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Research Article

ANTIHISTAMANIC ACTIVITY OF EXTRACT OF ACHYRANTHUS ASPERA AGAINST ASTHMATIC ALBINO RATS

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INTRODUCTION

Knowledge of herbs has been handed down from generation to generation for thousands of years. Herbal drugs constitute a major part in all traditional systems of medicines. Herbal medicine is a triumph of popular therapeutic diversity. Plants above all other agents have been used for medicine from time immemorial because they have fitted the immediate personal need and are easily accessible and inexpensive. In the recent past there has been a tremendous increase in the use of plant based health products in developing as well as developed countries resulting in an exponential growth of herbal products globally. An upward trend has been observed in the research on herbals. Herbal medicines have a strong traditional or conceptual base and the potential to be useful as drugs in terms of safety and effectiveness leads for treating different diseases. World Health Organization has made an attempt to identify all medicinal plants used globally and listed more than 20,000 species.

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. The present study was undertaken to evaluate the claimed therapeutic effect *i.e.* asthma relieving or antispasmodic property of Achyranthus aspera.

MATERIALS AND METHODS

The plant material of *Achyranthus aspera* was collected from the fields of District Khargone 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 ± 2°c for more than 15 days. 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). 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 plants was tested for various biological activities against Asthmatic rats.

OBSEVATION 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. 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± 2% intact and 88.20±2 % disrupted. Mast cells were observed carefully and percentage of intact and disrupted mast cells were calculated. Table below showed the effect of active fractions of *Achyranthus aspera* extract on sensitized rats. In the II group which was treated with active fraction of *Achyranthus aspera* extract, it was noticed that when the dose of 50 mg/kg body weight were given orally with water by using oral feeding tube needle, the disruption of mast cells were found 35.60±2 % disrupted and intact mast cells were found 64.40±2 %. In another dose of 100 mg/kg body weight for the same plant, the disruption of mast cells were found 27.70±2 % and intact mast cells were found 72.30±2 %.

Table: 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±2%	15.50± 2%
II	Treated with *Achyranthus aspera* extract	50	Orally	35.60±2%	64.40±2 %
-	Treated with *Achyranthus aspera* extract	100	Orally	27.70±2%	72.30±2%
V	Standard drug Prednisolone	10	Intra muscular	20.40±2%	84.50±2%

P value 0.05, * SEM

REFERENCES

1. Agrawal B and Mehta A. Efficacy and safety of seed kernel of *Moringa oleifera* in the treatment of bronchial asthma. Indian J Pharmacol. 2008;40(1):28-31.
2. Atal CK and Kapur BM. Cultivation and utilization of medicinal plants. R.R.L. Jammu: 1971: 568.
3. Barnes PJ. Anti-inflammatory therapy for asthma. Ann. Rev. Resp. Med. 1993;44:229-249.
4. Dash Bhagwan. Ayurvedic cures for common diseases. A complete book of Ayurvedic remedies. Hind Pocket Books Publication, Delhi. 2001.
5. Dhar U Plants of Kargil-Zanskar. In: Ladakh: An integrated survey. Kashmir University, Srinagar, India. (Ed.). Kachroo. 1980:48-51.
6. Gautam P. Vadnere, Rahul S. Somani and Singhai Abhay K. Studies on anti-asthmatic activity of aqueous extract of *Clerodendron phlomidis.* Pharmacology online. 2007;1:487-494.
7. Gopumadhvan S, Mohammad R, Venkataranganna MV and Mitra SK. Antihistaminic and anti anaphylactic activity of Bresol (HK-07), a herbal formulation. Indian J Pharmacol. 2005;37(5):300-303.
8. Gupta KS. A concise book on allergy, I know what causes me allergy and how to manage it. Pustak Mahal Publication. 2000:42-45.
9. Harborne JB. Phytochemical methods. A guide to modern techniques of plant analysis. 2nd edn. Chapman and Hall Publ. London.1984:1-128.
10. Havsteen B. Flavonoids: A class of natural products of high pharmacological potency. Biochem Pharmacol. 1983;32:1141-1148.
11. Klaewsongkram J and Reantragoon R. Asthma research performance in Asia-Pacific: A bibliometric analysis by searching pubmed database. J Asthma. *2009;*46:1013-1020.
12. Kumar A, Prasad R, Jogge NM, Bhojraj S, Emerson SF and Prabakar S. Herbax-Kid (HK) inhibits immediate hypersensitivity reactions in mice and rats. EJCAM. 2008;5(3):289-294.
13. Kumar D, Bhujbal SS, Deoda RS and Mudgade SC. In-vitro and In-vivo anti-asthmatic studies of *Ailanthus excels* Roxb. on guinea pigs. J Sci Res. 2010;2(1):196-202.
14. Mitra SK, Gopumadhavan S, Venkatranganna MV and Anturlikar SD. Anti-asthmatic and Anti-anaphylactic effect of E-721B, An herbal formulation. Indian J of Pharmacology. 1999;31:133-137.
15. Norton S. Quantitative determination of mast cell fragmentation by compound 48/80. Br J Pharmacol. 1954;2:484.
16. Padamalatha K, Venkataraman BV and Roopa R. Effect of DLH - 72IA and DLH - 72IB (Polyherbal formulations) on rat mesenteric mast cell degranulation. Indian J of Pharmacology. 2000;32:7-10.
17. Palit G, Singh SP, Singh N, Kohli RP and Bhargava KP. An experimental evaluation of anti-asthmatic plant drugs from the ancient Ayurvedic Medicine. Indian Journal of Medical Research.1983;14:36-41.
18. Pandey NK, Joshi GC and Uniyal MR. Conservation inventory of high altitude medicinal plants of western Himalayas used in Indian system of medicine. Conference of Pharmacology and

Symposium on Herbal Drugs. 1991:1-14.
19. Pandit P, Singh A, Bafna AR, Kadam PV and Patil MJ. Evaluation of antiasthmatic activity of Curculigo orchioides gaertn. rhizomes. Indian J Pharm Sci. 2008;70:440-4.
20. Parmar S, Gangwal A and Seth S.. Mast cell membrane stabilization and anti-histaminic action of anti-inflammatory action of *Murraya koenigii.* J. Current Pharmaceutical Res. 2010;2(1):21-25.
21. Parmar SK, Gangwal A, Mardia RB, Dudhregia AV and Sheth NR. Antihistaminic, anti-inflammatory and mast cell stabilizing activity of ethanolic extract of *S. xanthocapum* in experimental animals. Indain J Pharmacol. 2008;40(2):S66.