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ANTI PYRETIC POTENTIAL OF *FICUS HISPIDA* LEAVES ON TAB VACCINE-INDUCED PYREXIA

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ABSTRACT

Ethanopharmacological relevances: *Ficus hispida* leaves has been traditionally used in Ayurveda system of medicine to treat fever. **Aim of the study**: The study investigates on methanolic extract of *Ficus hispida* leaves for anti pyretic potential in wistar rats. **Materials and methods**: Fever was induced by administration of Typhoid, Para-typhoid A and B vaccine, diluted in 1/15 th part of saline, intra peritonially. The hyperexia in rats was measured using thermometer. Methanolic extract of *Ficus hispida* leaves of dose 100, 200 and 400 mg per kg^{-1} body weight was administered to animals. **Results and discussion:** Methanolic extract of *Ficus hispida* leaves of dose 400 mg per kg^{-1} body weight produced significant reduction in elevated body temperature compared to that of standard Paracetamol 150 mg per kg^{-1} body weight. The obtained values are expressed as mean ± SEM values. **Conclusion**: Our results provides information regarding safety and effectiveness of *Ficus hispida* leaves extract in treatment of fever.

INTRODUCTION:

The plant *Ficus hispida*, linn belongs to family Moraceae by Taxonomical nomenclature.[1] *Ficus hispida* is a small but well distributed species of tropical fig tree. It occurs in many parts of Asia and as far south east as Australia.[2] The plant is found to use traditionally for the prevention of disease. A mixture of honey and the juice of these fruit is a good antihemorrhagic but the barks and leaves are used as an antidiarrhoeal , Antidiabetic and as cardioprotective. *F. hispida* are shrubs or small trees and leaves arrangement is opposite. The fruits are clustered on the tubercles of stem or in racemes. Bark contains tannins, waxes and leaves contain
alkaloids, Oleanolic acid. Fruits are used as tonic, galactogogue and emetic[3]

MATERIAL AND METHODS

Animal Care and Handling

The experiment was carried out on albino rats of 4 months, of both sexes, weighing 170-220 gm. They were provided from Mahaveer pvt ltd. The animals were acclimatized to the standard laboratory conditions in cross ventilated animal house at temperature 25±2°C relative humidity 44 –56% and light and dark cycles of 12:12 hours, fed with standard pallet diet and water ad libitum during experiment. The experiment was

approved by the institutional ethics committee and as per CPCSEA guidelines.

Chemicals: Paracetamol and Typhoid vaccine were purchased from Apollo medical store, Visakhapatnam. All other chemicals used for this study were of analytical grade.

Pyrexia Induced in Rats by Typhoid Vaccine

The room temperature was maintained at 30ºC. Only animals with a body temperature of at least 38ºC (Max) were taken into the test. Typhoid-Paratyphoid A & B vaccine (0.3 ml) was injected i.p. for rats of each group. Standard paracetamol (I.V.) was injected 30 minutes before administration of Typhoid-Paratyphoid A, B vaccine. The rectal temperature of each animal was recorded initial and at the interval of 30 minute after treatment using treatment using tele thermometer up to 3 hours(4,5). In the LD50 value determination, we observed that the Leaf extract was safe to use in animals and showed no mortality up to 2000 mg/kg body weight. Therefore 2000 mg/kg dose was considered as a safe dose. 1/5 th (400 mg/kg body wt.) , 1/10th (200 mg/kg body w.t) and 1/20th(100mg/kg body w.t) of that was selected for all in vivo experiments as maximal dose.

EXPERIMENTAL DESIGN

In the experiment, a total of 30 rats were used. The rats were divided into 5 groups comprising of 6 animals in each group as follows: **Group :** Control

Group I : Rats received Paracetamol (10mg/kg.) only 1 day around 1 hr before measurement of Body temperature by the help of digital tele thermometer.

Group II: Rats received Methanol Extract of *F.hispida* (100mg/kg p.o.)

Group IV: Rats received Methanol Extract of *F. hispida* (200mg/kg p.o.)

Group V: Mice received Methanol Extract of *F.hispida* (400mg/kg p.o)

Experimental Animals: Albino rats of either sex weighing between 170-220 gms were arranged in five groups of six each. The normal rectal temperature and its hourly variation were recorded at the beginning of the experiment using a digital tele thermometer[6]. Animals were fasted for 24 hours before giving the drugs, but water freely permitted, pyrexia was induced by the administration of TAB vaccine. The vaccine was given intra peritonially in a dilution of 1/15 in normal saline to all animals[7]. After two hours of the administration of TAB Vaccine, the rectal- temperature of each rat was taken and found to be fairly stabilized.

1. The first group of rats were given the vehicle (0.1% Sodium CMC).
2. The second group was given paracetamol 100 mg/kg body weight orally which was used as reference standard drug.
3. The third group was given plant extract orally at a dose of 100 mg/kg body weight
4. The fourth group was given the plant extract orally at a dose of 200 mg/kg body weight.
5. The fifth group was administered with plant extract 400 mg/kg body weight orally . The rectal temperature of rats were taken using an electronic digital tele thermometer. The results were evaluated by one way ANOVA.

DISCUSSION

Antipyretics are the agents which reduce the elevated body temperature. Regulation of body temperature requires a delicate balance between production and loss of heat, and the hypothalamus regulates the set point at which body temperature is maintained. In fever this set point elevates and a drug like paracetamol does not influence body temperature when it is elevated by the factors such as exercise or increase in ambient temperature [8,9]. Experimental studies reveals that extracts of *Ficus hispida* (at dose 400 mg/kg) produced an antipyretic action by decreasing the body temperature in the model of fever in rats.

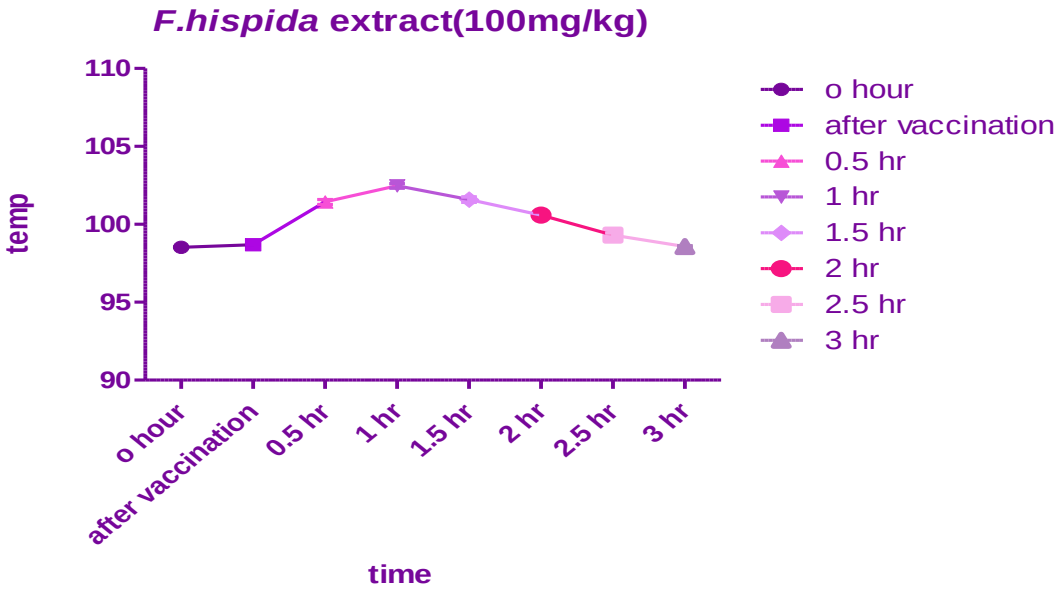
Acute Toxicity study:

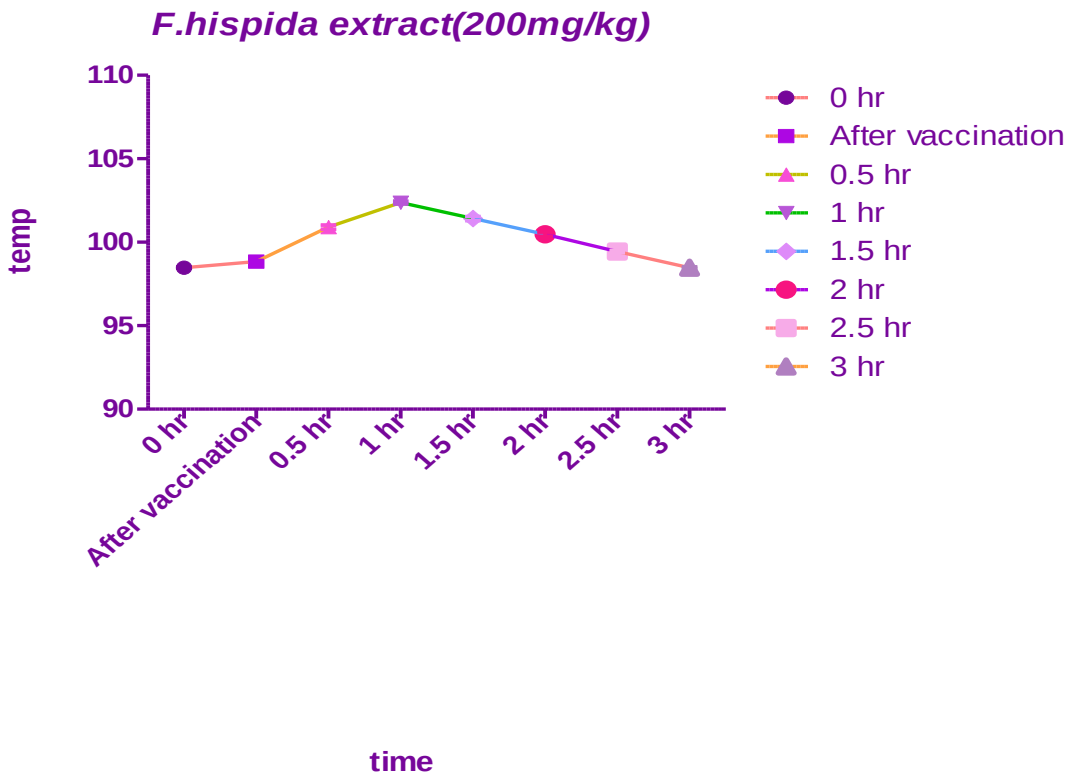
Acute Toxicity Study (CPCSEA guidelines)

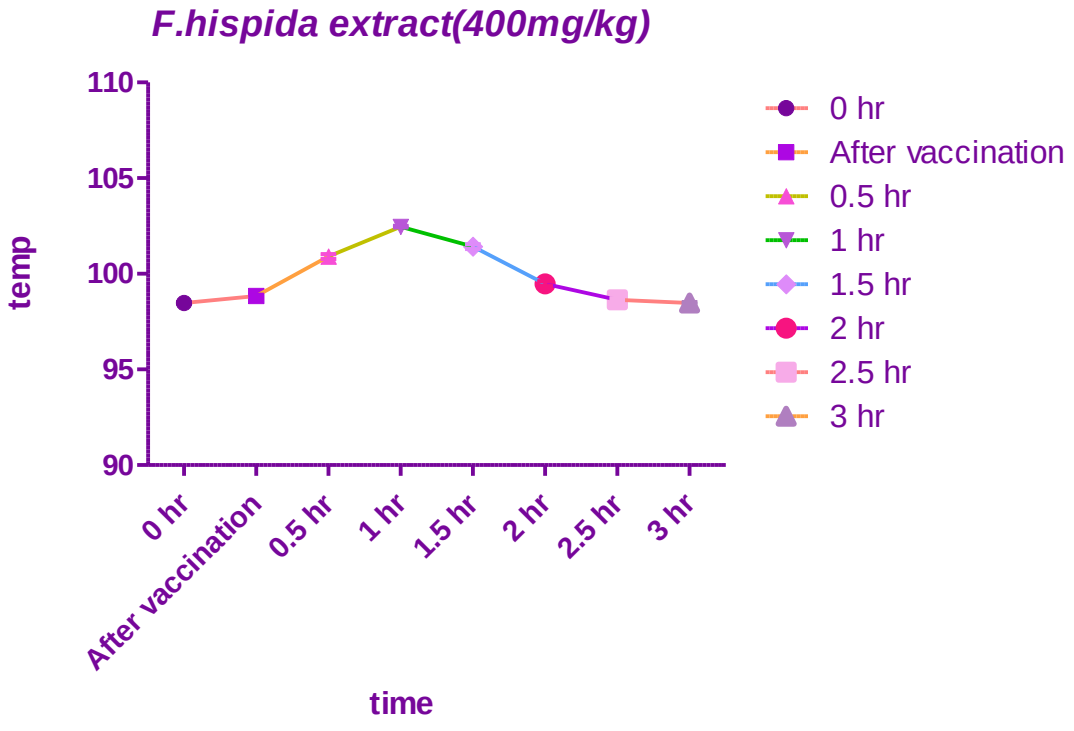
Treatments	Dose (mg/kg)	No. of animals used	No of death	%Death
F.hispida leaf extract	2000	5	0	0

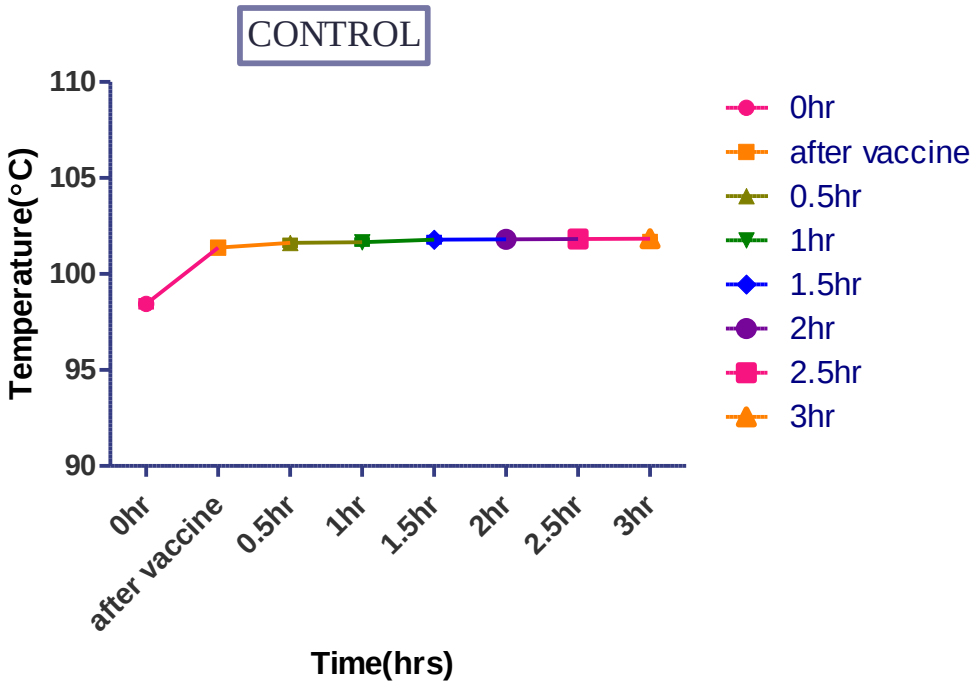
S.no	Treatment	Normal body temp	Body temp after administration of vaccine	After drug administration					
				0.5 hr	1 hr	1.5 hr	2 hr	2.5 hr	3 hr
1	Control	98.4±0.05	98.6±0.01	98.6±0.01	98.6±0.03	98.7±0.01	98.6±0.01	98.7±0.01	98.6±0.01
2	Standard	98.5±0.08	98.7±0.13	99.7±0.12	100.3±0.15	100.9±0.06	101.5±0.03	100.3±0.2*	98.8±0.03*
3	Test1	98.4±0.06	98.7±0.06	100.5±0.03	101.2±0.12	100.6±0.62	99.8±0.05*	99.2±0.01*	98.6±0.3*
4	Test2	98.5±0.08	98.9±0.12	100.5±0.52	101.8±0.04	100.4±0.12	99.6±0.15*	99.0±0.10	98.4±0.15*
5	Test3	98.6±0.03	98.7±0.03	100.8±0.14	101.6±0.12	100.5±0.03	99.7±0.1*	99.1±0.2**	98.5±0.17*

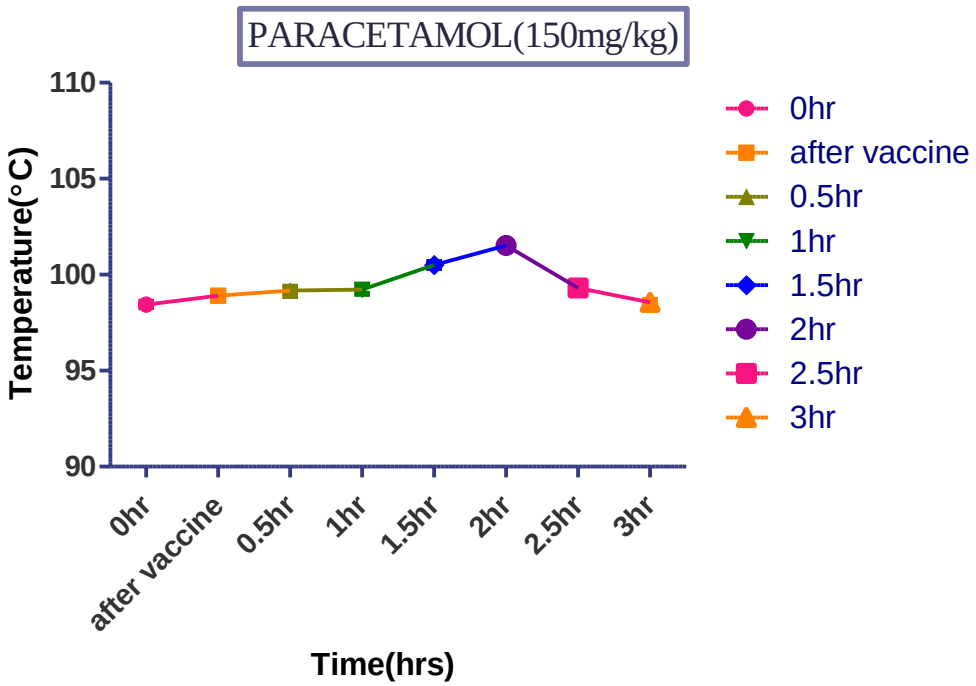
Values are expressed as MEAN±SEM, when p*<0.05,p**<0.001,p***<0.0001 significant when compared with standard




F.hispida extract(200mg/kg)
temp
110
105
100
95
90
0 hr
After vaccination
0.5 hr
1 hr
1.5 hr
2 hr
2.5 hr
3 hr
time


F.hispida extract(400mg/kg)
temp
110
105
100
95
90
0 hr
After vaccination
0.5 hr
1 hr
1.5 hr
2 hr
2.5 hr
3 hr
time





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