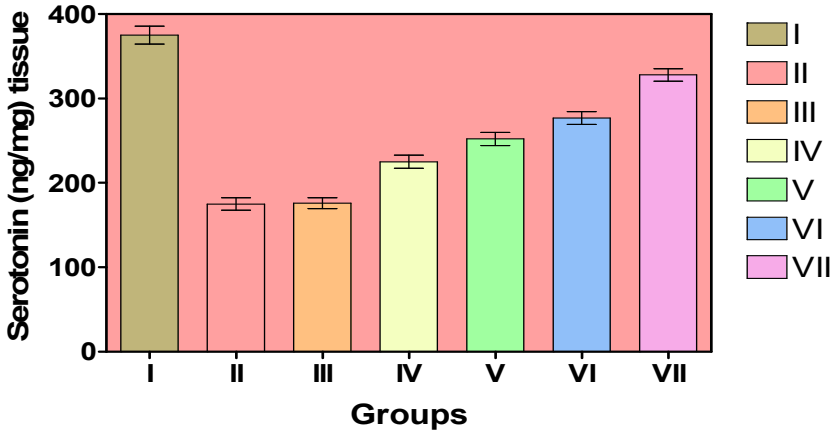

Fig 10: Effect of EEBT and AEBT on Brain serotonin Levels in rats

ORGAN WEIGHTS

Group II showed significant ($p<0.01$) increase in weight of internal organ like kidney, heart, spleen and liver when compared with group I animals. The group III, IV, V, VI showed significant ($p<0.01$) reduction in weight of organs when compared with group II animals. Results are shown in Fig.11.

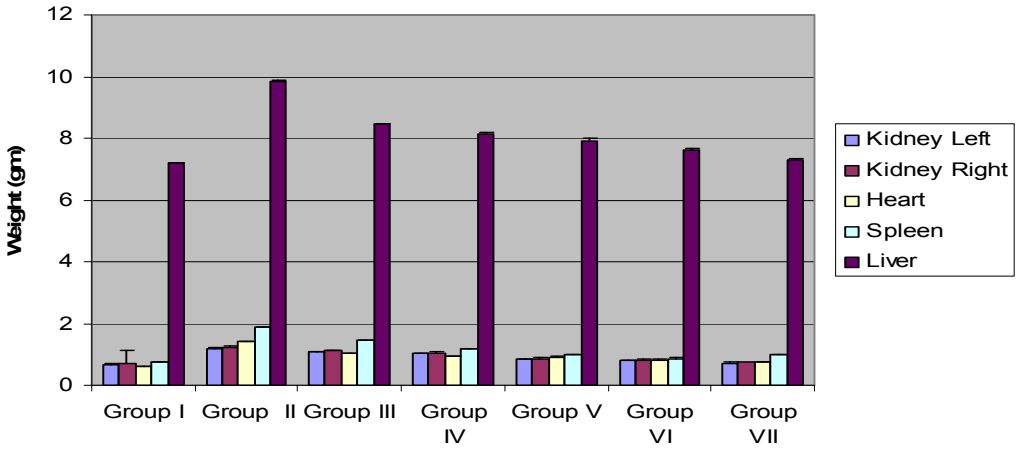

Fig 11: Effect of EEBT and AEBT on organ weight in rats

DISCUSSION

The present pharmacological investigation revealed that HFD elicited significant increase in body weight, food intake, serum levels of glucose, protein, total cholesterol, LDL Cholesterol, VLDL cholesterol, Triglycerides, SGOT, SGPT along with corresponding increase in weight of liver, heart, kidney and spleen. Serotonin levels were reduced.

Treatment with AEBT and EEBT resulted in reduction of body weight in HFD fed rats indicating that the extracts possess weight reducing property. Since obesity is associated with hyperphagia, HFD fed rats consumed more food than normal diet fed rats. AEBT and EEBT were effective in decreasing daily food intake in HFD fed rats, indicating that it possess hypophagic property.

Lipids are mostly consumed in the form of neutral fats, which are also known as triglycerides. The triglycerides are made up of a glycerol nucleus and free fatty acids. Triglycerides form major constituents in food of animal origin and much less in food of plant origin. Saturated fats increase blood cholesterol and thereby increase risk of atherosclerosis and coronary heart disease. Monounsaturated and polyunsaturated fats decrease blood cholesterol and reduce blood pressure. Tran's fats increase LDL and increase risk of atherosclerosis and coronary heart disease (27).

The AEBT and EEBT at two dose levels showed significant reduction in serum levels of total cholesterol, LDL cholesterol, VLDL cholesterol, triglycerides along with significant increase in serum HDL cholesterol levels in HFD fed rats. Ethanolic extracts (400 mg/kg/p/o) has showed to possess more hypolipidemic and hypocholesterolemic activity. Considering the enhancement of cardio protective lipid HDL, it can be concluded that root of *Bauhinia tomentosa* is a potent cardio protective agent. Blood glucose levels were also significantly decreased in both Aqueous and ethanolic extracts. Total protein levels also decreased significantly in both extracts but effect was more observed at higher dose levels of 400 mg/kg /p.o.

The Enzyme SGOT increased in group of animals treated with HFD and EEBV at both dose levels. Decrease in SGOT levels of AEBT at 400 mg/kg/p.o was observed. There was no significant change at 200mg/kg/p.o of AEBT. The Enzyme SGPT levels increase in group of animals fed with HFD. Group III, V exhibited decrease in levels where as IV, VI did not show any significant changes.

Obesity is linked to a high intake of dietary fat. Microinjection of serotonergic agents directly into periventricular nucleus reduced the intake of carbohydrates and fats. A potent effect of fat on eating behavior can be demonstrated through the use of fat supplemented diets. The phenomenon of diet induced obesity in rats is a reliable observation in which daily energy intake is markedly increased largely through an increase in meal size. A serotoninergic drug potently antagonizes the consumption of high fat foods, may cause selective avoidance of fats, and reduces daily lipid intake. The serotonin levels decreased significantly in HFD group. AEBT at 200 mg/kg/p.o did not show significant changes. Whereas at high dose of AEBT 400 mg/kg/p.o and EEBT at 200 and 400 mg/kg/p.o showed increase in serotonin levels. The exact phytoconstituents which gives this effect is yet to be identified. Treatment with AEBT and EEBT at different dose levels significantly decreased the weight of different internal organs. Suggesting it also reduces adipose tissue formation.

CONCLUSION

Bauhinia tomentosa a widely known plant all over world and is being traditionally used for the cure and treatment of many ailments like salivation, sore throat, bleeding piles, hematuria, menorrhagia, ulcers, scrofulous tumors. The claim for the utility of this plant in treatment of obesity has not been scientifically evaluated. The EEBT and AEBT at two dose levels 200 mg/kg and 400 mg/kg and Sibutramine 5 mg/kg body weight were administered orally for 40 days to the HFD fed rats. It significantly reduced body weight, feed intake, lipid profile (TC, TGL, LDL and VLDL) and increased body temperature and HDL level. EEBT and AEBT both 200 mg/kg and 400 mg/kg and Sibutramine 5 mg/kg exhibited significant decrease in blood sugar and total protein. EEBT at 200 mg/kg and 400 mg/kg and Sibutramine 5 mg/kg showed significant Increase in SGOT levels, AEBT at 400mg/kg/p.o. showed significant decrease in SGOT levels. The EEBT and AEBT at dose levels 200 mg/kg/p.o showed significant decrease in SGPT levels. At two dose levels 200 mg/kg and 400 mg/kg and Sibutramine 5 mg/kg showed significant increase in serotonin levels in HFD fed rats. It could be predicted that *Bauhinia tomentosa* root extracts exerted significant anti-obese activity due to its hypophagic, hypoglycemic and hypolipidemic effect in rats fed on high fat diet. The long history of use of *Bauhinia tomentosa* may have therapeutic and protective applications in the treatment of these disorders. Further investigation involving measure of enzymes in lipid pathways and hormones would ascertain the exact mechanism of anti-obese effect and to figure out the therapeutic potential of *Bauhinia tomentosa* root in the treatment of obesity. This ensures an understanding of the mechanism involved in the treatment of these disorders. Further there is need to identify exact phytoconstituents responsible for the activity at brain level and to formulate poly herbal anti-obese preparation containing *Bauhinia tomentosa* extract as main ingredient along with other novel weight reducing and hypolipidemic herbal drugs.

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