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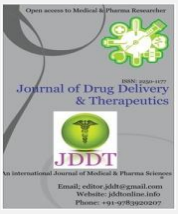

Open Access Research Article

ANTI-ANAEMIC ACTIVITY OF HYDRO-ALCOHOLIC LEAF EXTRACT OF *LUFFA AEGYPTIACA* IN PHENYLHYDRAZINE INDUCED ANEMIC RATS

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ABSTRACT

The main aim of the current study is to determine the anti-anaemic activity in hydro-alcoholic leaf extract of *Luffa aegyptiaca* in phenylhydrazine induced anemic rats. Phenylhydrazine (60mg/kg) was administered intraperitoneally in rats for 2 days to induce anemia. The animals were divided into 5 groups containing 6 animals each. 1st group was served as normal control group, 2nd group was served as anaemic control administered with phenylhydrazine for two days, 3rd group was served as standard reference control administered with Vitamin B_{12} complex, 4th group was served as test control administered with 100 mg/kg of hydro-alcoholic leaf extract of *Luffa aegyptiaca* and 5th group was served as test control administered with 200mg/kg of hydro-alcoholic leaf extract of *Luffa aegyptica*. All the test drugs were given for 28 days daily through oral route. On 29th day blood was withdrawn, through tail puncture and subjected to the determination of RBC, Hb and percentage Haematocrit. Both the hydro-alcoholic leaf extract of *Luffa aegyptiaca*and Vit. B_{12} significantly increase the HB, RBC & % HCT level which indicates that *Luffa aegyptiaca* leaf exhibits' the anti-anaemic activity.

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INTRODUCTION:

According to WHO anaemia is a condition that develops when blood lacks enough healthy red blood cells or haemoglobin. As per WHO anemia affects the lives of more than 2 billion people globally, accounting for over 30% of the world's population which is the most common public health problem particularly in developing countries occurring at all stages of the life cycle. Therefore, there is the need for proper management of micronutrient deficiencies most especially irons deficiency. Over the years, plant and plant products are being utilized as a source of medicine. In many developing countries, herbal medicines are assumed as greater importance in health care [1, 3].

MATERIALS AND METHODS:

Plant material

The plant material is made up of the leaves of *Luffa aegyptiaca.*Theleaves was collected from medicinal garden of Modern institute of Pharmaceutical Sciences in August 2017. The sample of plant was identified and authenticated at Rajmata Vijayraje Scindia Krishi Vishwavidhalaya, College of Agriculture, Indore.

Preparation of Extract[2,4,5]

The leaves were collected, shade dried and then converted into coarse powder. The powder was then filled in a Soxhlet apparatus for extraction by 70:30 hydro-alcoholic as a solvent. The Hydro-alcoholic extract was concentrated by vacuum distillation to dry. The collected extract was stored in suitable container and used for further pharmacological studies.

Animals

The healthy adult albino rats of Wistar strain of both sex, weighing about 150-200 g were obtained from the animal house of Modern Institute of Pharmaceutical Sciences, Indore. The rats of either sex were isolated and housed in separate cages during the course of experimental period and kept them at room temperature (24± 2°C) with a 12 : 12 h light/dark cycle. The animals were fed with standard pellet diet and provided water *adlibitum.* All the procedures and protocols were reviewed and approved by the Institutional Animal Ethics Committee of MIPS, Indore.

Anti-Anemic Activity

Induction of Anemia Anemia was induced in rats by intraperitoneal administration of phenylhydrazine (60mg/kg) daily for 2 days.

Treatment of the animals

The anemic rats were randomly divided into 5 groups 6 animals each. Group I was served as normal control, received 1ml/kg of 0.1% Carboxy methyl cellulose solution. Group II was served as anemic control, received 1 ml/kg of 60 mg/kg of phenylhydrazine intraperitoneally for 2 days. Group III served as reference control, phenylhydrazine treated rats received1 ml/rat Vitamin B_{12} syrup through oral administration, by suspending in 1% CMC solution for 28 days. Group IV served as test control-I, phenylhydrazine treated rats received 100mg/kg of *Luffa aegyptiaca* hydro-alcoholic leaves extract through oral administration, bysuspending in 1% CMC solution for 28 days. Group V served as test control-II, phenylhydrazine treated rats received 200mg/kg of *Luffa aegyptiaca* hydro-alcoholic leaves extract through oral administration, bysuspending in 1% CMC solution for 28 days. On 29th day, blood was collected in EDTA coated tubes, by tail puncture under phenobarbitone (45mg/kg, IP) anaesthesia. The following parameters like, Red Blood Cell count (RBC), Haemoglobin (Hb) and Haematocrit percentage (HCT) were evaluated in blood.

RESULTS AND DISCUSSION:

Anti-anemic activity of *Luffa aegyptiaca* leaf extract on Phenylhydrazine inducedanemia in rats was

studied and the results were shown on Table 1. The anti-anemic activity of *Tamarindus indica* leaf extract was assessed by determiningthe red blood cell count, haemoglobin and haematocrit percentage.

Table 1: Effect of *Luffa aegyptiaca* leaf extract on Phenylhydrazine induced anemia in rats

S. No.	Drug treatment	RBC (106 µL-1)	Hb (g dL-1)	HCT %
1.	Normal control (0.1% CMC)	8.91±0.61	13.52±0.55	47.88
2.	Anemic Control Phenylhydrazine (60mg/kg)	4.71±0.16	5.99±0.22	28.56
3.	Reference Control Vit B12 (1 ml/rat)	8.35±0.42***	13.13±0.73***	45.29**
4.	Test Control-I *Luffa aegyptiaca* (100 mg/kg)	8.14±0.59***	13.11±0.76***	43.81**
5.	Test Control-II *Luffa aegyptiaca* (200 mg/kg)	8.28±0.54***	13.25±0.71***	44.08**

Data were expressed as Mean ± SEM (n=6) *P<0.05, ** P<0.01 and *** P<0.001 Vs. Anemic Control.

CONCLUSION:

The ethanolic leaf extract of *Tamarindus indica* exhibits anti-anemic activity against phenylhydrazine induced anemia in rats. The anti-anemic effect produced by the *Tamarindus indica* leaf may be due to its high content of iron which is present in the plant.

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