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### ANTIULCER ACTIVITY BY RESTRAINT COLD WATER INDUCED ULCERATION IN ANIMAL MODEL OF KAPARDIKA BHASMA PREPARED BY FOUR DIFFERENT METHODS OF SHODHAN.

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#### ABSTRACT

Apardika is one of the sudhavargiya dravya, shows better therapeutic properties with proper shodhana & marana processes. It is indicated in parinamshoola, four samples of bhasmas were prepared by using four samples of shodhit kapardika lie A for Nimbu swaras B for kanji, C for Kulattha & D for Dadim swaras has been taken as per Rasatrangini. Antiulcer activity of kapardika bhasma was assessed in albino wistar rats. Four samples of kapardika bhasma demonstrated significant antiulcer activity in cold restraint methods. The sample B demonstrated highly significant antiulcer activity & similar to the standard drug.

**KEYWORDS** : Gastric ulcer, Kapardika Bhasma, cold restraint stress.

#### **INTRODUCTION:**

Gastric hyperacidity and peptic ulcer is most common disorder in today's industrialized and stressful world. The etiology of ulcer is not clearly known but it results probably due to imbalance between the aggressive and defensive factors. Gastric hyperacidity is a pathological condition where uncontrolled secretion of hydrochloric acid from parietal cells of the gastric mucosa. Reactive oxygen metabolites, free radicals, nitric oxide, genetic and environmental factors are also thought to play a role in pathogenesis of ulcers. The psychogenic factors, chronic as



well as acute stress is also believed to cause ulceration. A number of antiulcer drugs like H2 receptor antagonists, antimuscarinic agents, proton pump inhibitors, carbenoxolone sodium, sucralfate and prostaglandin analogues are available in market to control and treat the ulcer.

#### MATERIALS AND METHODS Kapardika Bhasma Preparation

Shodhit Kapardika pieces by Nimbu swaras, Kanji, Kulattha and Dadim swaras were kept in sharava and was closed by another sharava of same diameter. The White cloth of 6cm in Breadth & 50cm in length was taken & wet multani meethi was applied on it. Sandhibandhan was made by applying this cloth to sharava without leaving any gap & kept for drying for 12 hours. The Pit was digged measuring 30 angulas in length, breadth & height. 350 cow dungs were kept in the pit & sharava samputa was placed over it. Again 125 cow dungs were kept over the sharava samputa. Then subjected to gauja puta by ignite the fire. After Swangsheeta the sharava was taken outside and smeared mud was removed carefully. Kapardika pieces are collected & powdered well and bhasma paeeksha was done. Kumari swarasa bhavana was given to kapardika powder. 60 ml of Kumari swarasa was added & mardana was 8 hrs. When it became paste like, chakrikas were prepared and kept for drying. After drying chakrikas are kept in sharava in one layer & sharava samputa was done & second Gajputa was given same as that the first puta. After swangasheeta bhasma is collected from sharava & powdered. After second gajaputa the characteristics of kapardika bhasma is not obtained. Again repeated the process of kumari swaras bhavana and chakrikas are prepared and kept for drying. Third gajaputa was given same as the first gajput. After swangsheta bhasma is collected and powdered. Then samples are preserved in air tight container.

#### Animals

Wistar albino rats (150-180 gm) were obtained from National Institute of Biosciences, Pune. The study received approval from the Institutional Animal Ethical Committee (1036/a/07/CPCSEA/IAEC/12-13/R-1).

#### **Dose selection**

Kapardika bhasma dose 400mg/kg BW is selected on the basis of OECD toxicity guidelines 423.

#### **Experimental design**

The following different groups of rats (n=6) were done for experimentation, Group-1: Normal Group-2: Control Group-3: Standard (Ranitidine 50mg/kg BW) Group-4: Kapardika Bhasma A (400mg/kg BW) Group-5: Kapardika Bhasma B (400mg/kg BW) Group-6: Kapardika Bhasma C (400mg/kg BW) Group-7: Kapardika Bhasma D (400mg/kg BW)

#### **Cold restraint stress induced ulcer**

The different groups of 6 wistar rats weighing 150–180 g are deprived with food but not water for 12 hrs prior to experimentation. The rats are placed vertically in individual restraint cages in water at 2-4 °C for one hour after 45 min oral administration of test compounds. Then, they are removed, dried and injected intravenously via the tail vein with 30 mg/kg Evans blue. Ten min later, they are sacrificed in CO2 anesthesia and their stomachs removed. Formolsaline (2% v/v) is then injected into the totally ligated stomachs for storage overnight. The next day, the stomachs are opened along the greatest curvature, washed in warm water, and examined under a 3-fold magnifier. Total volume of acid secreation, pH of acid, ulcer score, No. of ulcer spots, total mucosal area and ulcer index are determined.

#### Estimation of gastric pH and ulcer index:

The pH was estimated using Indikrom pH strips. For estimation of ulcer index, the inner surface was examined for ulceration. The number of ulcers is noted and the severity recorded with the

following scores:

0 = no ulcer, normal gray colored stomach

- 0.5 = pink to red coloration of stomach
- 1 = superficial or spot ulcer

1.5 = hemorrhagic streaks

2 = deep ulcer and

3 = perforation.

The ulcer index was calculated by using the formula,

10	Total mucosal area
Ulcer index =	where, X =
X	Total ulcerated area

#### STATISTICAL ANALYSIS

The data of experimental parameters was expressed as mean ± SEM. Results were analyzed statistically using one way analysis of variance (ANOVA) followed by multiple Dennett's test. p<0.05 was considered to be significant.

#### **RESULTS AND DISCUSSION**

The effective antiulcer activity of Kapardika Bhasma was found in cold restraint stress induced animal model. The 400mg/g BW dose was selected on the basis of toxicity test. Ulcers were produced significantly after 1 h of cold restraint stress induction in the control group. The significant (p<0.05) increased volume of acid secretion (fig. 1), ulcer index (fig. 2) and decreased pH was found in control group as compared to normal group but these parameters were significantly reversed in standard ranitidine and Kapardika Bhasma treated groups when compared with control group (Table: 1). The control group animals had ulcerogenic lesions (circular as well as linear), hemorrhagic streak, damaged mucosal layer (Photograph 1). The normal integrity of rugae is also lost in control group, whereas normal, standard and Kapardika bhasma treated groups didn't shows any significant ulcers and streaks except red to pink coloration in Kapardika A & D treated group and couple of superficial red spots in Kapardika Bhasma C treated group (fig. 3-5).

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Treatment groups	VAS	pН	Ulcer	Ulcer	
	(ml)		index	score	
Normal	$0.74 \pm 0.04$	3.71±0.02	0.26±0.10	0	
Control	3.08±0.09 <sup>#</sup>	1.41±0.03 <sup>#</sup>	7.08±0.30 <sup>#</sup>	1.5-2	
STD	$0.84{\pm}0.03^*$	3.06±0.04*	2.30±0.41*	0	
Ranitidine 50 mg/kg					
Kapardika Bhasma A	$1.15\pm0.16^*$	$2.66{\pm}0.08^{*}$	$3.08 \pm 0.15^{*}$	0.5	
400 mg/kg					
Kapardika Bhasma B	$0.93 \pm 0.06^*$	$2.91 \pm 0.06^{*}$	2.75±0.21*	0	
400 mg/kg					
Kapardika Bhasma C	$1.43\pm0.14^{*}$	$2.40\pm0.07^{*}$	$3.25 \pm 0.25^*$	1	
400 mg/kg					
Kapardika Bhasma D 400 mg/kg	0.98±0.11*	2.57±0.09*	3.19±0.33*	0.5	

Table.1. Effect of Kapardika Bhasma on Ulcer parameters.

Values are mean  $\pm$  SEM, n=6 in each group; Data was analyzed by one-way ANOVA followed by Dennett's test. \*p<0.05 when compared with control group and #p<0.05 when compared with normal group







**Photograph-1.** Stomach of normal group rat. There is no any evidence of ulcer. Normal mucosal rugae are present.



**Photograph-2.** Stomach of control group rat. The ulcerogenic lesions, hemorrhagic streaks, damaged mucosal layer and redness of stomach is indication of evidence of ulcer induction.

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**Photograph-3.** Stomach of standard group rat. Integrity of stomach is almost normal, there no significant ulceration is seen.



**Photograph-4.** Stomach of Kapardika bhasma A treated group rat. Integrity of stomach is almost normal, but there is significant red coloration of stomach and evidence of rare hemorrhage in between the rugae. .



**Photograph-5.** Stomach of Kapardika bhasma B treated group rat. Photograph of stomach is almost towards normal, there no significant ulceration is observed.



**Photograph-6.** Stomach of Kapardika bhasma C treated group rat. There is observation of red spots and redness of stomach. No large ulcerogenic lesions are seen.





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#### **REFERENCES:**

1) Aguwa C. N. Mittal G. C., Study of antiulcer activity of an aqueous extract of pvrenaeiith masdtii using various models of experimental gastric ulcer in rats, Eur J. Pharmacol, 1987, 74, 215-9.

2)S. Pandit, Sur, u. Jana, D. Bhattacharya, P. K. Debnath, Antiulcer effect of shankha bhasma in rats: A preliminary study, Indian Journal of Pharmacology, 2000,32, 378-380.

3) Dr. Siddhinandan Misshra, Ayurveda Rasasashtra, Varanasi, Chaukhamba orientalia, 1998, 609.

4) Nandakarni K. M. editor, Indian Materia Medica, Bombay, Popular Pkakashan, 1982, 2, 164-5

5) Mookerjee B. editor, Rasajalanidhi, Varanasi, Srigopal Mudranalaya, 1982, 2, 220-21.

6) Goodman and Gilman the pharmacological basic of the rapeutics 5th edition, new York.

7)B. S. Bahl and G. D. Shrama, Inorganic chemistry modern approach elementary uses of calcium carbonate, 2nd edition, Delhi, India.

8) Dr. M. S. Baghel Researches in Ayurveda, Dr. Gajanan Kumar Jain, 2nd edition, Jamnagar.



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