



EVALUATION OF ANTIPIRETTIC EFFECT OF ETHANOLIC EXTRACT OF LEAVES OF AEGLE MARMELOES IN ADULT MALE ALBINO RATS

Pharmacology

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ABSTRACT

Back ground: Pyrexia is a common symptom of many microbial diseases. Ethanolic extract of leaves of *Aegle marmelos* might have antipyretic effect.

Objective: To evaluate the antipyretic effect of ethanolic extract of leaves of *Aegle marmelos* in adult male albino rats.

Methodology: The antipyretic effect of graded doses of ethanolic extract of leaves of *Aegle marmelos* was evaluated by Brewer's yeast induced pyrexia method and rectal temperature was recorded by thermometer. It was compared with the standard drug paracetamol. The values obtained were expressed as mean $\pm$ S.D.. Statistical analysis of difference between groups was carried out using one-way Analysis of variance (ANOVA). Probability (P) value of < 0.001 was taken as the level of statistical significance.

Result: Ethanolic extract of leaves of *Aegle marmelos* at both doses of 200 mg/Kg and 400 mg/Kg produced significant reduction of temperature at a P-value of < 0.01 .

Conclusion: Ethanolic extract of leaves of *Aegle marmelos* at both doses of 200 mg/Kg and 400 mg/Kg had antipyretic effect and it was comparable to that of Tab. Paracetamol

KEYWORDS

Antipyretic, Ethanolic Extract Of *Aegle Marmelos*, Thermometer.

INTRODUCTION:

According to World Health Organization, about 80% population of the developing countries relies on traditional medicines, mostly plant derived drugs¹. Today many drugs are developed from plants which are active against a number of diseases. The majority involve the isolation of the active ingredient (chemical compound) found in a particular medicinal plant and its subsequent modification. Pyrexia or fever is the increase in body temperature above normal physiological range, is the common symptom of many diseases mainly microbial diseases may be due to bacterial or viral and other organisms. The drugs which can reduce elevated body temperature are antipyretic drugs. They act by inhibiting COX-2 enzyme thereby inhibiting prostaglandin synthesis. Paracetamol is the common drug for pyrexia and is the safe and highly efficacious drug, can be used in all age groups and free from side effects. *Aegle marmelos* of family Rutaceae is a popular medicinal plant², used in Ayurvedic and Siddha systems of medicine, used to treat various diseases. The ethanolic extract of leaves of *Aegle marmelos* contains flavonoids, tannins, steroids and saponins³. The study is to evaluate the antipyretic activity of the ethanolic extract of leaves of *Aegle marmelos* find an alternative effective and safe antipyretic

was induced by intraperitoneal injection of 20% aqueous suspension of Brewer's yeast at the dosage of 10ml/kg². After 18 hours, rectal temperature was measured. Rise in temperature $\geq 1^\circ\text{C}$ was considered as pyrexia.

The following drugs were given to all animals.

Control - Distilled water

Standard - T. T. Paracetamol 100mg/Kg (oral)

Test-1 - Ethanolic extract of *Aegle marmelos* 200mg/Kg (oral)

Test-2 - Ethanolic extract of *Aegle marmelos* 400mg/Kg (oral)

After 1 hour of drug administration, temperature was measured at 1, 2, 3 and 4 hours. The values obtained were expressed as mean $\pm$ S.D. Statistical analysis of difference between groups was carried out by using one-way Analysis of variance (ANOVA). Probability (P) value of < 0.001 was taken as the level of statistical significance.

Table.1. Mean Rectal Temperature of all four Groups

Rectal Temp	Control	STD	Test - 1	Test - 2
1 hr	38.37 $\pm$ 0.34	37.88 $\pm$ 0.53	38.14 $\pm$ 0.64	38.07 $\pm$ 0.21
2 hr	38.47 $\pm$ 0.37	37.54 $\pm$ 0.48	37.77 $\pm$ 0.63	37.23 $\pm$ 0.23
3 hr	38.67 $\pm$ 0.37	37.13 $\pm$ 0.37	37.24 $\pm$ 0.62	36.63 $\pm$ 0.34
4 hr	38.64 $\pm$ 0.34	36.68 $\pm$ 0.35	36.93 $\pm$ 0.27	36.63 $\pm$ 0.37

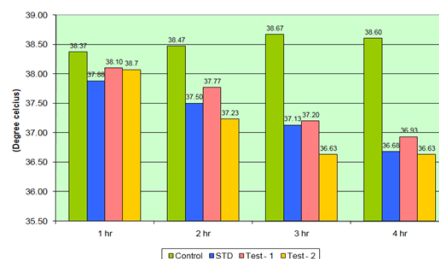


Fig - 4 RECTAL TEMPERATURE - ALL GROUPS COMPARISON

PREPARATION OF EXTRACTS

The fresh leaves of *Aegle marmelos* were collected, were washed, cleaned and dried in shadow. The dried leaves were powdered. It was 100gm in weight and was put inside the thimble of the Soxhlet Apparatus and was added with 250ml of 95% Ethanol to completely submerge the plant material. It was done for 8 hours at 60°C. After the extraction process, the extract was concentrated using a rotary evaporator and was dried by further solvent removal using a vacuum concentrator⁴.

PREPARATION OF BREWER'S YEAST

In this study 20% of Brewer's Yeast was prepared, 6 grams was weighed and dissolved in 30ml of distilled water⁵.

METHODOLOGY

The study was carried out in the Institute of Pharmacology, Madurai medical college, Madurai after getting clearance from the Institutional Ethical Committee (Reg. No.9/3152018). 24 inbred adult male albino rats were obtained from Central Animal House of Madurai Medical college. The animals were kept overnight fasting. They were divided into four groups of 6 each (control, standard, Test-1 and Test-2). Initial rectal temperature was measured for all rats (mean 37.06°C). Pyrexia

DISCUSSION:

It was observed that the standard, test-1 and test-2 groups showed reduction in temperature at first & second hours but had significant reduction at third and fourth hours which was statistically significant (P

<0.001) (Fig.4). Test group 2 showed significant reduction in temperature compared to standard and test group I. Ethanolic extract of *Aegle marmelo*es had anti pyretic effect both at 200mg/kg and 400mg/kg comparable with T.Paracetamol 100mg/kg but significant effect at 400mg/kg. The anti pyretic effect of Ethanolic extract of *Aegle marmelo*es may be due to its tannins and saponins. Further clinical studies are required to confirm its antipyretic effect.

RESULTS:

It was observed that the standard, test-1 and test-2 groups had anti pyretic effect at third and fourth hour with P-value of <0.001

CONCLUSION:

Ethanolic extract of leaves of *Aegle marmelo*es had anti pyretic effect both at 200mg/kg and 400mg/kg comparable with T.Paracetamol 100mg/kg.

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