



## ANTI ULCER ACTIVITY OF SUTASHEKHAR RASA IN ALBINO RATS BY DRUGS INDUCED MODULE

Priyabrata Mishra<sup>1</sup>, Kasinath Hadimur<sup>2\*</sup>, K. A. Patil<sup>3</sup> and Pramod C. Baragi<sup>4</sup>

<sup>1</sup>M.D (Scholar), Department of Post Graduate Studies in Rasashastra & Bhaishajya Kalpana. BLDEA's AVS Ayurveda Mahavidyalaya, Vijayapur.

<sup>2</sup>Associate Professor, Department of Post Graduate Studies in Rasashastra & Bhaishajya Kalpana. BLDEA's AVS Ayurveda Mahavidyalaya, Vijayapur.

<sup>3</sup>Assistant Professor, Department of Post Graduate Studies in Rasashastra & Bhaishajya Kalpana. BLDEA's AVS Ayurveda Mahavidyalaya, Vijayapur.

<sup>4</sup>Professor and Head, Department of Post Graduate Studies in Rasashastra & Bhaishajya Kalpana. BLDEA's AVS Ayurveda Mahavidyalaya, Vijayapur.

**\*Corresponding Author: Kasinath Hadimur**

Associate Professor, Department of Post Graduate Studies in Rasashastra & Bhaishajya Kalpana. BLDEA's AVS Ayurveda Mahavidyalaya, Vijayapur.

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### ABSTRACT

Many modern anti-ulcer medicines like H<sub>2</sub> blocker, Antacids, proton pump inhibitors etc. are having many adverse effect like Headache, Diarrhoea, Constipation, Nausea, Hepatic dysfunction, Impotency etc. which made a physician to look for a safe alternative medicine Sutasekhar Rasa is one of the herbo – mineral drug, contains Shuddha Parada, Shuddha Gairika, Shunthi Churna and processed with Nagavali patra swarasa. Indicated in Amlapitta, Parinamshool, Annadravashool etc Experimental study was carried out by Indomethacin induced ulcer module. Wister strain albino rats, sutasekhararasa, omeprazole, propylene glycol (suspending agent) formed the study materials. The test drug sutasekhararasa (dose 2.25mg/200gm body weight of rat) and the standard drug omeprazole (dose 0.36mg/200gm body weight of rat) and Male Wister strain Albino-rats are taken in two groups for the study, and exhibited Ulcers index mean  $\pm$  SD (S.E.M.). The Sutasekhararasa group exhibited mean ulcer index of  $2.33 \pm 0.52$  (0.21) which is comparable with that of omeprazole group  $2.67 \pm 0.52$  (0.21) and proved its significant anti ulcer activity than standard drug. In experimental study Test drug Sutasekhar Rasa has shown significant anti ulcer activity in Indomethacin drug induced ulcer module in comparison with standard drug omeprazole.

**KEYWORDS:** Sutasekhararasa, Antiulcer activity, Indomethacin, Omeprazole.

### INTRODUCTION

In Ayurvedic Classics many anti – ulcer medicines have been explained. Sutasekhar Rasa is one of them. Sutasekhar Rasa is a herbo – mineral formulation mentioned in Rasayoga Sagara considered to be a good anti – ulcer medicine. Sutasekhar Rasa contains Parada (mercury), Garika (hematite), Shunthi (zinger officinale) and processed with Nagavali swarasa.<sup>[1]</sup>

Nowadays the life of human being is very busy, there are many factors which cause stress and anxiety to man. Current statistical data shows that more than 70% of people are suffering from stress related disorders like gastro intestinal disturbance in that peptic ulcer is most common.<sup>[2]</sup> Spicy food, use of medicine without medical supervision like analgesic drugs, antibiotics etc and psychological stress are the main causative factors for the pathogenesis of peptic ulcer.

As compared to female population, the peptic ulcer is more prevalent in male adults.<sup>[3]</sup> But we can take the most probable factors like unnecessary & over use of analgesic, anti-inflammatory & corticosteroids drugs and cigarette smoking etc. Stress and worry also widely regarded as the contributing factors. The genetic factors play an important role to produce the disease. There is a relatively high incidence of peptic ulcer to produce in 'O' positive blood group people.<sup>[4]</sup>

Negligence in the treatment of peptic ulcer creates complications like obstruction, hemorrhage, further leading to haemoptysis, haematemesis,<sup>[5]</sup> and perforation with acute peritonitis,<sup>[6]</sup> fainting and shock.<sup>[2]</sup>

Modern anti-ulcer medicines like H<sub>2</sub> receptor blocker, Antacids, proton pump inhibitors etc. are having adverse effects like headache, diarrhea, constipation, dizziness, nausea, hepatic dysfunction, rashes, muscle pain,

impotency etc. Which made physician to think for alternative & safe medicine.

According to ayurveda the factors like excessive indulgence in exercise, sexual activity ratri jagaran, atichinta and mood disturbance which alters the jatharagni and leads to manifestation of diseases like annadrava shoola, udarshoola, aanaha, aatopa etc. Medicines like shanka bhasma, kapardika bhasma, shukti bhasma, laghu sutashekhar rasa and Sutasekhar Rasa etc. are used in the treatment of Amlapitta, Parinamshool mentioned in Rasagranthas. Vidagdhapitta, alteration jathragni, udarshool, anaha, atopa are noted in amlapitta and parinamshool. Scientific evidence and assurance are the most essential factors in today's practice. Therefore to provide evidence based assurance and to evaluation of its anti-ulcer activity of sutashekhar rasa in albino rats. An experimental study was conducted.

## MATERIALS AND METHODS

**Materials:** Shodhita Parada (processed mercury), Shodhita Garika (processed hematite), Shunthi (zingiber officinale) and processed with Nagvalli patra swarasa formed materials for pharmaceutical concerned. Sutasekhara rasa, Omeprazole, Distilled water and Indomethacin (to induced ulcer), Male wister strain albino-rats formed materials experimental study concerned.

### Methods

#### Pharmaceutical study<sup>[1]</sup>

To prepare Sutasekhara rasa uniform mixture was prepared by mising Shudha Parada, Shudha Gairika, Shunthi churna and subjected to bhavana with nagavalli patra swarasa till it attain sticky pill mass consistency. Then pills were prepared & dried.

#### Indomethacin Drug induced ulcer module (Indomethacin)<sup>[7]</sup>

Albino rats were caged properly kept in separate cages at controlled room temp and relative humidity ( $24 \pm 2^\circ\text{C}$ , 60-70%) in a 12 hrs day and night cycle. They were fed with diet and water. Anti ulcer activity was carried out according to drug induced ulcer module and it was conducted at BLDEA's AVS Ayurveda Mahavidyalya Vijyapur with Institutional Ethical committee (IAEC) certificate no 138/A/2018, dated 17/03/2018.

#### Procedure of Anti Ulcer Activity<sup>[7]</sup>

Healthy adult male albino rats weighing 150-200 gms were used for the experimental study. The animals were maintained under laboratory conditions with controlled environment of temperature 12 hours of light and

darkness cycle was maintained. The animals were fed with balanced pellet diet as prescribed by CFTRI (Central Food and Technological Research Institute Mysore). 6 animals were taken in each group for experiment and 2-3 animals per cage was maintained. Animals were collected from central animal house of BLDEA's AVS Post Graduate and Research Centre, Ayurveda Mahavidyalya, Bijapur.

#### Grouping up of animals

Group I: Administered with 2.25 mg/200gm body weight of rat Sutasekhara Rasa with 1 ml of propylene glycol (suspending agent) once a day.

Group II: Administered 0.36 mg/200gm body weight of rat omeprazole with 1 ml propylene glycol (suspending agent).

Each rat of Group I: Administered with 2.25 mg/200gm body weight of rat Sutasekhara Rasa with 1 ml of propylene glycol (suspending agent) once a day for 6 days. Each rat of Group II: Administered 0.36 mg/200gm body weight of rat omeprazole with 1 ml propylene glycol (suspending agent) once a day for 6 days. On 6<sup>th</sup> day the animals were fasted overnight. On 7<sup>th</sup> day, standard drug and test drug were administered. After 2 hours ulcerogen drug i.e. Indomethacine (20 mg / kg) was administered orally in the form of suspension prepared with Propylene glycol. 3 hour after the administration of Indomethacine, animals were sacrificed by chloroform anesthesia. The abdomen was opened by taking incision through the xiphoid process and the organs were identified. Stomach was isolated and external surface was studied for haemorrhage, congestion and perforation. Then stomach was dissected by separating adherent organs and cut opened along greater curvature, washed with normal saline and fixed in 5% Formalin. Sections were obtained and embedded in paraffin wax with haemotoxline and eosin stains. These were studied by compound microscope for the confirmation of haemorrhage, congestion, gastric lesions and ulcers.

#### Ulcer indexing<sup>[8,9]</sup>

Ulcer indexing was done according to the modified scoring system of adani et al as follows:

- 0 = Almost normal Mucosa
- 1 = Congestions
- 2 = One or two lesions
- 3 = Severe lesions
- 4 = Very severe lesions
- 5 = Mucosa full of lesions

**Table No 1: Showing Study Group, no of rats, drug, dose, Duration and Mode of administration.**

Sl. No.	Group	No. of Rats	Drug	Dose	Duration	Mode of administration
1	Standard	6	Omeprazole	0.36 mg	7 days	Oral
2	Test sample	6	Sutasekhara Rasa	2.25 mg	7 days	Oral

## OBSERVATIONS AND RESULTS

Test drug sample Sutasekhara Rasa was subjected for anti ulcer activity by Indomethacin induced ulcers module in albino rats and results were compared with standard drug omeprasole. The observation and results were demonstrated with ulcer index.

In Sutasekhar Rasa (Test drug) fed rats, microscope sections of stomach shows no sign of ulceration. Serosal surface retained glistening amber color. No signs hemorrhage observed. Mucosal surface retained the regular rugae pattern with moderate to several congestion, mild edema and mild thinning of Gastric wall was noted.

In Omeprazole (Standard drug) fed rats, microscope sections study shows no sign of ulceration. Serosal surface retained glistening amber color. No signs hemorrhage observed. Mucosal surface retained the regular rugae pattern with moderate to several congestion, mild edema and mild thinning of Gastric wall was noted.

**Table No 2: Showing the calculated ulcer index in Tset drug & Standard.**

Group	Rat Ulcer Index						Average Ulcer Index
	1	2	3	4	5	6	
I	3	2	2	2	2	3	2.33
II	3	3	2	2	3	3	2.66

**Table No 3: Showing Ulcer index in Indomethacin induced Gastric ulcer in different groups.**

Sl. No	Groups	Ulcers index Mean $\pm$ SD (S.E.M.)
1.	Sutasekhara Rasa	2.33 $\pm$ 0.52 (0.21)
2.	Omeprazole	2.67 $\pm$ 0.52 (0.21)

## DISCUSSION

Sutasekhara Rasa was prepared as per the reference of the Rasa Yoga Sagara - Vaidya Pandit Hariprapannaji Vol- II, Sakaradi rasa Adhaya, Yoga No – 507.

The experimental study was conducted on ulcer module Indomethacin ulcer module. 12 male rats divided in to two group i.e, standard (Omeprazole) and test group (Sutasekhara rasa).

The animals of Group I were received test drug sutasekhara rasa 2.25 mg/200gm of body weight of Sutasekhara Rasa once a day. Group II were received 0.36 mg/200gm body weight of standard drug Omeprazole suspension once a day. The dosage was fixed by calculating human dose x 0.018 (Paget and Burnes table). Ulcer indexing was done according to the modified scoring system as follows: 0 = Almost normal Mucosa, 1 = Congestions, 2 = One or two lesions, 3 = Severe lesions, 4 =Very severe lesions, 5 = Mucosa full of lesions. Then mean  $\pm$  S.E.M score for each group were calculated and the results were analyzed.

Mean body weight after 6 days shown no significant variation. It may be due to feeding balanced diet and controlled environment maintained in animal house during experimental period.

In this module it was noted that single dose of Indomethacin not induced ulcers but moderate to sever congestions were noted in both the groups. Ulcer index was quite high in standard drug 2.67  $\pm$  0.52 (0.21) group in comparison to test drugs 2.33  $\pm$  0.52 (0.21). The test drug sample Sutasekhara Rasa and Standard drug omeprasole protected animals from ulcerogenic effect of indomethacine.

The Sutasekhara rasa group exhibited mean ulcer index of 2.33  $\pm$  0.52 (0.21) which is less compared to that of omeprazole 2.67  $\pm$  0.52 (0.21) and proved its significant anti ulcer activity than standard drug.

In the present experimental study on wister strain albino rats test drug Sutasekhara rasa has demonstrated significant antiulcer activity than standard drug omeprazole.

## CONCLUSION

This experimental study has provided scientific evidence base for Test drug Sutasekhar Rasa has shown significant anti ulcer activity in Indomethacin drug induced ulcer module in comparison with standard drug omeprazole.

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