

Short Communication

Preliminary Investigation of Antipyretic Activity of Trinpanchmool Extracts

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Abstract

Current research work is to evaluate the antipyretic activity of hydro-alcoholic extract of trinpanchmool on the wistar rats. Brewer's yeast induced pyrexia method was used to evaluate febrifuge effect of trinpanchmool extract along with its comparison with its individual constituents on the wistar rats. Darbh, Ikshu and SAR was having better antipyretic activity than the standard drug paracetamol. Combination of the drugs was having better antipyretic that paracetamol but lesser than the individual drugs. Trinpanchmool and its individual drugs are having febrifugatic effect better than our standard paracetamol.

Keywords: Trinpanchmool, Hydroalcoholic, Antipyretic, Brewer's yeast method.

Introduction

Trinpanchmool an Ayurvedic combination, comprises of *Desmostachya bipinnata*, *Saccharum spontaneum*, *Imperata cylindrica*, *Saccharum munja* and *Saccharum officinarum* of gramineae family. *Desmostachya bipinnata* have camphene, isobornyl acetate, tricyclene, trans-2,6-gamma-irone, caryophyllene diepoxide, β – eudesmol, Eseroline, and Calarene appear as the main components & smaller percentages of Diphenyliodonium bromide, 1.limonene, 2-cyclohexene-1-one and 8-nitro-12-tridecanolide[1]. *Desmostachya bipinnata* & its constituents reported to have antimicrobial, antidiarrhoeal, anti helicobacter & inhibitor of signal transducer and activator of transcription 3(STAT3) and low density lipoprotein oxidation [1-4]. *Saccharum spontaneum* Leaves and stalks contain lignin, carbohydrates, proteins and amino acids while its roots and root-stocks contain starch and polyphenolic compounds and thereby

possessing antidiarrhoeal and CNS depressant activity[5,6]. *Imperata cylindrica* have vanillic acid, ferulic acid, p-coumaric acid, p-hydroxybenzoic acid, caffeic acid and impecyloside as main phytoconstituents and showing significant antihypertensive activity [7-9]. *Saccharum munja* have been used as aphrodisiac, in burning sensations, thirst, erysipelas, blood troubles, urinary complaints, eye diseases and tridosha by the ayurvedic system of medicine [10]. *Saccharum officinarum* having apigenin, luteolin, triclin, hydroxycinnamic acid, caffeic acid, sinapic acid as main constituents and have significant antioxidant activity [11].

Regulation of body temperature requires a delicate balance between the production and loss of the heat and the hypothalamus regulates the set point at which body temperature is maintained. In fever this set point is elevated and paracetamol like drugs promote its return to normal. These

drugs do not influence body temperature when it is elevated by such factors as exercise or increase in the ambient temperature. The screening of natural products has led to the discovery of so many potent Anti-pyretic drugs.

And the antibacterial property & immune modulation expressed from the potential antioxidants lead us to evaluate the antipyretic profile of Trinpanchmool and its individual drugs.

So the current research paper includes the study of Trinpanchmool as febrifuge.

Materials & Methods

Collection & Authentication of Plant Material

The drugs were collected from Banaras Hindu University campus, Varanasi and authenticated by Dr. V.K. Joshi, Dean of Faculty of Ayurveda, Institute of Medical Science, B.H.U., Varanasi and also through National Botanical Research Institute (NBRI), Lucknow. A Voucher specimen of all the plants has been preserved in the Department of Pharmacognosy, College of Pharmacy, IFTM, Moradabad, for further references. The roots were separated, washed, dried under shade and coarsely powdered.

Preparation of Extracts

The coarsely powdered materials were kept separately with a solvent mixture of alcohol and water (50:50) for seven days. The filtered, extracts were dried in a vacuum evaporator and hydro-alcoholic extracts were kept in desiccators until further use.

Animals

Wistar rats both male and female weighing 150-200gm valued for study. The animals were kept in a room under controlled condition. They were fed with standard diet and were free to cleaned drinking water. The experimental protocol was approved by the Institutional Animal Ethical Committee of College of Pharmacy, IFTM, Moradabad (837/AC/04/CPCSEA)

Evaluation of Antipyretic Activity

Animals of constant rectal temperature for a week were selected for the experiment. The Antipyretic activity of the extract was evaluated based on brewer's yeast induced pyrexia in rats. Pyrexia was induced by subcutaneous injection of 10 ml/kg of 15% w/v brewer's yeast suspension in normal saline below the nape of the neck, before this injection, the rectal temperature recorded for each rat at time, zero hour by using a telethermometer. At 18 hr. the different groups were treated with vehicle, standard drug paracetamol (150mg/kg) and the extracts 200mg/kg. The rectal temperatures were recorded at 30min, 1hr, 2hr 3hr and 4hr[12-13].

Data analysis and statistics

The values were expressed as mean \pm standard error mean (SEM). Statistical analysis of the data was carried out by two way ANOVA followed by bonferroni test to determine the significant between two groups $p < 0.05$ was considered significant.

Results & Discussion

Values are expressed in mean \pm SEM (N=6), ^{a,b,c} $P < 0.05$, 0.001 and 0.01 respectively as compared to control. One way ANOVA followed by bonferroni test.

All the individual drugs & combined drugs of Trinpanchmool had their maximum activity at 4 hrs as compared to control groups and standard paracetamol. But the results prominently indicate the better efficacy of Trinpanchmool than paracetamol (**Table 1**). The anti-pyretic activity of Trinpanchmool drugs could be because of the inhibition of prostaglandins synthesis. All the drugs contain flavonoids, steroids hence the antipyretic activity may be due to these Phytoconstituents.

Table 1: Antipyretic activity of Trinpanchmool drugs.

Rectal temperature recorded at different time interval in °c								
Extract	Dose (mg/kg)	-18hr	0hr	30 min	1hr	2hr	3hr	4hr
Control		37.3±0.02	38.2±0.04	38.2±0.01	38.1±0.03	38.2±0.04	38.1±0.01	37.9±0.02
Paracetamol	150	37.8±0.04	38.6±0.03	38.4±0.02a	38.3±0.03a	38.1±0.02a	37.9±0.03a	37.8±0.01a
Kush	200	37.5±0.03	38.1±0.02	38.0±0.01a	38.0±0.02a	37.9±0.01a	37.7±0.02a	37.6±0.02 a
Kas	200	37.4±0.04	38.0± 0.03	38.1±0.02	37.9±0.04	37.8±0.01	37.8±0.01	37.7±0.04
Darbh	200	37.2±0.02	37.8± 0.02	37.6±0.03b	37.2±0.03b	37.2±0.03b	37.1±0.04b	37.1± 0.03 b
Ikshu	200	37.4±0.01	38.0± 0.03	37.9±0.04c	37.7±0.01c	37.6±0.04c	37.6±0.02c	37.4± 0.04 c
Sar	200	37.3±0.02	38.0± 0.04	37.9±0.04	37.8±0.02	37.8±0.03	37.8±0.03	37.7± 0.03
Combination of drugs	200	37.8±0.03	38.4± 0.01	38.4±0.02 b	38.0±0.04 b	37.9±0.02 b	37.8±0.02 b	37.8± 0.01b

Conclusion

The combined extract from trinpanchmool along with the extracts from the individual drug were evaluated for their febrifugatic property. The research findings are significant. Study reveals that trinpanchmool and its individual drugs are better anti-pyretic agent. So Trinpanchmool can be certainly recommended as the remedy tool for fever.

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