JOURNAL OF PURE AND APPLIED MICROBIOLOGY, October 2010. Vol. 4(2), p. 923-924

Effect of Herbal Drug on Mast Cell Degranulation activity in Sensitized Rats

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(Received: 24 April 2010; accepted: 18 June 2010)

The study showed the effect of *Vitex negundo* crude extracts on mast cells degranulation activity. It was noticed that 100mg/kg.dose of the herbal drug when given p.o. to the albino rats showed 72% mast cells stabilizing activity which was similar to the standard drug Prednisolone .Only 20% cells were found disrupted the detail phytochemistry of extract showing this activity is under the process.

Key words: *Vitex negundo*, Mast cells, degranulation , Anti-inflamatory.

The history of the use of plants in medicine can be traced back to the ancient civilization of Pre-Rigvedic time. Indigenous system of medicine like Ayurveda and Unani which had their roots in one or the other ways in folk medicine; Unani system of medicine was introduced in India by Arabs (Jain 1981).

Asthma is an allergic reaction in the body in which mast cells secret a compound called Histamine and mast cells become degranulated. The present paper reports, the mast cell stabilizing activity by the treatment of two different doses of *Vitex negundo* plant extract.

The plant which is known as NERGUNDI is grown in the forest of Betul district of M.P. Mast cells degranulation activity reported earlier by herbal drugs (Mitra *et al.,* 1999, Tripathi and Dass 1977, Ghosh *et al.,* 2005, Soni 2007 and Saxena 2003). Looking to the increasing cases of asthma during the last one decade and no permanent solution in allopathy system ,it was thought proper to find out herbal drug which can stabilize mast cells granulation.

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MATERIAL AND METHODS

Plant material and prepration of extract

The whole plant of *Vitex negundo* was collected from Betul district of M.P., India during January 2008-09, when they were flowering. Plant material was authenticated by Dr. S.K. Jain of Botany department . A voucher specimen has been deposited at the institute herbarium. The plant material was washed throughly in tap water, shade dried and powdered. The powder (100gm.) was cold extracted with 1000ml. of ethanol (90%) over night, at room temperature with constant stirring, as per the procedure adopted by Suja *et al.,* (2004). The extract was filtered and filtrate concentrated under reduced pressure in a vaccum evaporator to yield 2.56% of the crude extract. This crude extract (co) was reconstituted in 0.5% Tween-80, to desired concentration and used in the experiments .

Animal material

Wistar albino male rats of (250gm) were obtained from the laboratory cultured stock . The experimental protocol was followed under the guidance of CPCSEA and IAEC of the institution. The rats were fed Glycol India Ltd. pellets and water, ad libitum. The rats were given

Table 1. Effect of herbal drug *Vitex negundo* on mast cells degranulation activity on Sensitized rats

S. No.	Treatment	Dose (mg/kg.po) For 15 days	% of intact mast cell	% of disrupt mast cell
1.	Control	-	26%	74%
2.	V - 1	25%	30%	61%
3.	V - 2	50%	57%	43%
4.	V - 3	75%	69%	31%
5.	4 - 4	100%	72%	28%
6.	Standard drug (Prednisolone)	10%	75%	25%

asthmatic drugs ip for 15 days period to induce asthma after 4 days of treatment, 10 ml. of normal saline was injected into the peritoneal cavity of all the animals and after gentle massage. The collected mast cells were washed 3 times by centrifugation at low speed (400-500 rpm). The effect of herbal drug from *Vitex negundo* on the mast cells stabilizing activity was reported.

RESULTS AND DISCUSSION

Two weeks after sensitization, the antigen degranulated about 79% of the mast cell. When the sensitized animals were treated with herbal drugs (25, 50,75 and 100 mg/kg) for two weeks and then injected with an antigen, there was significant reduction in number of disrupted mast cells. The effect of herbal drug at 100mg/kg. was comparable with the Prednisolone.

In the control group of the sensitized rats 79% disruption of mast cells was noticed which came to be 28% after the drug administration of *Vitex negundo* as shown in Table 1.

Khan (2001) has also reported the herbal treatment of asthma for human protection .

The results of the present study are quite comparable to the standard drug used against asthma. Similarly,Yoshikawa *et al.,* (1998) have reported Triterpenoid saponin from *Albiziea* sp. which is anti-histaminic . Recently , mast cell protection activity have been reported by Bernguer *et al.,* (2006).The findings of this study indicate anti-allergic and mast cells stabilizing activity in a herbal drug isolated from *V. negundo*.

The mast cell is a well known effector cell in allergic disease. Histamines are mediators released from ruptured mast cells that play a major role in allergic response. The amount of histamine released depends on the number of mast cells that are degranulated or ruptured. Therefore, in the number of degranulated mast cells can be controlled. The function of mast cells can be manipulated for therapeutic ends by regulating their function with appropriate drugs .

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