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EVALUATION OF ANTIPYRETIC ACTIVITY OF POLYPHYTO LEAF EXTRACT OF *COCCULUS HIRUSITUS* AND *MAYTENUS EMARGINATA*

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Abstract

The leaves of the plant *Cocculus Hirusitus* and *Maytenus Emarginata* were collected based on their traditional usage for relieving pains. The pharmacological screening of the crude extract was carried out using standard protocols. The crude extract was suspended in 0.5 % carboxy methyl cellulose (CMC) for administration to albino rats. 15 % of yeast was suspended in this prepared 0.5 % w/v carboxy methyl cellulose solution. It was revealed that the extract showed dose dependent antipyretic activity. The polyphyto leaf extract showed significant decrease in body temperature.

Key Words: Pyrexia, Yeast, Temperature, Polyphyto Extract, *Cocculus Hirusitus* and *Maytenus Emarginata*.

Introduction

Pyrexia or fever is caused as a secondary impact of infection, malignancy or other diseased states¹. It is the body's natural function to create an environment where infectious agents or damaged tissues cannot survive. Normally, the infected or damaged tissue initiates the enhanced formation of pro inflammatory mediators (cytokines, such as interleukin 1 β , α , β , and TNF- α), which increase the synthesis of prostaglandin (PgE2) near hypothalamic area and thereby trigger the hypothalamus to elevate the body temperature.² However, there is no scientific report available in support of the antipyretic activity of polyphyto Ethanolic leaf extract. The purpose of the present study was to find out the antipyretic activity of polyphyto ethanolic leaf extract of *Cocculus Hirusitus* and *Maytenus Emarginata*⁸

Cocculus Hirusitus

Botanical name: *Cocculus hirsutus* (Linn.) Diels

Family: Menispermaceae

SANSKRIT SYNONYMS

Palalagaruda, Chilihinda

AYURVEDIC PROPERTIES

Rasa : Tikta, Kashaya

Guna : Lakhu

Virya : Seeta

PLANT NAME IN DIFFERENT LANGUAGES

English : Broom creeper, Ink berry

Hindi : Patalgarudi, Jaljamani

Malayalam : Patalagarudakkoli

Distribution : Throughout India in dry localities.

Plant Description

A perennial climber shrub with softly villous young parts; leaves simple, alternate, ovate-oblong, obtuse, apiculate, sub-cordate or truncate at the base, softly villous on both surfaces, petioles densely villous: male flowers small, in axillary cymose panicles, female flowers 2-3 together in axillary clusters; fruits purplish black drupes.

Medicinal Properties

Plant pacifies vitiated kapha, vata, poisonous bites, leprosy, skin diseases, pruritus, dyspepsia, flatulence, colic, cough, bronchitis, gout, headache, intermittent fevers, burning sensation, fractures, hypertension and general debility.

Useful part: Roots, leaves

Species

Maytenus emarginata

Species description

Family

Celastraceae

Habit

Tree/woody shrub.

Importance of the Species

Kankari/Kankero, Maytenus emarginata (Celastrus emarginatus/ C. montana/C. senegalensis/Gymnosporia montana) (Malkangani) is an evergreen tree that tolerates various types of stresses of the desert. This plant is valuable biomass producer in the Aravallis and the Indian desert. The plant provides fodder, timber and fuel wood. It has medicinal value. The plant is economically and ecologically valuable.

Materials and methods

Plant material

The leaves of plant *Cocculus Hirusitus* and *Maytenus Emarginata* were collected from seshachalam hills, A.P, India and authenticated. The plant was identified by routine pharmacognostical studies including organoleptic tests, and macroscopic and microscopic observations. The voucher specimen has been retained in our laboratory for future reference.

Extraction of Plant Materials

In the present work, the authenticated fresh leaves of the plants, approximately (3kg) were collected and then they were cut into small pieces and immersed into ethyl alcohol. Extracts were drawn at the intervals of 24 hours till the extract was almost colourless the combined extracts were concentrated under reduced pressure when the crude extract was obtained as a yellowish, thick and fragrant liquid. TLC of the crude extract showed a streak.

The pharmacological screening of the crude extract was carried out using standard protocols. The crude extract was suspended in 0.5 % carboxy methyl cellulose (CMC) for administration to albino rats.

Experimental Animals

Healthy male, female wistar rats are using for the experiment. The experimental protocol was approved by the Institutional Animal Ethical Committee.

Acute toxicity study

The polyphyto ethanol extract of *Cocculus Hirusitus* and *Maytenus Emarginata* was devoid of any mortality or change in behaviour up to 1 g/kg orally in albino rats. Based on this observation maximum dose of 200 mg/kg orally was used for acute treatment in following experiments.

Preparation of fever inducing agent:

In this study 0.5 % carboxy methyl cellulose solution was prepared in normal saline. 15 % of yeast was suspended in this prepared 0.5 % w/v carboxy methyl cellulose solution.

Brewer's Yeast Induced Hyperpyrexia Method

Animals of either sex were divided based on randomization schedule in to four groups containing six in each group. The normal body temperature of each rat was measured rectally at one hour interval on a thermometer and readings were recorded. The antipyretic activities of extract were evaluated using Brewer's yeast induced pyrexia in Wister rats ⁷. The basal rectal temperature of rats was recorded before yeast injection and after recording animals were given subcutaneous injection of 10 ml/ kg of 15 % w/v yeast suspended in 0.5 % w/v carboxy methyl cellulose solution for elevation of body temperature of rats.

Rats were then returned to their housing cages. At the 18hrs after yeast injection, the vehicle, standard drug and test drugs were administered in to different groups. Carboxy methyl cellulose at dose of 5 ml/kg was administered orally to the control groups of animals and Paracetamol at dose of 150mg/kg was administered orally to standard group of animals.. The polyphyto ethanolic extract of plant was administered orally at a dose of 100 mg/kg and 200 mg / kg of body weight to two groups of animals respectively. After drug administration,Rectal temperature was recorded using clinical thermometer at 0,1,2 3hrs.

Table no.1: Antipyretic effect of polyphyto extract on wistar rats.

S.No	Group	Treatment	Dose	Initial Rectal Temp. in 0C before Yeast Injection	Rectal Temperature in 0C after 18hrs of Yeast Injection (Mean± SEM)			
					0	1	2	3
1	I	Control Propylene Glycol	5 mg/kg	37.66 ± 0.1				
2	II	Standard Paracetamol	150 mg/kg	37.21 ± 0.2	40.83 ± 0.11	40.46 ± 0.17	39.21 ± 0.14	39.13 ± 0.16

3	III	polyphyto Extract	100 mg/kg	37.71 ± 0.4	40.42 ± 0.19	38.64 ± 0.17	38.46±0.09*	37.87 ± 0.18*
4	IV	polyphyto Extract	200 mg/kg	37.32 ± 0.3	40.62 ± 0.14	39.62 ± 0.19	39.12 ± 0.24	38.69 ± 0.12

n = 6 in each group, “*” indicate P < 0.01 compared to control

Statistical Analysis

Data was expressed as mean ± standard error of mean. . The results were analyzed statistically by ANOVA is followed by Dunnet’s test [4, 5]. The result of experiments by proper statistical analysis as stated above are tabulated in table. no.1

Results

The effect of polyphyto ethanolic leaf extract on yeast induced pyrexia has been shown in table no.1. Treatment with extracts at dose of 100 mg/kg and 200 mg/kg body weight and Paracetamol at dose of 150mg/kg decreased body temperature of yeast induced rats. The results obtained from both standards and extracts treated groups were compared with the control group. A significant reduction in the yeast elevated rectal temp was observed in the test drug.

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