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ANTIHYPERLIPIDEMIC STUDIES ON LEAF EXTRACT OF *ERYTHRINA INDICA*

Kanakam Vijayabhaskar[1], Kalakota Chaitanya Prasad[2], Palakurthi Sujatha[1] and Gajavelli Bharath Kumar[1]**

[1]*Department of Pharmacognosy & Phytochemistry, Sahasra Institute of Pharmaceutical Sciences, Mulugu Road, Warangal, Telangana, India.
[1]Department of Pharmaceutical Chemistry Sahasra Institute of Pharmaceutical Sciences, Mulugu Road, Warangal, Telangana, India.
[2]Department of Pharmaceutical Chemistry, Sri Ramananda Institute of Pharmaceutical Sciences, Nalgonda, Telangana, India.

***Author for Correspondence: Kanakam Vijayabhaskar**
Department of Pharmacognosy & Phytochemistry, Sahasra Institute of Pharmaceutical Sciences, Mulugu Road, Warangal, Telangana, India.

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ABSTRACT
The aim of the present investigation to evaluate the antihyperlipidemic activity of aqueous extract of erythrina indica leaf, an indigenous plant used in ayurvedic medicine in india. Administration of Aqueous extract of erythrina indica leaf at two dose level 200mg/kg and 300mg/kg for 30 days resulted in the reduction in total cholestral, triglycerides, low density lipoprotein level and significant increase in high density lipoprotein level in the high fat diet Which indual hyperlipidemia in rats. The results are compared to that of standard drug, simvastatin 5mg/kg. so the present study support the earlier claims of the plant in obesity.

KEYWORDS: Antihyperlipidemic, *Erythrina indica* Lam.

INTRODUCTION
Erythrina indica Lam is a common plant found in India. It is known as kalyana murukku[1] or mullu murukku in Tamil. In siddha system, it is being considered useful for treating antihelmenthiasis, sedative, anti inflammatory, nematocidal and worm infection.[2-4] Flowers, Fruits and Stem are used in anti-helmenthiasis and Skin diseases. The presence of active constituents viz. Alkaloids, Glycosides, Phenyl coumarin[5-6] have been reported from root and seeds. Since no scientific proof about antihyperlipidemic activity in leaf extract of Erythrina indica Lam, an attempt has been made to explore such activity for *Erythrina indica* Lam. In the present work, vacuum dried aqueous water extracts were evaluated for antihyperlipidemic activity.

MATERIAL AND METHODS
The fresh leaves of *Erythrina indica Lam* were collected from in local area of warangal and identified by Dr. Raju, Department of Botany, Kakatiya university waramngal, telangana, India.

Extraction
Air dried coarsely powdered plant material was extracted with water for 48 hours by maceration. Thus obtained water extract were filtered and vacuum dried using vacuum flash evaporator to yield the solid residue of 8.8% respectively to the starting dry powder.

Animals
Inbred wister albino rats of either sex (150- 180gm) were used for the evaluation of pharmacological activities. They were kept in colony cages at 25±2°C, relative humidity% maintained under 12 hours light and dark cycle (0600-1800 h-light; 1800-0600 h-dark). All the animals were fed with standard animal feed (Hindustan Lever Limited) and water *ad libitum.* Acute toxicity study was performed for the extracts to ascertain the safe dose by acute oral toxic class method of organization of Economc Co-operation and Development, asper 423 guide lines (OECD).[5] The aqueous extracts were at the dose level of 200 mg/kg and 300mg/kg.

Drugs And Chemicals
Simvastatin was purchased from Dr.Reddy's laboratories Ltd. Hydrabed, India. Cholestrol was procured from Nice Chemicals pvt Ltd, Cochin. Kits for triglyceride, Cholestrol, Low density lipoprotein (LDL) and High density lipoprotein (HDL) were purchased from Qualigens Diagnostics, and the manufacturer's guidelines were followed. Both the test and the standard drugs were administered in the form of suspension using 0.1% carboxy methyl cellulose as vehicle.

Antilipidemic Activity
Antilipidemic activity of the extracts was evaluated by comparing the reduction in total cholestral, riglyceride, low density lipoprotein level and significant increase in

high density lipoprotien level. For that purposes following experimental procedure are used.

Methods

The animals were divided into five groups of six each, marked to individual identification and kept in their cages. They are Group A: Normal diet and water (control) Group B: 1% Cholesterol enriched diet for 8weeks (Cholesterol) Group C: 1% Cholesterol enriched diet + Standard drug (Simvastatin) Group D: 1% Cholesterol enriched diet + Test drug I (200mg/kg) Group E: 1% Cholesterol enriched diet + Test drug I(300mg/kg). The normal pellet diet was grinding to fine particals and given to group A. To the fine particals add 1% cholesterol and 10% ground nut oil and given to group B, C, D and E. Simvastatin at a dose of 5mg/kg/bw/day and water extract of erythrina indica leaf at two dose level 200mg/kg/bw/day and 300mg/kg/bw/day. Administered orally with help of oral Catheter tube to the C, D and E groups respectively.Continued for 8 weeks. Animals are starved overnight before collecting blood on 8th week. Blood samples of 2ml is withdrawn from rat using heparinised tubes and separate plasma/serum within 30 min of collecting blood by using a refrigerated centrifuge at 3000 rpm/10 min for estimation of the following biochemical parameters as per the standardmethod.[6-7] Serum Total Cholesterol (TC), Serum Triglycerides (TG), Serum HDL Cholesterol (HDL-C), Serum LDLCholesterol (LDL-C).

Calculation

Serum LDL cholesterol = Total Cholestrol {HDL-C-TG/5}

Statistical analysis

All the grouped data were statically evaluated and the significant of various treatment was calculated using student's t-test data. All the results were expressed as mean ± S.D. From 6 rat in each group.

RESULT AND DISCUSSION

In the 8 week of study period, serum TC was significantly ($p<0.001$) high in group cholesterol, group simvastatin and test groups, when compared to group control. As there was no significant difference in serum Total Cholestrol[TC], Triglycerides[TG], High density cholesterol[HDL-C] and low density lipoprotein cholesterol [LDL-C], between group simvastatin and aqueous extract of *erythrina indica* leaf was observed.

Table 1: Screening of Hypolilidemic Activity of *Erythrina Indica Leaf Extract*

Group	TC (mg/d1SEM)	TG (mg/d1SEM)	HDL-C (mg/d1SEM)	LDL-C (mg/d1SEM)
A(control)	64.831	90.08	21.892	22.332
B(cholestrol)	125.5±2.10	187.66±2.85	51.5±1.25	71.5±2.10
C(Simvastatin-5mg/kg)	91.50±1.85	96.02±1.87	17.50±1.10	53.33±1.27
D(Test drug-I(200mg/kg))	94.16±1.76	116.83±2.43	17.83±0.98	50.20±1.66
E(Test drug-II(300mg/kg))	90.5±1.42	139.0±1.75	15.5±0.87	46.5±1.16

All the grouped data were statically evaluated and the significant of various treatment was calculated using student's t-test data ($p<0.001$). All the results were expressed as mean ± S.D. From 6 rat in each group.

CONCLUSION

According to WHO's Reports, 29.2% of total global deaths are due to coronary heart disease (CHD). Around 80% of CHD deaths take place in low and middle income countries.[8,9] At least 20 million people survive heart attacks and strokes every year; many require continuing costly clinical care. Heart disease has no geographic, gender and socioeconomic boundries.In this context, it is necessary to work out for an alternative medicine at an affordable cost and relatively with loe or no side effects to meet this CHD problem indigenously. erythrina indica leaf extract stands as an herbal alternative solution available at an affordable price indigenously to meet this CHD problem. In conclusion, the findings in this study suggest that the erythrina indica leaf posses anti hyperlipidemic activity in high fat diet induced hyperlipidemic in rats. The present study is a preliminary attempt in evaluating the antihyperlipidemic activity of erythrina indica leaf extract. Further phytochemical and pharmacological investigationa are warranted in these directions for establishing its detailed mechanism of action and for substantiating its traditional and folk claims.

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