

## Clinical Trial of *Lepidium Sativum* Linn (Chandrashura) in the Management of Sandhivata (Osteoarthritis)

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**ABSTRACT :** *Lepidium sativum* is used in many part of Gujarat as an effective remedy for the disease Sandhivata, Amavata and Katishula. Ayurvedic texts as well as modern texts also reported its analgesic and anti inflammatory properties. In order to validate this claim, a detailed comprehensive study of seed of the plant is done. In this study total 98 patients were divided in two groups. Trial drug group was treated with Chandrashura churna and in placebo group, patients were given capsules containing starch for one month. The patients were subjected to the evaluation of cardinal sign and symptoms of Sandhivata on the basis of scores according to their severity, frequency and duration before and after treatment. Result shows that Chandrashura provides very good relief in cardinal signs and symptoms like Sandhishula (Pain in joint), Sandhishotha (Swelling), Sandhigraha (Stiffness), Sandhisphutana (Crepitus), Sparshashyata (Tenderness), and Aakunchan prasaranjanya vedana (Difficulty in movement).

**Key words :** Chandrashura, Sandhivata, Nighantu, NSAIDs.

### INTRODUCTION

In India the people of remote areas depend mainly on plant for the preventive and curative aspect. Although they are successfully using these remedies in their practice but their experimental evaluation will provide a scientific base for their uses. The main reason for selecting this topic is the folklore evidence regarding the analgesic and anti inflammatory activity of Chandrashura, which is locally known as "Asedio" and frequently used in Gujarat for the treatment of joint pain and other diseases also<sup>1</sup>.

Chandrashura, botanically identified as *Lepidium sativum* Linn of family Cruciferae is not mentioned in vedic literature and in Charaka Samhita, Sushruta Samhita etc. It is known to Indian physicians about 12<sup>th</sup> century. The knowledge since the medicinal uses of this plant was probably transmitted by the Muslims. Various names are applied to *Lepidium*. Its commonest name, Chandrashura, appears since the sixteenth century. The range of the indication remains restricted and should be compared with the uses of the plant in Islamic medicine<sup>2</sup>. Shodhal has described this plant as "Aslima" and Darakrushna in his nighantu<sup>3</sup>. The first text describing it as Chandrashura is the Bhavaprakasha nighantu. Chandrashura is the one ingredient of a compound substance called Chaturbija, which indicates that especially the seeds were esteemed for their medicinal properties. It is useful in Vatavyadhi, abdominal disease,

hiccough, eye disorder, blood and skin disease, Diarrhoea, Menorrhagia, Asthama, Joint Pain<sup>4</sup>. In the wealth of India also this plant has been mentioned as rubefacient, laxative, tonic, aphrodisiac, lactogenic and diuretic in actions.

On the other hand Sandhivata vis-à-vis arthritis affected a substantial portion of the population. It occurs worldwide in all races, sexes, age and climates. Though it can be managed with Analgesics and NSAIDs, it has become a major problem of mankind and received progressive attention of the research workers. However the prolong use of these drugs has its own drawbacks. Recent work on NSAIDs suggests that these drugs do increase the risk of chronic renal disease<sup>5</sup>. Such studies strongly indicate that to find safer and herbal drug for Arthritis is the need of era. Keeping all these facts in mind this study is planned with following aims and objects.

### Aims and objectives :

1. To observe the effect of Chandrashura in Sandhivata.
2. To observe any side effects of test drug.

### MATERIAL AND METHODS

#### Criteria of Selection of Patients :

The patients attending the OPD and IPD of the Dravyaguna Department of I.P.G.T. & R.A. were selected randomly on the basis of classical signs and symptoms described in various Ayurvedic texts by giving special importance to cardinal symptoms like Sandhishula, Sandhishotha, Sandhigraha, Sparshashyata, and Aakunchan Prasaranjanya Vedana irrespective of their age, sex, religion etc.

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**Drug and Dose :**

*Lepidium sativum* was collected from the campus of Gujarat Ayurved University, Jamnagar with the help of pharmacy people in the month of April 2004. It was powdered in pharmacy of GAU and stored in dispensary for dispensing. It was given to the patients in powder form.

Total 98 patients of Sandhivata, fulfilling the diagnostic criteria of Sandhivata, were studied in two groups<sup>6</sup>. The patients of the first group-D were administered orally with 6 gm of *Lepidium sativum* seed powder, daily in two divided doses. The patients of the second group-C were administered capsules containing starch, 2 capsules three times daily. The duration of the treatment was 30 days.

The patients were advised to avoid excessive physical stress, sleeping during day time and certain dietary restrictions such as avoidance of excessive cold item, sour food, lemon, emli, curd, fatty and bakery items.

**Inclusion criteria :** Patients with Pain in joint (small or big), Inflammation over the joint which is bilateral or unilateral, symmetrical or asymmetrical, Stiffness of any joint, Radiographic changes in X-ray of affected joint were selected.

**Criteria for exclusion :** Patients with Juvenile rheumatoid arthritis, Rheumatoid arthritis, Traumatic arthropathy, Tubercular arthritis were excluded.

**Criteria for diagnosis :** Detailed history and physical examination was done on the basis of proforma prepared, which includes both Ayurvedic and modern methods of examination. Agnibala, Dehabala, Prakriti etc. were recorded by simple questioning. The diagnosis was confirmed by x-ray examination of the involved joint wherever possible.

**Pathological and Biochemical investigation :** Routine haematological, urine, stool examination and biochemical investigation like blood sugar, serum cholesterol, serum creatinine and blood urea was carried out to exclude any other pathology. R.A. factor was done where it was necessary to rule out Rhumatoid Arthritis.

**Criteria for assessment :** The improvement in the patient was assessed mainly on the basis of relief in the sign and symptoms of the disease. To assess the effect of therapy objectively, all the sign and symptoms were given scoring depending upon their severity. Related sign and symptoms were recorded from 1<sup>st</sup> day- starting day of treatment then weekly or daily observation was done during the course of the treatment. Gradations of the symptoms were made depending on their severity and specific symptom score prior to the treatment and after completion of the treatment were taken and their difference was assessed.

**Follow-up study :** After starting the treatment in both groups, weekly follow up was taken for one month.

**Total effect of therapy :**

**Complete remission :** 100% relief in signs and symptoms without any recurrence for a period of one month.

**Marked improvement :** More than 75% relief in signs and symptoms and facilitate to carry out day to day activities smoothly.

**Moderate improvement :** 25-75% relief in signs and symptoms and which facilitate to carryout day to day activities with slight discomfort.

**No improvement :** Less than 25% relief in signs and symptoms.

**Statistical Analysis :** Data obtained from above work was statistically analyzed by using paired 't' test.

**OBSERVATION AND RESULTS****TABLE NO. 1 : STATUS OF 98 PATIENTS OF SANDHIVATA :**

Type	Group-D	Group-C	Total	(%)
Completed	40	38	78	79.59
LAMA	12	08	20	20.40
Total	52	46	98	100

In this study total 98 patients of Sandhivata were registered. The 40 patients in drug group and 38 patients in control group were completed the course, while 20 patients were lama in both groups.

**TABLE NO. 2 : PERSONAL AND PRIMARY HISTORY WISE DISTRIBUTION OF 98 PATIENTS OF SANDHIVATA :**

P. history	No. of patients	%	P. history	No. of patients	%
Age( 40-60)	49	50	Koshtha(Madhyam)	52	53.06
Sex (Female)	69	70.40	Sharir Prakriti (Vata Pitta)	59	69.38
Religion(Hindu)	81	82.65	Manasika Prakriti (Rajasika)	61	62.24
Occupation(House wives)	54	55.10	Onset(Gradual)	61	62.24
Marital status(Married)	84	85.71	Course(Progressive)	53	54.08
Habitat(Urban)	55	56.12	Aggravating factor (Sour food)	30	30-61
Dietary habit(Regular)	83	84.69	Affected joint (Knee)	81	82.65
Past illness	50	50	Chronicity (0-1)	43	43-87

**EFFECT OF THERAPY :****TABLE NO. 3 : EFFECT OF *LEPIDIUM SATIVUM* LINN ON CARDINAL SYMPTOMS (n=40) :**

Cardinal Symptoms	Mean score		% of Relief	S.D.	S.E.	p
	B.T.	A.T.				
Sandhishula	2.40	0.51	78.65	0.56	0.09	<0.001
Sandhishotha	1.64	0.21	86.95	0.51	0.14	<0.001
Sandhigraha	1.12	0.43	61.11	0.58	0.10	<0.001
Sparshasahyata	1.48	0.27	81.81	0.41	0.06	<0.001
Sandhisphutana	1.32	0.54	59.18	0.53	0.08	<0.001
Aakunchan Prasaran janya vedana	1.81	0.51	71.64	0.46	0.07	<0.001

**TABLE NO. 4 : EFFECT OF PLACEBO DRUG ON CARDINAL SYMPTOMS (n=38) :**

Parameters	Mean score		% change	S.D.	S.E.	p
	B.T.	A.T.				
Sandhishula	2.00	1.14	43	0.53	0.20	<0.05
Sandhishotha	0.28	0.14	50	0.37	0.14	>0.05
Sandhigraha	1.71	1.14	33.33	0.53	0.20	<0.05
Sparshasahyata	2.00	1.14	43.00	0.53	0.20	<0.05
Sandhisphutana	0.85	0.2	50.59	0.53	0.20	>0.05
Aakunchan Prasaran janya vedana	0.88	0.25	71.59	0.52	0.18	<0.05

**TABLE NO. 5 : OVERALL EFFECT OF THERAPY :**

Result	Drug group	%	Control group	%
Complete remission	12	30	2	5.26
Marked improvement	15	37.5	7	18.42
Moderate improvement	10	25	8	21.05
No improvement	3	7.5	21	55.26

**DISCUSSION**

In test drug group 30% patients got complete remission, 37.5% patients got marked improvement, 25% patients were moderately improved and 7.5% patients were not improved.

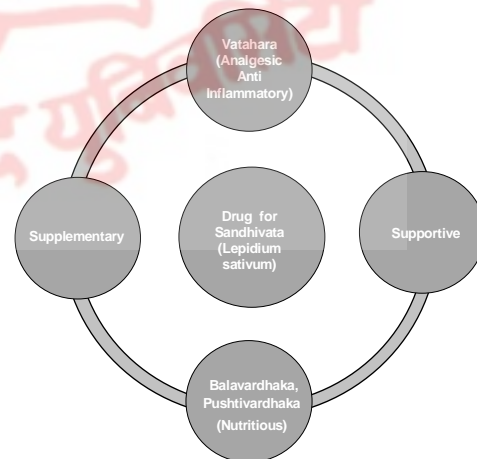
In placebo drug 5.26% patients got complete remission, which might be due to psychological assurance and restriction of causative factors which was advised to each and every patients of both groups. As per Ayurvedic concept also Nidanasya Parivarjan is the first treatment for all diseases<sup>7</sup>.

The results obtained in this study was encouraging and supports the classical claim that seed of the plant *Lepidium sativum* Linn, is effective in alleviating the symptoms of Sandhivata and can be used extensively for the treatment of this disease.

**Probable mode of action :**

The plant possesses the properties like Katu Rasa, Katu Vipaka, Snigdha, Laghu, Picchila Guna and Ushna Veerya which alleviate Vata and Kapha, which are the predominant Doshas in the Samprapti of Sandhivata<sup>8,9</sup>.

The Katu Rasa and Ushna Veerya act on Ama and digest it. Snigdha, Laghu and Picchila Guna will relieve Malagraha. Katu Rasa and Ushna Veerya increase the Bala of Jatharagni. Thus the seeds of the plant *Lepidium sativum* digest Ama, improve Jatharagni, alleviate Vata and Kapha, clear the bowels and urine, and so are very much useful in the treatment of Sandhivata.



The disease Sandhivata is a Dhatu Kshayajnya Vyadhi and occurs in mid life stage according to Sushruta<sup>10</sup>. Here mainly Asthivaha and Majjavaha Srotodushti were observed. Prakopaka Vata Dosha creates Sandhishula, while due to Kapha Kshaya particularly decrease of Shleshmaka Kapha, Sandhi Gharshana take place and symptoms like Sandhi Shotha, Vedana etc. occur. So considering all these above factors here in Sandhivata, the required drug should be having to two characters like supportive and supplementary. In supportive aspect it gives relief in symptoms of Sandhivata. So the drug which is having Vatahara property and Snigdha, Picchila etc. Kapha Vardhaka Guna is useful in better way. In supplementary aspect the drug which is having Dhatu Vardhaka property is useful for prevention or to stop the further degenerative changes in the body.

As per the modern concept also Osteoarthritis is considered as degenerative disease and mostly treated with analgesics and anti inflammatory drugs. Here calcium supplementation also provides to patients of Osteoarthritis to prevent further degenerative changes in bones.

So as per the above concept the selected drug Chandrashura (*Lepidium sativum*) is having all the characters. The drug is already mentioned as Vatahara in our classics<sup>11</sup>. Same thing, its analgesic and anti-inflammatory property is mentioned in Modern books also<sup>12</sup>.

So this drug gives very good symptomatic relief in Sandhivata. Bhavaprakasha also mention this drug as Balavardhaka and Pushtivardhaka, so it is useful in Dhatu Kshayajnya Vyadhi. In wealth of India, analysis of the plant shows the presens of good amount of vitamins, minerals etc. So in this way this drug also covers the supplementary aspect of disease and helps to prevent further progress of Dhatu Kshaya.

One study suggests that the incidence of Osteoarthritis is more in menopausal women because estrogen deficiency plays a major role in bony loss. Here the selected drug *Lepidium sativum* seed showed estrogenic activity in rats experimentally which is mentioned in wealth of India. Considering all these

above factors it can be concluded that the drug Chandrashura (*Lepidium sativum* Linn) is the drug of choice for Sandhivata.

## CONCLUSION

Clinically the drug Chandrashura possesses Shulahara and Shothahara properties. The results obtained in the present study showed highly significant relief in cardinal symptoms. Among associated symptoms like Vibandha, Daurbalya, Bhrama, Kukshishula, drug shows significant results.

Considering all these above factors, it can be concluded that the drug Chandrashura (*Lepidium sativum* Linn) is a very easily available, cheap and also effective drug for Sandhivata in some extent. The present study and its findings establish the rationale of using the seed of *Lepidium sativum* Linn in various forms in traditional system of medicine for the treatment of inflammatory joint disease and osteoarthritis.

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## हिन्दी सारांश

### चन्द्रशूर द्रव्य के संधिवात व्याधि पर प्रभाव का अध्ययन

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चन्द्रशूर (*Lepidium sativum*) द्रव्य का गुजरात में एक अच्छे औषध के रूप में प्रयोग बहुत समय से हो रहा है। विशेष रूप से यह संधिवात, आमवात और कटिशूल में उपयोगी है। आयुर्वेदीय ग्रंथों में भी इसके शूलहर और शोथहर गुण का वर्णन मिलता है। इसी संदर्भ को ध्यान में लेते हुए प्रस्तुत विषय चुना गया। जिसमें चन्द्रशूर बीज का संधिवात के रोगी पर प्रयोग किया गया। इस प्रयोग में ९८ संधिवात के रोगी चुने गये जिन्हें दो समूहों में विभाजित किया गया। प्रथम समूह में उन्हें चन्द्रशूर बीज चूर्ण और द्वितीय समूह में Placebo कैप्सूल (Control Group) ३० दिन तक दिए गये। इस दौरान दोनों समूहों के रोगी का मूल्यांकन किया गया और उनके लक्षणों में कितनी राहत हुई उसे स्कोरिंग द्वारा जांचा गया। चन्द्रशूर बीज चूर्ण जिन्हें दिया गया उन रोगियों के लक्षणों में अच्छे परिणाम प्राप्त हुए। प्राप्त परिणामों के आधार पर कहा जा सकता है कि चन्द्रशूर एक सस्ता, आसानी से प्राप्त होने वाला और संधिवात में अच्छा काम करने वाला द्रव्य है।

