

# An observational study to evaluate the role of *Cassia sophera* in Osteoarthritis

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**Abstract-** Osteoarthritis is a global problem which is significantly increasing. The lack of physical activities and sedentary lifestyle make it further worse. It generally affects various joints in the human body but the weight bearing joints are more susceptible to it. Earlier the old age group was majorly affected by it but nowadays middle age group is also getting affected by OA. Homoeopathy helps in treating the pain and managing the degenerative changes caused by OA.

**Keywords:** Osteoarthritis, degenerative diseases, Spondylosis, joints.

## Introduction:

Osteoarthritis(OA) is a slow, progressive, degenerative disease, affecting the articular cartilage of the joints and ultimately causing its destruction leading to disability. The most affected joint is knee. Pain is a major complaint forcing patient to seek medical help. Inflammation may or may not be present in the affected joints. OA is the most common form of arthritis which is also known as 'wear and tear' arthritis. Incidence of the joint being disabled is consistent with the period of individual's suffering. There is gradual rise in the prevalence of the disease, and in the near future, it is projected to rank second for women and fourth for men, in terms of years lived with disability. The condition is represented by joint pain, tenderness, limitation of movement, crepitus, and occasional effusion along with variable degrees of local inflammation. Although OA can involve any joint containing hyaline cartilage, annoying symptoms most often occur in the weight-bearing joints of the lower extremities.

The prevalence of OA in India was around 23.46 million individuals in 1990, this has increased to 62.35 million in 2019. The age-standardised prevalence of OA increased from 4,895 in 1990 to 5313 in 2019 per 100000 persons.<sup>1</sup> OA occurs commonly in females above 45 years of age while before 45 years, it is common in males. An estimated prevalence of symptomatic OA is 18% in females and 9.6% in men.<sup>2</sup>

OA can be classified into two types, primary and secondary. Former has no definite causes, while latter, is caused by other conditions such as trauma, obesity or other different diseases. Some modifiable and non-modifiable risk factors include age, gender, genetic and epigenetic predisposition, metabolic syndrome, endocrine, gender, occupation, sports, ethnicity, joint shape and dysplasia.

There are few homoeopathic medicines which are less commonly used in daily practice, but are very efficacious in some disease conditions. We have to verify their effectiveness through some well-designed studies. One such medicine is **Cassia sophera**. The action of cassia sophera over mucous membrane of respiratory tract is well proved. This study is done to evaluate its action on synovial membrane. Cassia sophera has both peripheral and central analgesic properties as well as anti-inflammatory action.<sup>3</sup>

Cassia sophera lin.(Senna sophera) is indigenous to India and has been frequently used by ancient Indian physicians for its efficacy in respiratory disorders. Its Sanskrit name is 'Kasamarda' which means 'Destroyer of Cough'. An effective herbal laxative is made from the senna pods, and leaves. Family and subfamily of Cassia sophera is Leguminosae and Caesalpinioideae respectively.

The purgative constituents are closely allied to those of Aloes and Rhubarb. The active substances are glycosides called sennosides. Cassia pods have a milder effect and have fewer side-effects than Cassia leaves. Side effects, especially from fresh senna leaves are intense cramps, excessive abdominal cramps, and irritation of bladder and uterus.

Two provings of Cassia sophera were undertaken by the Indian Central Council for Research in Homoeopathy. The first proving (1972-74) included 21 males and 9 females, the second (1974-76) 24 males and 13 females. Both provings were carried out with the mother tincture, 30<sup>th</sup> and 200<sup>th</sup> centesimal potencies.

Clarke mentions for Senna "a nasty unclean smell from the body." According to Central Council for Research in Homoeopathy of 16 patients presenting unspecific pain in the knee joints with the modalities as worse first movement, rising from seat, better continued motion and pressure, 15 were relieved after taking Cassia. This indicates its possible use in osteoarthritis.<sup>4</sup>

A study is done to prove the traditional medicinal claims about anti-inflammatory and analgesic potential of *Cassia sophera* Linn., which concludes that this plant has significant inhibitory effect on peripheral and central pain stimuli, marked edema reduction and granuloma inhibition justified the ethnomedicinal use of *C. sophera* in the management of pain and inflammation.<sup>5</sup>

## MATERIALS AND METHODS

### Study Setting:

- **Study site:** OPD and IPD Pt. Jawahar Lal Nehru State Homoeopathic Medical College and Hospital
- **Study population:** Patients visiting the OPD & IPD
- **Study duration:** Total period of study 6 months
- **Study Design:** Observational, Prospective Study

### Sample selection:

- a) Sample Size: Minimum 30 patient including both sexes and age
- b) Method of Sampling: Simple Non-Randomised Sampling

### Data collection:-

- Primary data has been collected from the patients on their first visit as well as on subsequent follow-ups.
- Secondary data has been taken from all available standard books, Journals, Articles, and Internet

### Inclusion criteria:

- Patients aged above 21 years
- Both the sexes
- Patients who are diagnosed with Osteoarthritis clinically based on symptoms of pain, stiffness, and swelling, supported by radiographic evidences.
- Lifesaving conventional drug therapies (eg, antidiabetics, antihypertensives, thyroid drugs) for co-morbidities under control, to be continued uninterrupted.

### Exclusion criteria:

- Patients with raised level of serum uric acid
- Patients with positive rheumatoid factor and C-reactive protein
- Severe degeneration of knee joint with marked joint narrowing, varus, or valgus deformity of knee ( $>12^\circ$ ), evidenced by imaging or other evidences and requiring surgical intervention
- Pregnant and lactating females.

**Sample selection:** The patient which falls under inclusion criteria have been selected for study.

### Intervention:

#### Selection of tools :

- Visual Analogue Scale (VAS).
- Microsoft Excel is used for representation of the cases.
- Standard Homoeopathic medicines provided by the pharmacy of Pt. Jawahar Lal Nehru State Homeopathic Medical College and Hospital.
- Standard Homoeopathic case taking Performa
- Consent form.

### Data analysis:-

- The data collected is analysed by the end of the study
- VAS Scale to assess severity of symptoms before and after treatment.

**Statistical Technique:--** Paired T-test is used for data analysis

## OUTCOME ASSESSMENT

Assessment was done based on general and symptomatic improvement of the patient. Assessment was done every week and the changes are recorded for OPD. Daily assessment is done for IPD patients. For effective assessment and evaluation VAS Scale is used. Before and after treatment scores were analysed by using paired 't' test.

## INTERPRETATION OF DATA

Change in clinical findings like the presenting symptoms and signs are the parameters for assessing recovered, improved and not improved criteria.

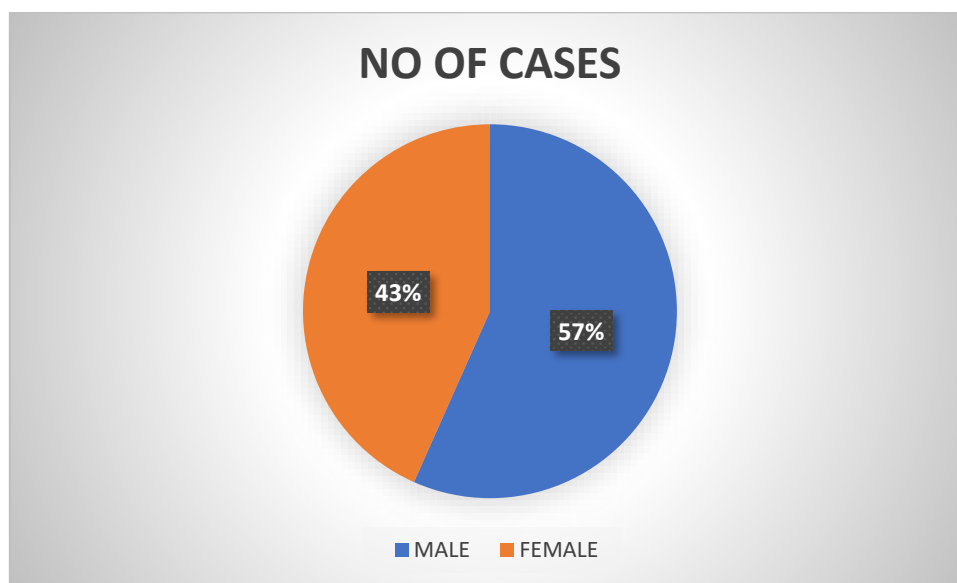
Improved – Relief from symptoms, Recurrency reduced

Not improved- Recurrence, No improvement in signs and symptoms.

#### OBSERVATION AND RESULT:

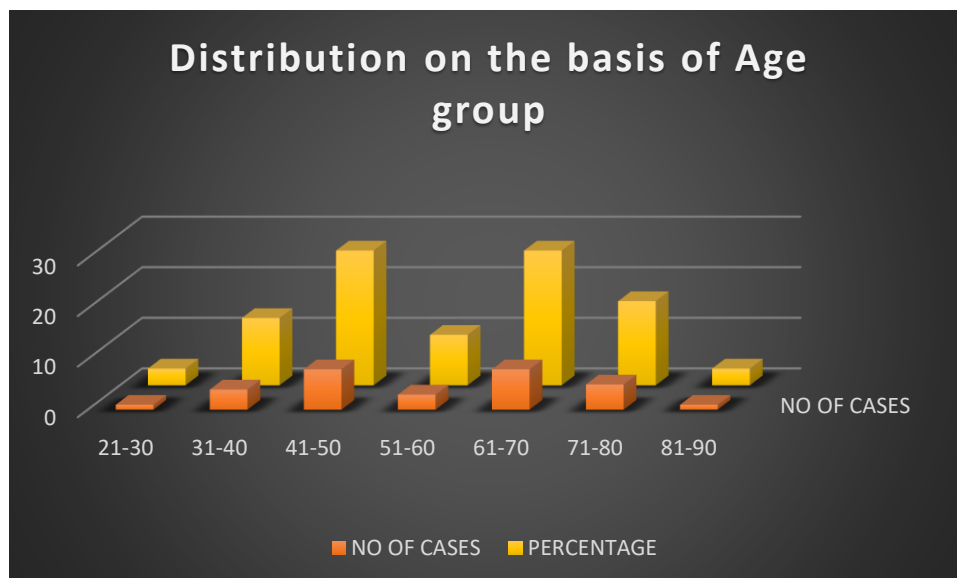
##### Distribution on the basis of Gender

SEX	NO OF CASES	PERCENTAGE
MALE	17	56.66%
FEMALE	13	43.33%



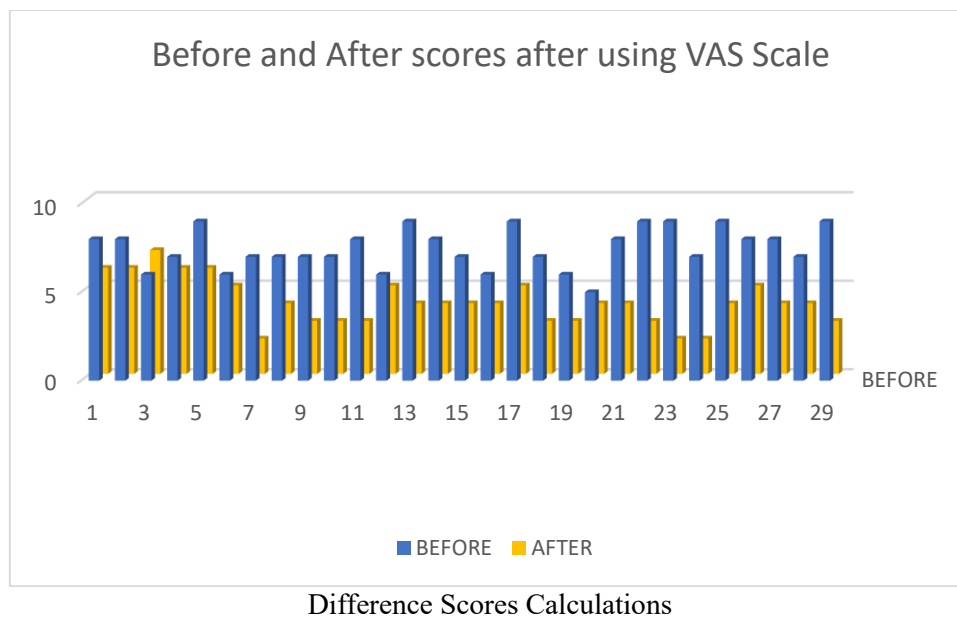
#### DISTRIBUTION ON THE BASIS OF AGE

AGE GROUP	NO OF CASES	PERCENTAGE
21-30	1	3.33
31-40	4	13.33
41-50	8	26.66
51-60	3	10
61-70	8	26.66
71-80	5	16.66
81-90	1	3.33



### VAS Scale scores before and after Treatment

S No.	BEFORE	AFTER
1	9	7
2	8	6
3	8	6
4	6	7
5	7	6
6	9	6
7	6	5
8	7	2
9	7	4
10	7	3
11	7	3
12	8	3
13	6	5
14	9	4
15	8	4
16	7	4
17	6	4
18	9	5
19	7	3
20	6	3
21	5	4
22	8	4
23	9	3
24	9	2
25	7	2
26	9	4
27	8	5
28	8	4
29	7	4
30	9	3



Mean: -3.37

$\mu = 0$

$S^2 = SS/df = 92.97/(30-1) = 3.21$

$S^2M = S^2/N = 3.21/30 = 0.11$

$SM = \sqrt{S^2M} = \sqrt{0.11} = 0.33$

T-value Calculation

$t = (M - \mu)/SM = (-3.37 - 0)/0.33 = -10.3$

The value of t is -10.299025. The value of p is  $< .00001$ . The result is significant at  $p < .05$

**(H<sub>0</sub>):** There is no role of Cassia sophera in treatment of Osteoarthritis.

**(H<sub>A</sub>):** There is improvement in Osteoarthritis by treatment with Cassia sophera

This study provides an evidence to show that there is significant reduction in the VAS Scale scores after administering the homoeopathic remedies. Hence, we can conclude that Cassia sophera play an important role in treatment of Osteoarthritis.

## DISCUSSION:

A study was done to prove the **traditional medicinal claims about anti-inflammatory and analgesic potential of Cassia sophera Linn.** through scientific methodology is published in Asian Pacific Journal of Tropical Disease which concludes the significant inhibitory effect on peripheral and central pain stimuli, marked edema reduction and granuloma inhibition justified the ethnomedicinal use of Cassia sophera in the management of pain and inflammation.<sup>(6)</sup>

**A plant review of Cassia sophera Linn.** is published in International Journal of Pharmaceutical, Chemical and Biological Sciences, which unveils the homoeopathic use of this medicine in the management of Osteoarthritis.<sup>(7)</sup> A study has done to **evaluate and compare the antioxidant potential of methanolic leaf and stem bark extracts of C.sophera(L.)** concludes that both the extracts possess equitable oxidant potential of which methanolic stem bark extract of C.sophera is more promising one that possess higher antioxidant potential.<sup>(8)</sup>

In this study the patient history comprises of 30 cases of Osteoarthritis who attended OPD of Pt Jawaharlal Nehru State Homoeopathic Medical College and Hospital, Kanpur Uttar Pradesh. The patients who were suffering from symptoms like Joint pain, difficulty in movement, stiffness and swelling were included in this study. These patients were showing the symptoms of Osteoarthritis. The patients who were having raised level of serum uric acid and patients with positive rheumatoid factor and C-reactive protein severe degeneration of knee joint with marked joint narrowing, varus, or valgus deformity of knee ( $>12^\circ$ ), evidenced by imaging or other evidences and requiring surgical intervention were excluded from the study. Pregnant and lactating women were also excluded from the study. Participants were given Cassia Sophera. Selection of potency, dose and repetition of medicine was done as per homoeopathic principles. Single medicine was given to the patient at a time. Regular follow ups were done to record the improvements or other changes. A total of 30 cases were recorded in pre structured case record format. Then the cases were analyzed and the totality was erected. Then the symptoms were evaluated. For clinical evaluation VAS Scale was used before and after treatment.

Pre-treatment score and after treatment score were calculated, finally “t” was applied to test the significance. Based on the analysis from 30 cases of OA, following observations are made, comparing with the available literature.

The age group was more prone to develop OA was older age group (61-70yrs) with n=8. After administration of *Cassia sophera* improvement was observed.

## CONCLUSION

The study consists of a sample of 30 cases suffering from Osteoarthritis from the OPD and IPD of Pt. Jawaharlal Nehru State Homoeopathic Medical College and Hospital. The results of the study concluded that *Cassia sophera* showed remarkable efficacy in treating Osteoarthritis. 30<sup>th</sup> potency was the most used potency. After a statistical analysis of the VAS Scale results, it was determined that *Cassia sophera* has a good role in treating OA.

**Conflict of Interest-** None

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