



## Research Article

## CLINICAL STUDY OF *PALASHA PUSHPA* (*BUTEA MONOSPERMA* (LAM.) KUNTZE) IN THE MANAGEMENT OF *VATARAKTA* (GOUTY ARTHRITIS)

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**KEYWORDS:** *Palasha pushpa*, *Butea monosperma*, *Vatarakta*, Gouty Arthritis.

### ABSTRACT

**Objectives:** This study was conducted to evaluate the effectiveness of *Palashapushpa churna* in the management of *Vatarakta* (Gouty Arthritis). **Materials and Methods:** A single blind clinical trial was conducted at Department of Dravyaguna, Dr.B.R.K.R Govt. Ayurvedic Hospital, Erragadda, Hyderabad. 30 patients were selected and trial drug was advocated in a dose of 3gm *Palashapushpa churna* twice a day with water as *Anupana*. Treatment was given for 45 days with the result assessment recorded at every 15 days. Subjective and objective parameters were analyzed before and after the treatment. In subjective parameters *Shula*, *Daha*, *Shotha*, *Raga*, *Sthabdata* are taken, while serum uric acid levels is considered as objective parameter. **Results:** Out of 30 patients, *Sula*, *Daha*, *Shotha*, *Sthabdata* was found in all patients, *Raga* was found in 6 patients, which suggests the severity of condition. After treatment it was observed that *Sula* is found to be relieved by 93.33% of patients, *Daha* and *Shotha* is found to be relieved by 60%, *Raga* is found to be relieved by 20% of patients, *Sandhi stabdata* is found to be relieved by 80% of patients. It is observed that *Sandhi shula* and *Sandhi sthabdata* was got good relief, *Sandhi daha* and *Sandhi shotha* was got moderate relief. *Sandhi raga* was got mild relief. The average serum uric acid levels in the patients of *Vatarakta* before the treatment is 2.13 after the treatment with administration of *Palashapushpa churna* orally it was brought down to the average of 1.13. The average decrease in the levels of uric acid was highly significant ( $P < 0.001$ ). **Conclusion:** *Palasha pushpa churna* prepared as per the textual standards is highly effective in *Vatarakta* and showing a way out to the individual suffering from this chronic disease. The study confirmed the effect of trial drug in *Vatarakta* (Gouty arthritis) in improving the quality of life of patients without any untoward effects.

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## INTRODUCTION

"Ayurveda" is an ancient medical system is considered as the *Upaveda* of *Atharvaveda* (one among the 4 important *Vedas*). The term Ayurveda is derived from the Sanskrit word "*Ayu*" which stands for the integrated relation of body, sense, mind and the soul and "*Veda*" means Science. Ayurveda best documented ancient tradition of health care medicines in the world. It is the science which provides knowledge of *Ayushya*, *Anayushya dravyas*, and *Guna*, *Karmas*.

*Dravyaguna* is an integral and inherent part of Ayurveda. From the beginning of creation

preservation of health has been instinctive necessity of human beings. The usage of plants as food and medicines started earlier, later developed and systematized. Though usage of plants change from age to age the main motive is "Preservation of Health and Cure of Diseases".

***Swasthasyaswasthyarakshnam Aturasya vikaraprasamanam*** [1]

Though the term *Dravyaguna* was first mentioned by *Charaka*, it is Pandita Narahari who has placed *Dravyaguna* for the first time in *Ashtangas*[2]. The golden period of *Dravyaguna* starts

from *Nighantus* from 7<sup>th</sup> century A.D. Identification of unidentified herbs in *Samhitas* was attempted in the *Nighantus*, which gives the valuable information and illustration on pharmacognostical, pharmacological and therapeutic aspects. During this *Nighantu* period many drugs were added to Indian Materia Medica, as a result of interaction with other countries *Nighantu* period shows specialization of *Dravyaguna* and detailed descriptions of classification, morphology, synonyms, pharmacological actions and therapeutic indications of individual drugs and groups are available, which offer ample opportunities of research with single drugs in different diseases at different angles. Ayurveda has number of time tested single drugs and formulations, which are effective in lifestyle disorders like *Vatarakta*.

According to the classics, *Palashapushpa* processes extensive medicinal values. *Charaka & Susrutha* has explained *Shulahara, Sothahara, Vatahara* properties of *Palasha*.<sup>[3,4]</sup> In general, it indicated in *Shula, Sotha, Gulma, Grahani, and Raktapitta* by almost all the authors right from the *Samhitas* to *Nighantus*. *Palasha* popularly knew by the name 'The flame of the forest'<sup>[5]</sup>. Its botanical name is *Butea monosperma* (Lam.) Kuntze belongs to the family Fabaceae. Though *Palasha* being used in the treatment of various ailments, *Bhava prakasha nigantu* (in *Vatadivarga*) mentioned usage of *Palashapushpa* in the treatment of *Vatarakta*<sup>[6]</sup>. Modern researches have found that flower of *Butea monosperma* (Lam.) Kuntze is non poisonous and are useful in different disorders like arthritis, rheumatism, fevers, inflammation.

In present modern, there is rapid change in the lifestyle, which has altered our traditional style of living, dietary habits, work and environment. These lifestyle changes ultimately attributed for the development of many metabolic diseases which have become a challenge for the human race. Similarly the diseases which were not common previously have become problem for the society as well as medical community in the present era. The disease *Vatarakta* is appeared to be one of them.

*Vatarakta* is a systemic, metabolic, inflammatory, destructive disease which chiefly affects small peripheral joints of *Hasta, Pada, Anguli*

and in later stage, which causes deformities to the affected structures and their respective functions, characterised by pain, swelling, stiffness, and redness of the affected joints<sup>[7]</sup>. *Vatarakta* is better co related with "Gouty arthritis" in the modern science, Gout, the most common inflammatory arthritis, is a metabolic disease, characterized by hyperuricaemia, deposits of monosodium urate, monohydrate microcrystals in and around the joints<sup>[8]</sup>. In contemporary medicine, management of gout can be done by using NSAIDS, Steroids to reduce the severity of inflammation. Other drugs like Uricosuric agents, Allopurinol, Febuxostat are recommended to decrease the uric acid concentration in the blood. But in due course all the drugs can cause severe side effects when used in long turn by causing additional trouble to the patients. Keeping in view, it is the need of the hour to focus on drugs which are of herbal source, have more effectiveness, lesser side effects, cost effective and also reduce the frequent gout attacks.

In present study *Palashapushpa* is taken to evaluate its clinical efficacy in the management of *Vatarakta* as it is one of the easily available, cost effective, non toxic, orally administrable drugs. Hence the drug *Palashapushpa* will be tried to study phytochemically and clinically with available standard parameters.

## MATERIALS AND METHODS

### Aims and objectives

The present study is aimed to evaluate the therapeutic effect of the powder of *Palashapushpa* in patients suffering from the disease *Vatarakta*.

### The objectives of the study are

To evaluate the clinical efficacy of *Palashapushpa* from relieving the signs and symptoms of *Vatarakta*.

### Preparation of the drug

The drug *Palashapushpa* was collected from Meerpet, Rangareddy dist, Telangana and fine powder is prepared by using pulverizer and stored in air tight containers. This powder is packed in zip lock covers and is used for the purpose of clinical study.

**Dose:** 3gms of *Palashapushpa* powder twice daily



Figure 1: *Palashapushpa*

**Duration:** Total duration of study is 2 months with follow up of 1 month.

**Mode of administration:** Oral route.

**Anupana:** Normal water

#### Criteria for the selection of patients

30 patients were selected randomly from the O.P.D of Govt. Ayurvedic Hospital, Erragadda, Hyderabad with the symptoms of disease *Vatarakta* and are made in single group for the purpose of clinical study.

#### Inclusive Criteria

- Patients of either sex between 18 to 60 years of age.
- Fulfilling the diagnostic criteria, having signs and symptoms of *Vatarakta* like *Daha*, *Ruja*, *Shotha*, *Raga*, *Sthabdata* be included.
- Subjects with serum uric acid levels above 7mg/dl are included.
- Able and willing to complete the treatment schedule.

#### Exclusive Criteria

- Patients of age below 18 & above 60 will be excluded.
- Patients with Psycho somatic disorders are excluded
- Pregnant women and lactating women are excluded
- Patients suffering from chronic illness like HIV, HBSAG, CKD, CAD are excluded

#### Assessment Criteria

**Subjective parameters:** Clinical features as per literature, like *Shula*, *Daha*, *Shotha*, *Raga*, *Sthabdata*.

#### Objective parameters

Serum Uric acid

#### Score Assessment

The improvement of the patients was assessed by adopting standard scoring pattern for the Symptoms of the disease. According to the severity of the symptoms grading were given as below.

#### Subjective Parameters

##### *Sandhishula*

- 0- None
- 1- Mild
- 2- Moderate
- 3- Severe

##### *Sandhidaha*

- 0- None
- 1- Mild
- 2- Moderate
- 3- Severe

#### *Sandhi raga/Vaivarnyatha*

- 0- None
- 1- Mild
- 2- Moderate
- 4- Severe

#### *Prasaarana-akuncana-kastatha/Sandhi sthabdata*

- 0- None
- 1- Mild
- 1- Moderate
- 2- Severe

#### Objective Parameters

##### S.Uric acid

- (0 Grade) 7.0 mg/dL-None
- (1<sup>st</sup> Grade) 7.1mg/dL- 10Mg/dL
- (2<sup>nd</sup> Grade) 10.1mg/dL-13 Mg/dL
- (3<sup>rd</sup> Grade) 13 mg/dL- 20 Mg/dL

#### Statistical Data

Subjective and objective parameters were analyzed statistically by suitable statistical parameters.

#### Assessment of Overall Effect

To assess the overall effect of the therapies net result obtained on various parameters of assessment both before and after treatment were taken into consideration. Then it was graded in terms of percentage of relief in signs and symptoms as below.

- Good Improvement: 71 to 100%
- Moderate Improvement: 41 to 70%
- Mild Improvement: 11 to 40%
- No Improvement: 0 to 10%

#### Observations and Results

##### Results

A Total of 30 patients are selected randomly from OPD of PG department of Dravyaguna, Dr.B.R.K.R. Govt. Ayurvedic Hospital, Erragadda, Hyderabad. The treatment is planned for 4 months with follow up of 1 month or as per necessity. The fine powder of *Palashapushpachurna* given to all the patients with the dosage of 1.5gm was given twice daily with water.

Subjective and objective parameters are obtained before and after treatment were recorded and analyzed statistically with suitable analytical tests.

##### Demography

Totally 30 patients were selected and they are classified according to age, gender, diet, social status, occupation and *Prakruti*.

**Table 1: The Incidence of Disease According to Age**

S.no	Age Group	No. of Patients	Percentage
1.	30-40	11	36.66%
2.	41-50	9	30%
3.	51-60	10	33.33%

Incidence of disease was divided in to 3 groups according to the age, 30-40, 41-50, 51-60. Among these 3 age groups, it was observed that the incidence occurred majorly in patients belonging to age group of 30-40 yrs. i.e., 36.66% and in the other 2 group's people incidence was 9 people i.e., 30% and 10 people i.e., 33.33% respectively.

**Table 2: Distribution of the Patients According to Gender**

S.No	Gender	No. of patients	Percentage
1.	Male	15	50%
2.	Female	15	50%
3.	Total	30	100%

In a total of 30 patients, the number of female patients was 15 i.e., 50% and male was 15 i.e., 50%. It was observed that male patients and female patients are equal in number.

**Table 3: Distribution of the Patients according to Occupation**

S.No	Occupation	No. of Patients	Percentage
1.	Employees	12	40%
2.	Business	08	26.66%
3.	Housewife	10	33.33%
4.	Total	30	100%

In a total of 30 patients, 12 (40%) people are employees, 8 (26.66%) people belongs to business class and 10 (33.33%) are housewives. It was observed that majority of patients belongs to employee class i.e., 40%.

**Table 4: Distribution of the Patients according to Socio-economic status**

S.No	Socio-economic status	No. of Patients	Percentage
1.	Affluent	4	13%
2.	Middle class	18	60%
3.	Lower middle class	8	27%
4.	Total	30	100%

In a total of 30 patients, 4 (13%) belong to affluent economic status, 18 (60%) belonged to the middle class and 8 (27%) belonged to lower middle class. So, prevalence observed is more in middle class people i.e., 60%.

**Table 5: Distribution of the Patients according to Dietary habits**

S.No	Diet	No. of Patients	Percentage
1.	Mixed diet	21	70%
2.	Vegetarian diet	09	30%
3.	Total	30	100%

Among 30 patients, 21 people i.e., 70% of the patients were consuming mixed diet, while 09 people i.e., 30% were vegetarians. It was observed that mixed diet people are more in incidence.

**Table 6: The incidence of disease according to Prakruti**

Variation	Total	Percentage
<i>Kapha -Vata</i>	7	23.34%
<i>Pitta -Kapha</i>	5	16.67%
<i>Vata-Pitta</i>	18	60%

Amongst the 30 patients, 7 (23.34%) people belongs *Kapha-Vata*, 5 (16.67%) are of *Pitta-Kapha* and its observed that majority of *Vata-pitta prakriti* i.e., 18 (60%).

**Table 7: Distribution of the Patients based on Serum Uric acid levels**

Grade	No. of Patients	Percentage
Severe (13 Mg/dL-20Mg/Dl)	08	26.66%
Moderate (10.1Mg/dL -13Mg/Dl)	18	60%
Mild (7.1mg/dL-10Mg/Dl)	4	13.33%

Depending on the serum uric acid levels, grading was done as severe (13Mg/dL-20Mg/Dl), moderate (10.1Mg/dL -13Mg/Dl), mild (7.1mg/dL-10Mg/Dl). Among 30 patients, 8 (26.66%) come under severe grade, 18 (60%) come under moderate grade, 4 (13.33%) come under mild grade.

**Table 8: Symptomatic relief before and after treatment**

Symptoms	Before Treatment		After Treatment	
	No. of patients	Percentage	No. of patients	Percentage
<i>Shula</i>	30	100%	28	93.33%
<i>Daha</i>	30	100%	18	60%
<i>Shoatha</i>	30	100%	18	60%
<i>Raga</i>	10	33.33%	06	20%
<i>Sandhi sthabdata</i>	30	100%	24	80%
S.uric acid	30	100%	27	90%

**RESULTS****Table 9: Effect of Palasha Pushpa on Cardinal Symptoms of Vatarakta**

S.No	Symptoms	Mean		MD	% of relief	SD	SE	DF	t Value	P Value	Result
		BT	AT								
1	<i>Sula</i>	2.73	1.13	1.60	58.53%	0.49	0.09	29	17.58	0.001	Extremely statistically significant
2	<i>Daha</i>	2.33	0.63	1.70	72.85%	0.70	0.13	29	13.25	0.001	Extremely statistically significant
3	<i>Shoatha</i>	2.13	0.73	1.40	65.62%	0.67	0.12	29	11.36	0.001	Extremely statistically significant
4	<i>Raga</i>	0.53	0.20	0.33	62.50%	0.55	0.10	29	3.33	0.001	Statistically significant
5	<i>Sthabdata</i>	2.36	0.86	1.50	63.38%	0.57	0.10	29	14.06	0.001	Extremely statistically significant

**Table 10: Effect of Palasha Pushpa on Objective Parameters in 30 Patients of Vatarakta**

S.No	Symptoms	Mean		MD	% of relief	SD	SE	DF	t Value	P Value	Result
		BT	AT								
1	S. Uric Acid	2.13	1.13	1.00	46.87%	0.69	0.13	29	7.88	0.001	Very statistically significant

**Table 11: Percentage reliefs of the subjective and Objective Parameters in Group**

S. No	Observations	% of Relief
1.	<i>Shula</i>	58.53%
2.	<i>Daha</i>	72.85%
3.	<i>Shoatha</i>	65.62%
4.	<i>Raga</i>	62.50%
5.	<i>Sandhi sthabdata</i>	63.38%
6.	S.uric acid	46.87%

Phytopharmacological studies have shown that, phytochemicals like flavanoides, tannins and glycosides have been found exhibiting Anti-inflammatory property.

Flavanoides acts as uric acid synthesis inhibitors (Xanthine oxidase inhibitor) Hence prevent the synthesis of uric acid by inhibiting the enzyme Xanthine oxidase, resulting reduce plasma uric acid levels.

The mechanisms underlying the anti-inflammatory effect of tannins includes the scavenging of radicals and inhibition of the expression of inflammatory mediators, such as some cytokines, inducible nitric-oxide synthase (iNOS), and COX-2. Phenols have been found to show analgesic and anti-inflammatory effects.

In the present study the drug *Palashapushpa* i.e., *Butea monosperma* (Lam.), under preliminary phytochemical screening have shown the presence of flavanoides, tannins and glycosides which might have shown their analgesic and anti inflammatory activity.

## DISCUSSION

In the present clinical study totally 30 patients were diagnosed as *Vatarakta* selected randomly from OPD of Dravyaguna department, DR.B.R.K.R Ayurvedic hospital, Erragadda, Hyderabad, The patients are categorized according to their age, sex, occupation, diet, socio economic status, habits, *Prakruti* and made into single group and treated with *Palashapushpachurna* at a dose of 3gm twice a day with water. Total duration is 60 days with follow up of 30 days.

### Age

30 patients were divided into 3 age groups i.e., 30-40, 41-50, 51-60. Among these 3 age groups, it was observed that the disease incidence occurred majorly in patients belonging to age group of 30-40 yrs. i.e. 36.66% and in the other 2 group's disease incidence was 9 people i.e., 30% and 10 people i.e., 33.33% respectively.

### Gender

In a total of 30 patients, the number of female patients was 15 i.e., 50% and male was 15 i.e., 50%. It was observed that male patients and female patients are equal in number.

### Occupation

Out of 30 patients, 12 (40%) people are employees, 8 (26.66%) people belongs to business class and 10 (33.33%) are housewives. It was observed that majority of patients belongs to employee class i.e., 40%.

### Diet

Among 30 patients, 21 people i.e., 70% of the patients were consuming mixed diet, while 09 people i.e., 30% were vegetarians. It was observed that mixed diet people are more in incidence. Patients with mixed diet are habituated to include more non vegetarian food like sea foods, red meat, chicken in their daily dietary schedule, where as vegetarians are habituated to take high protein diet like peas, dal etc in their dietary schedule.

## Addictions

14 Members of (47%) of the patients out of 30 patients are addicted to alcohol. according to modern view, it has been proved that the purine nucleotide degradation during ethanol catabolism, inhibition of renal excretion of urate and high purine content of certain kinds of beverages are responsible for the elevation of serum uric acid levels following alcohol drinking in gout patients according to Ayurveda, *Madhya gunas* such as *Ushna*, *Teekshna*, *Amla rasa pradhana*, *Sukshma*, *Vyavayi*, *Vikasi* tend to vitiate *Rakta dhatu* ultimately causing *Vatarakta*, other 16 patients are addicted to tea/coffee.

## Socio Economic Status

Out of the total 30 patients, 4 (13%) belong to affluent economic status, 18 (60%) belonged to the middle class and 8 (27%) belonged to lower middle class. So, prevalence observed is more in middle class people i.e., 60%.

## Prakriti

Amongst the 30 patients, 7 (23.34%) people belongs *Kapha-Vata*, 5 (16.67%) are of *Pitta Kapha* and it is observed that majority of *Vata-pitta prakriti* i.e., 18 (60%). This shows that in present study *Vata-pitta prakrit* in persons are more affected with *Vatarakta* since *Pitta dosha* is more related to *Raktadhatu*, *Raktadusti* will simultaneously vitiate *Pitta dosha* and in the disease like *Vatarakta* it will also vitiate *Vatadosha*.

## Subjective Parameters

The assessment of subjective parameters was analysed by giving individual scores to symptoms and percentage of result was assessed for each symptom and in every patient. The gradation symptoms as is given by scale The absence of symptoms is given by grade-0, grade-1 is mild, grade-2 is moderate and grade-3 is severe. The total scores are counted. For each and every character individual scoring was given for before and after treatment and percentage relief was calculated.

## Effect on Sandhi Shula

The complete relief of *Sandhi shula* is seen in 2 patients (6.6%), 16 patients (53.33%) have reduced the severity of the symptom and the remaining 12 patients (40%) got relieved moderately from the symptom of *Sandhi shula*.

The means core of *Sandhi shula* before the treatment is 2.73 which came down to 1.13 after the treatment and found to be statistically highly significant ( $t = 17.58 < 0.0001$ ).

## Effect on Sandhi Daha

The complete relief of *Sandhi daha* is seen in 12 patients (40%), 8 patients (26.66%) got relieved significantly and 10 patients (33.33%) have got moderate relief from the symptom of *Sandhi daha*.

The mean score of *Sandhi daha* before the treatment is 2.33 which came down to 0.63 after the treatment and found to be statistically highly significant ( $t = 13.25 < 0.0001$ ).

#### Effect on *Sandhi Shotha*

The complete relief of *Sandhi shotha* is seen in 12 patients (40%), 11 patients (36.66%) have reduced the severity of the symptom and the 5 patients (16.66%) got relieved significantly and 2 patients (6.66%) remained unchanged from the symptom of *Sandhi shotha*.

The mean score of *Sandhi shotha* before the treatment is 2.13 which came down to 0.73 after the treatment and found to be statistically highly significant ( $t = 11.36 < 0.0001$ ).

#### Effect on *Sandhi Raga*

Out of 30 patients 20 patients not presented with the symptom *Sandhi Raga*. The complete relief of *Sandhi Raga* is seen in 4 patients (13.33%), 5 patients (16.66%) got relieved moderately and 1 patient (3.33%) had remained unchanged from the symptom of *Sandhi Raga*.

The mean score of *Sandhi raga* before the treatment is 0.53, which came down to 0.20 after the treatment and found to be statistically significant. ( $t = 3.33 < 0.0001$ ).

#### Effect on *Sandhi Sthabdata*

The complete relief of *Sandhi Sthabdata* is seen in 6 patients (20%), 14 patients (46.66%) have reduced the severity of the symptom and the 10 patients (33.33%) got relieved significantly from the symptom of *Sandhi Sthabdata*.

The mean score of *Sandhi sthabdata* before the treatment is 2.36 which came down to 0.86 after the treatment and found to be statistically highly significant. ( $t = 14.06 < 0.0001$ ).

#### Objective Parameters

##### Effect on serum uric acid level

Out of 30 patients, only 3 (10%) patients showed normal values of serum uric acid after the treatment but remaining 27 (90%) patients in the study has reduced the severity of the grading. The average serum uric acid levels in the patients of *Vatarakta* before the treatment is 2.13 after the treatment with administration of *Palashapushpa churna* orally it was brought down to the average of 1.13. The average decrease in the levels of uric acid proved that it is statistically highly significant. ( $t = 7.88 < 0.0001$ ).

#### Final Discussion on Results

Out of 30 patients, *Sula*, *Daha*, *Shotha*, *Sthabdata* was found in all patients, *Raga* was found in 6 patients, which suggests the severity of condition. After treatment it was observed that *Sula* is found to be relieved by 93.33% of patients, *Daha*

and *Shotha* is found to be relieved by 60%, *Raga* is found to be relieved by 20% of patients, *Sandhi sthabdata* is found to be relieved by 80% of patients. It is observed that *Sandhi shula* and *Sandhi sthabdata* was got good relief, *Sandhi daha* and *Sandhi shotha* was got moderate relief. *Sandhi raga* was got mild relief. The average serum uric acid levels in the patients of *Vatarakta* before the treatment is 2.13 after the treatment with administration of *Palashapushpa churna* orally it was brought down to the average of 1.13 the average decrease in the levels of uric acid.

#### Probable Mode of Action

*Samprapthi vighatana* is said to be a treatment as per Ayurvedic view. Therefore, the action of drug is to conquer *Samprapthighatakas* of the disease. Hence explaining the mode of action is establishing a relationship between *Samprapthi ghatakas* of the disease and the pentafold principles of *Rasa*, *Guna*, *Veerya*, *Vipaka* and *Prabhava* of the drug.

Distinct etiological factors of *Vatadosa* and *Raktha dhatu* separately caused the morbidity of *Vatadosa* as well as abnormality of *Raktha dhatu*. Morbid *Vatadosa* further incriminates the abnormal *Raktha dhatu*. This abnormal *Rakta dhatu* by way of *Rakta margavarana* in turn inhibits the movement of *Vatadosa* leading to severe morbidity of *Vatadosa*. This is marked by development of clinical signs and symptoms. Thus the illness *Vatarakta* clinically manifests.

*Vata* is the main *Dosha* involved in the manifestation of the symptoms of *Sula* and *Sthabdata* in the disease *Vatarakta*. *Madhura rasa*, *Tridosahara* properties of *Palashapushpa* pacify *Sula* and *Sthabata*. *Rakta* along with *Pitta* are the *Dosas* involved in the manifestation of symptoms *Daha*, *Shotha*, *Raga*, *Sheetavirya*, *Madhura*, *Tikta*, *Kashayarasas* of *Palashapushpa* pacifies *Daha*, *Shotha* and *Raga* in *Vatarakta*.

*Vatarakta* is a peculiar disease which is given name after the pathological factors i.e., *Vatadosha* and *Rakta dhatu*.

*Palasha* was botanically identified as *Butea Monosperma* (Lam.) Kuntze belongs to the family Fabaceae.

The properties of *Palashapushpa* are *Madhura*, *Katu*, *Tikta*, *Kashayarasas*, *Ruksha*, *Laghu*, *Sara gunas*, *Sheeta- Veerya*, *Madhuravipaka* and *Tridosashamaka* which helps in treating the symptoms of *Vatarakta*.

The aqueous extraction value of total flavanoid content is 624.52mg QE/gram of extract. The alcohol extraction value of total flavanoid content is 162.59 mg QE/gram of extract. Aqueous

extraction value of total flavanoid content is more than that of alcoholic extract of total flavanoid content.

The physicochemical values of *Palashapushpa* were nearer to API values. The preliminary phytochemicals like carbohydrates, sugars, flavanoides, tannins, glycosides are present in different extracts.

The antioxidants compounds like ascorbic acid, total phenols and tannins were also evaluated in *Butea monosperma*. On the basis of literature survey and result of antioxidant activity, it confirm that *Butea monosperma* plant have potentially used as natural antioxidant plant.

At various levels in the study like demographic data, statistical data, clinical response of the drug on the disease, a thorough survey is done for better understanding of the efficacy of the drug in the disease *Vatarakta*.

In the present clinical trial, middle aged male patients (31years- 45years) are more affected by the disease when compared to females.

People who regularly take non vegetarian diet, particularly sea foods and protein diet have increased the severity of the clinical features of *Vatarakta* when compared to people of vegetarian food.

Alcohol, non-vegetarian diet, excessive sea foods consumption turned out to be the main predisposing factors for the onset of symptoms. Hence along with the administration of the drug patients, who kept on the strict diet restrictions on such kind of foods, responded well to the treatment when compared to others.

The most commonly effected joint is 1<sup>st</sup> metatarsophalangeal joint of feet i.e. big toe, metatarsophalangeal joint, metatarsal joints, and ankle joint.

The percentage relief of the subjective parameters i.e., *Sula*, *Daha*, *Shotha*, *Raga* and *Stabdata* are 58.53%, 72.85%, 65.62%, 62.50%, 63.38% respectively.

The objective parameter serum uric acid levels did not show marked change in the values before and after the treatment. After entire clinical trial for 30 patients it showed only 46.87%

Among 30 patients, marked relief was observed in 3 patients (10%), moderate relief was observed in 23 patients (76.66%) and mild relief was observed in 4 patients (13.33%).

In the present study *Palashapushpa*, statistically showed highly significant results ( $P < 0.0001$ ) in *Vatarakta*.

### CONCLUSION

Finally it can be concluded that the drug *Palashapushpa* have beneficial role in the management of *Vatarakta*.

This humble trial is conducted in a small sample with limited parameters. There is a need for further research in large sample with more parameters for analyzing its efficacy in different forms of extractions in *Vatarakta*, which will be benefitable to the humanity at large.

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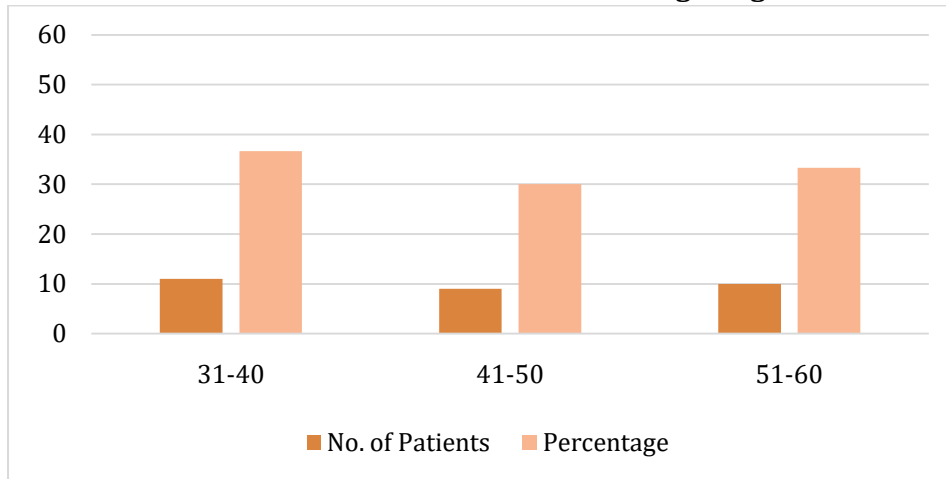
Gandham Neelima, V.Narasimha, A.Vijaya Lakshmi. Clinical Study of Palasha Pushpa (*Butea Monosperma* (Lam.) Kuntze) in the Management of *Vatarakta* (Gouty arthritis). AYUSHDHARA, 2021;8(3):3283-3293.

<https://doi.org/10.47070/ayushdhara.v8i3.750>

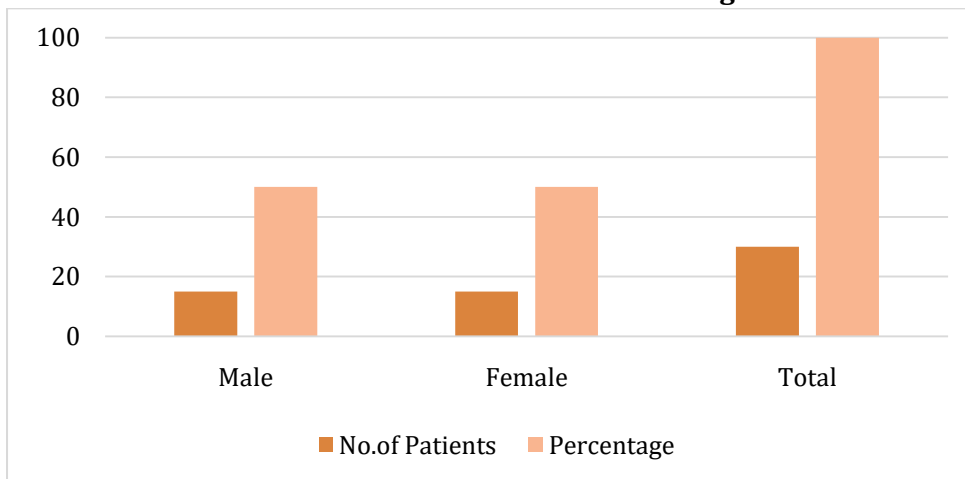
**Source of support: Nil, Conflict of interest: None Declared**



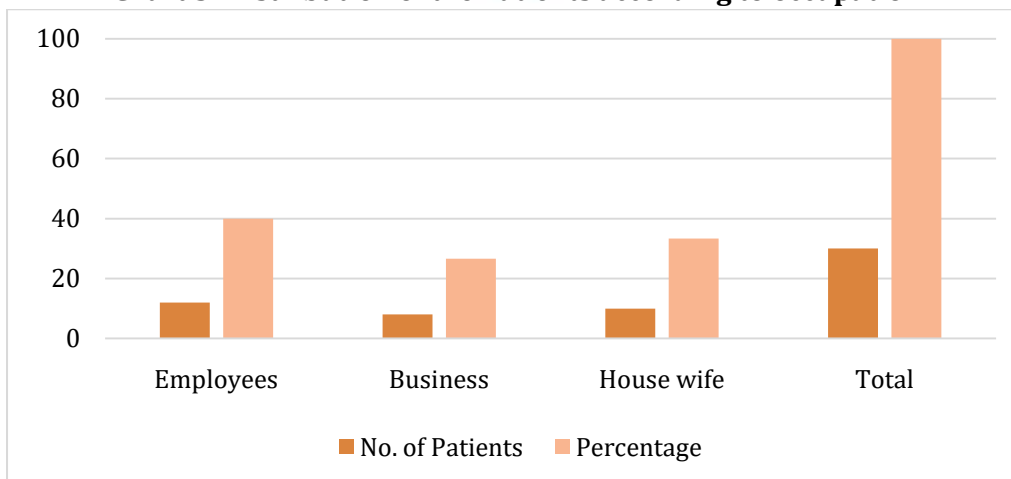
**Chart 1: The Incidence of Disease According to Age**



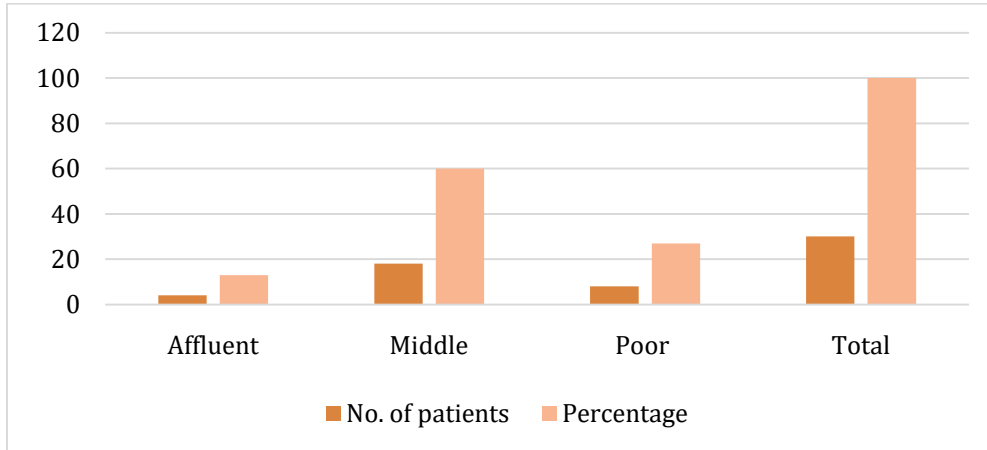
**Chart 2: Distribution of the Patients According to Gender**



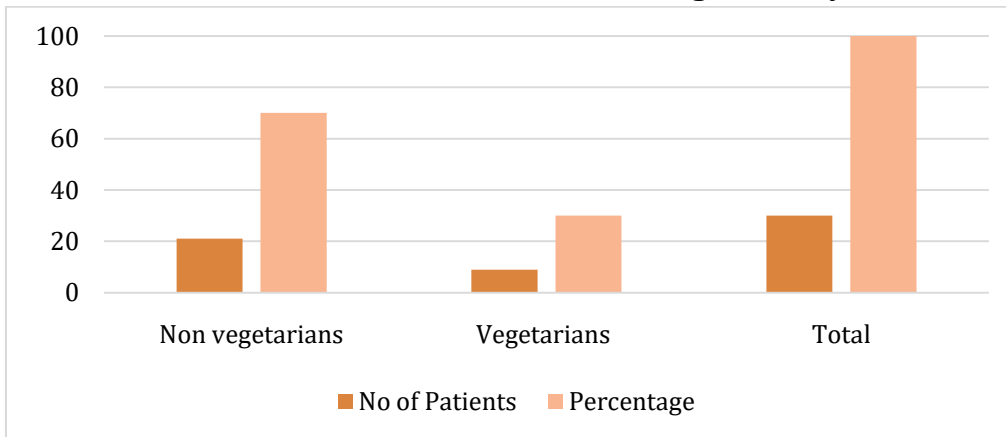
**Chart 3: Distribution of the Patients according to occupation**



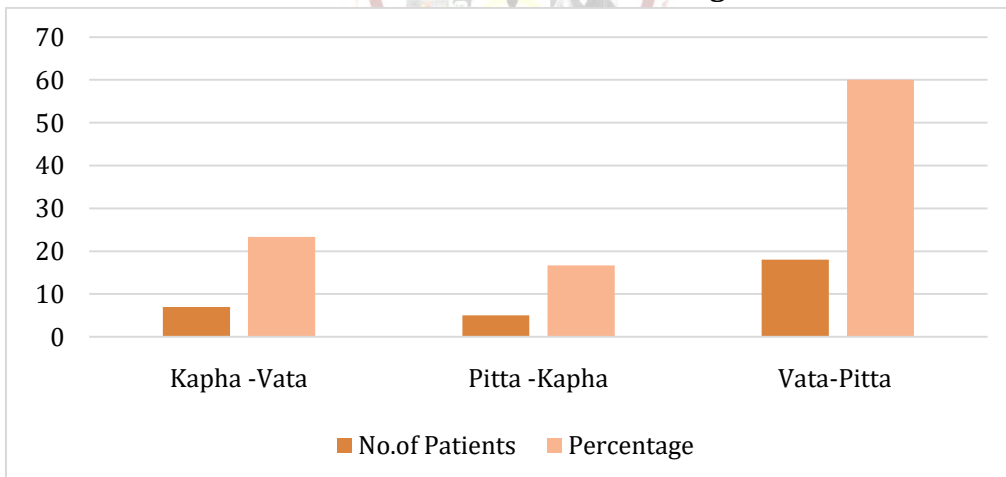
**Chart 4: Distribution of the Patients according to Socio-economic status**



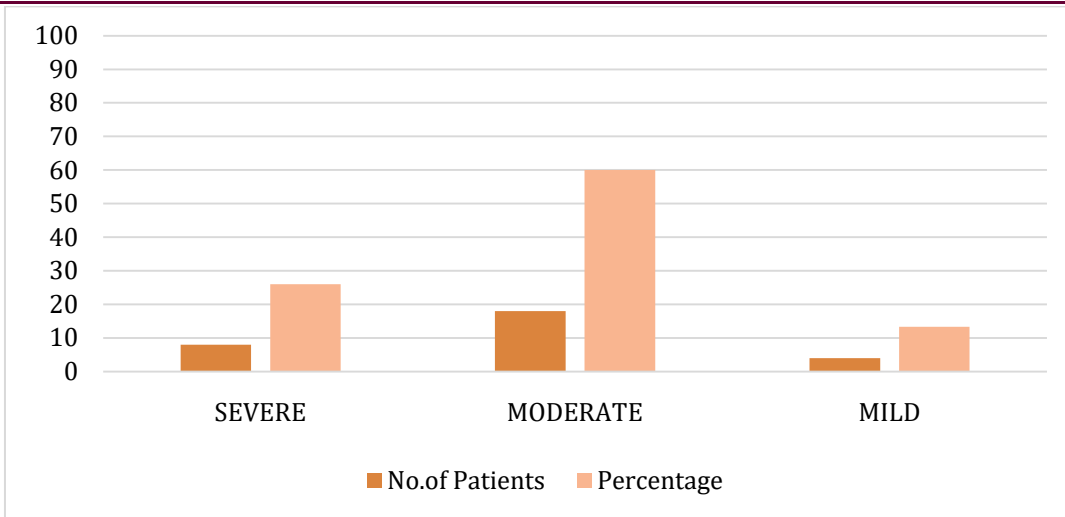
**Chart 5: Distribution of the Patients according to dietary habits**



**Chart 6: The incidence of disease according to Prakruti**



**Chart 7: Distribution of the Patients based on Serum Uric acid levels**



**Chart 8: Percentage of symptomatic relief before and after treatment**

