

**INTERNATIONAL JOURNAL OF ADVANCES IN  
PHARMACY, BIOLOGY AND CHEMISTRY****Research Article****Antihistaminic activity of *Euphorbia hirta* Extract on  
Asthmatic Rats****R.R. Romde<sup>1</sup>, Mahesh Ningwal<sup>1</sup>, R.K. Kaurav<sup>2</sup>.**<sup>1</sup>Pest control and Ayurvedic Drug Research Lab, S.S.L Jain P.G College, Vidisha, Madhya Pradesh, India.<sup>2</sup>Bherulal Patidar Govt. P.G. College, Mhow (M.P.), India.**Abstract**

Asthma is a disease of the human respiratory system; Asthma affects 7% of the total population and approx 300 million worldwide. *Euphorbia hirta* is a pantropical weed, possibly native to India. It is a hairy herb that grows in open grasslands, roadsides and pathways. The 50gm of the powdered material was loaded into Soxhlet apparatus separately for extraction with the solvent of increasing order of polarity (n-Hexane, Chloroform and Methanol). The extract was filtered through Whatman's filter paper. When extract was applied in the II group, the disruption of mast cells were found 29.80±2 % and intact mast cells were found 71.20±2 % at 50 mg/kg body weight. Besides this, 24.70±2% disrupted and 81.10±2 % intact mast cells were observed at the dose of 100 mg/kg body weight which was quite similar to standard drug.

**Key Words:** Asthma, *Euphorbia hirta*, Soxhlet apparatus and mast cells.**INTRODUCTION**

The plants have been used as medicines since the beginning of human civilizations (Hill, 1952) and have been a source of treatment of the common day ailments<sup>12</sup>. From the beginning of civilization man has tried to find remedies against different ailments or diseases in his own way<sup>4</sup>. A medicinal plant is one used by people for medicinal purposes and to build or maintain health, stave off diseases or promote recovery from illness or misfortune. Medicinal herbs make an effective source for the traditional and modern medicine<sup>2,5</sup>. Even today it is being in use by hundreds and thousands of people in the developing world and are deriving a significant part of them for their survival and also for their income generation by gathering the animal and plant products (Iqbal 1993; Walter 2001)<sup>11</sup>.

Asthma is a disease of the human respiratory system in which the airways constrict and become narrow, often in response to a trigger such as exposure to an allergen, cold air, exercise, or emotional stress<sup>1</sup>. Asthma affects 7% of the total population and approx

300 million worldwide. During attacks the smooth muscle cells in the bronchi constrict, and the airways become inflamed, swollen and breathing becomes difficult. There is a category of medicine that competes with histamine released after allergic response to nullify its destructive effects on the tissues (Gupta, 2000)<sup>8</sup>. Doctors have traditionally been taught to avoid using antihistamines in patients with asthma because of the potential of antihistamines to dry up the secretions in the lungs and worsen asthma<sup>3,13,16</sup>. Some patients with mild asthma actually stop wheezing when they take an antihistamine<sup>6,7</sup>. People who experience increased coughing and wheezing after taking antihistamines should avoid their use<sup>15,10</sup>.

*Euphorbia hirta* is a pantropical weed, possibly native to India. It is a hairy herb that grows in open grasslands, roadsides and pathways. It is widely used as a medicinal herb in most places it grows. This erect or prostrate annual herb can get up to 60 cm long with a solid, hairy stem that produced abundant

white latex. There are stipules present. The leaves are simple, elliptical, hairy (on both upper and lower surfaces but particularly on the veins on the lower leaf surface), with a finely dentate margin. Leaves occur in opposite pairs on the stem. The flowers are unisexual and found in axillary cymes at each leaf node. They lack petals and are generally on a stalk. The fruit is a capsules with three valves and produces tiny, oblong, four-sided red seeds. It has a white or brown taproot.

#### MATERIALS AND METHODS:

The plant material of *Euphorbia hirta* was collected from the fields of District Ratlam of M.P. The plant was identified and authenticated by the taxonomist of botany department of S.S.L. Jain College Vidisha. A voucher specimen of the plant material was procured in the herbarium data sheet of the laboratory. The plant material was washed thoroughly with water and then air dried in shade at room temperature  $25 \pm 2^\circ\text{C}$  for more than 15 days<sup>17</sup>. The air dried plant material was grinded to powder about 40 – 60 mesh size. The 50gm of the powdered material was loaded into soxhlet apparatus separately for extraction with the solvent of increasing order of polarity (n-Hexane, Chloroform and Methanol)<sup>9,18</sup>. The extract was filtered through Whatman's filter paper. Then the crude extract was concentrated in the vacuum rotary evaporator. The crude extract obtained from plant

was tested for various biological activities against Asthmatic rats.

#### OBSERVATIONS AND RESULTS:

For the anti-histaminic activity, all the groups were sensitized by injecting subcutaneously 0.5 ml of horse serum along with 0.5 ml of triple antigen containing 20,000 million *Bordetella pertussis* bacteria<sup>14</sup>. The sensitized rats were divided into five groups. Group I was served as control and have received water with *ad-libitum* but not treated and sacrificed for the observation of mast cells which were found  $15.50 \pm 2\%$  intact and  $88.20 \pm 2\%$  disrupted. Mast cells were observed carefully and percentage of intact and disrupted mast cells were calculated.

When plant *Euphorbia hirta* extract was given in the II group, the disruption of mast cells were found  $29.80 \pm 2\%$  and intact mast cells were found  $71.20 \pm 2\%$  at 50 mg/kg body weight (Fig. 38). Besides this,  $24.70 \pm 2\%$  disrupted and  $81.10 \pm 2\%$  intact mast cells were observed at the dose of 100 mg/kg body weight. In the III group 10 mg/kg b.w. standard drug prednisolone was given intramuscularly, it was observed that the disruption of mast cells was  $20.40 \pm 2\%$  and intact mast cells was found  $84.50 \pm 2\%$  which was quite similar to the maximum 100 mg/kg/b. w. of herbal extract.

**Table 20. Effect of active fraction of plant extracts on albino rats.**

Group	Treatment	Dose (mg/kg b. w.)	Route of administration	Mast cells de-granulation	
				Disrupted %	Intact %
I	Control Sensitized	--	Not given	$88.20 \pm 2\%$	$15.50 \pm 2\%$
II	Treated with <i>Euphorbia wallichii</i> extract	50	Orally	$29.80 \pm 2\%$	$71.20 \pm 2\%$
-	Treated with <i>Euphorbia wallichii</i> extract	100	Orally	$24.70 \pm 2\%$	$81.10 \pm 2\%$
III	Standard drug Prednisolone	10	Intra muscular	$20.40 \pm 2\%$	$84.50 \pm 2\%$

*P* value 0.05, \* SEM

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