

# A Comparative Clinical Study of *Gokshuradi Guggulu* with *Anupanabheda* in The Management of *Vatarakta* with special reference to Gout

## Research article

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### Abstract

Gout is condition in which person become immobile and inactive due to joint pains and swelling. Gout occurs, when urate crystal deposition of in the joints. *Vatarakta* is considered as a *vata pradhana vyadhi* and *rakta dushti*. *Gokshuradi Guggulu* is having *vatahara* and *raktashodhak* properties. *Guduchi kwatha* selected as *anupana* because of its *Rasayana*, *Vatashamaka*, *Balya*, *vedana sthapana* and *Ama pachana* properties will help to disrupt the *Samprapti vighatana* of *vatarakta*. The objectives of the study were to evaluate the effect of *Gokshuradi Guggulu* with *Anupanabheda* in the management of *Vatarakta* and to compare the result of both groups. This study was randomized, parallel comparative clinical trial of two groups each of 20 patients. From OPD of DBACH Mandigobindgarh; 40 patients of *vatarakta* taken which were randomly divided into two groups. Group A, 20 patients for 60 days received *Gokshuradi Guggulu* 1 gm. BD with lukewarm water and Group B, 20 patients received *Gokshuradi Guggulu* 1gm BD with *Guduchi Kwatha* for 60 days. In Group A, among 20 patient's 55% patients showed moderate response and 45% patients showed mild response. In Group B among 20 patients, 95 % patients showed moderate response and 5 % patients showed mild response. Both shows statistically highly significant results in both subjective and objective except erythema & discoloration. Treatment modality in Group B (i.e. *Gokshuradi Guggulu* with *Guduchi Kwatha*) is effective in comparison of treatment modality in Group A (i.e. *Gokshuradi Guggulu* with lukewarm water).

**Key Words:** *Vatarakta*, Gout, *Vatahara*, *Rakta dushti*, *Gokshuradi guggulu*, *Guduchi kwatha*, *Rasayana*.

### Introduction

In Ayurvedic texts, illnesses produced by the conjugation of vitiated *Vata* and *Rakta* cause several health ailments. *Vatarakta* is one of them; *Vata prakopa*, *rakta dushti* and obstruction in the path of *vata* is the core pathology in the disease. The pathology of this disease originates in blood, spreads through blood vessels and nerves and then finally get settled in the joints. In *Vatarakta*, the symptom which disturbs day-to-day life of the patients i.e. severe joint pain, which primarily seen in *Hasta-Pada-Mulagata sandhi* (1) and then migrates to other joints in a way similar to *Akhuvisha* (2).

*Vatarakta* as mentioned in *Ayurvedic* texts have very close resemblance with Gout available in modern texts. Gout is musculoskeletal disorder, having the incidence of 2-26 per 1000 (3). In developing countries rate of gout has increased in recent decades. Gout is rare

in children and pre-menopausal females in India. Its effects men in their 40s and 50s and is common in female after menopause (4).

The predisposing factors are protein rich diet, consumption of alcohol and sedentary lifestyle. The disorder has been considered for the study keeping in mind the dire need of the hour to find some safe, sure and permanent cure effective for the disease.

Allopathic treatment has adverse effects like hepatic and renal impairment, which are contraindicated in pregnancy and lactation and harms the individual immune system. if Continuously NSAIDS are taken for long time which lead to gastric irritation, peptic ulcers etc (5).

On the other hand, Ayurveda with safe & effective goodness has been pouring its valuable treasures to mankind since time unknown. In recent days, people are approaching back to nature and prefer to avoid synthetic preparations. *Guggulu* preparations are supposed to be one among the finest *shamana aushadha* in the *vata vyadhis* (6).

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#### Aims and objectives

- To evaluate the effect of *Gokshuradi Guggulu* with two different *Anupanas* (i.e. *Gokshuradi Guggulu* with lukewarm water and *Gokshuradi Guggulu* with *Guduchi Kwatha*) in the management of *Vatarakta*.
- To Compare the result of both Groups

### Ethical committee clearance and CTRI registration

As this was a clinical study; Institutional Ethics Committee approval was taken prior to initiation of research vide letter no.-DBU/PGSAR/2403B/2014-15 dated 24/03/2014. This Clinical trial was registered under CTRI (Clinical Trials Registry - India) with no. CTRI/2017/03/008106.

### Materials and Methods:

#### Preparation of the trial drug:

a. **Gokshuradi guggulu (7):** Ingredients of *Gokshuradi Guggulu* are shown in table 1.

**Table 1: Ingredients of Gokshuradi guggulu**

Sr. No	Name of drug	Botanical name	Part used	Quantity in each tab
1	<i>Gokshura</i>	<i>Tribulus terrestris</i> Linn.	Fruit	28 parts
2	<i>Suddha Guggulu</i>	<i>Commiphora mukul</i>	Exudate	7 parts
3	<i>Shunthi</i>	<i>Zingiber officinale</i> Roxb.	Rhizome	1 part
4	<i>Maricha</i>	<i>Piper nigrum</i> Linn.	Fruit	1 part
5	<i>Pippali</i>	<i>Piper longum</i> L.	Fruit	1 part
6	<i>Haritaki</i>	<i>Terminalia chebula</i> Retz.	Pericarp	1 part
7	<i>Bibhitaki</i>	<i>Terminalia belerica</i> Roxb.	Pericarp	1 part
8	<i>Amalaki</i>	<i>Emblica officinalis</i> Gaertn.	Pericarp	1 part
9	<i>Musta</i>	<i>Cyperus rotundus</i> Linn.	Rhizome	1 part

1. **Guggulu Shodhana** – *Asudha guggulu* (2 kg) *shodhana* was done by making *dola yantra* in *triphala kwatha* (16 lit.). Cooked till whole of *sudha guggulu* got mixed in *kwatha* (8).

2. **Preparation of decoction** – *Gokshura* (4 kg) was taken, & 16 times of water added than that of ingredient, heating of *kwatha* till it remain ¼th. Add purified (*sudha guggulu*) to this *kwatha* and cooked till it is thickened.

3. **Addition of Prakshep dravyas** - Powder of following drugs were added -*Pippali, Shunthi, Marich, Triphla, Musta* were taken 200 gms each.

4. **Preparation of Vati (tablet)** - Tablet of 375 mg were made.

a. **Guduchi Kwatha** -20 gms of *guduchi* (already cut into pieces) is mixed with 320 ml of water. This mixture is boiled on low heat till 1/8 is left. When palatable (warm) then to be taken with the drug (9).

### Selection of patients

Total 40 Patients suffering from *vatarakta*, fulfilling the criteria of *Vatarakta* (Gout) from OPD & IPD of Kayachikitsa Dept. of Desh bhagat ayurvedic college and hospital, Mandigobindgarh Punjab; were selected randomly with coin toss method and divided into following 2 groups.

- **Group-A:** *Gokshuradi Guggulu* with Lukewarm Water in the dose of 1gm twice a day was given to 20 patients of *Vatarakta* for 60 days.
- **Group-B:** *Gokshuradi Guggulu with Guduchi Kwatha* in the dose of 1gm twice a day was given to 20 patients of *Vatarakta* for 60 days.

**Study design:** Open Randomized Parallel Group Trial.

### Inclusion Criteria

Patients of age group between 16-70 years; having clinical signs and symptoms of *Vatarakta* and having serum uric acid level >7 mg/dl with associated features like joint pain and inflammation were included in the study.

### Exclusion Criteria

- Any other joint inflammatory disorder like RA.
- Uncontrolled Diabetes and Hypertension. Chronic renal disease.
- Patients having chronicity more than 10 years.
- Disease associated with marked joint destruction.
- Hemarthrosis, Koch arthritis, Septic arthritis.
- Severe multi organ syndromes.
- Patients suffering from major systemic illness.
- Pregnant and lactating women.
- Any other state thought fit for exclusion.

### Laboratory Investigations required

- **Blood test** - Hb gm%, T.L.C., D.L.C., E.S.R., F.B.S.
- **Bio-Chemistry** - S. Uric acid, L.F.T., R.F.T.
- **Urine Examination** – Routine and Microscopic examination.
- **Radiological Examination if required** – X-Ray of joints.

### Follow-Up:

All patients are influenced to come for the follow up study after every 15 days i.e. 15<sup>th</sup>, 30<sup>th</sup>, 45<sup>th</sup> & 60<sup>th</sup> days. During every visit proper assessment were made based on sign and symptoms and laboratory Investigations (only S. Uric acid & ESR).

### Assessment criteria

Patients were diagnosed based on performa prepared with signs and symptoms of *Vatarakta*. The improvement was assessed on the relief found in the cardinal features of the disease. To assess the effect of therapy all the sign and symptoms were assigned score depending upon their severity as elaborated below:

## Subjective Parameters

**Table 2: Showing subjective parameters for Vatarakta**

1	Pain Index	<i>Shoola</i>
2	Swelling Index	<i>Shotha</i>
3	Erythema Index	<i>Raga</i>
4	Discoloration Index	<i>Tvak Vaivarnyata</i>
5	Burning sensation Index	<i>Vidaha</i>
6	Stiffness Index	<i>Stabdhatta</i>
7	Tenderness Index	<i>Sparsha asahyata</i>
8	Fatigue Index	<i>Shithilta</i>

Following objective scale with numerical values was used to assess the severity of above-mentioned subjective criteria (table 3 to 10):

**Table 3: Showing grading of joint pain (Sandhi Shoola)**

Score	Joint Pain Status
0	No Pain
1	Mild Pain
2	Pain on movement & relieved on rest
3	Constant Pain
4	Severe Pain disturbing sleep

**Table 4: Showing grading of Swelling of Joints (Sandhi Shotha)**

Score	Status
0	No Swelling
1	Mild Swelling
2	Moderate Swelling
3	Severe Swelling without loss of movements
4	Severe Swelling with loss of movements

**Table 5: Showing grading for Redness of Joint (Raga)**

Score	Status
0	No Redness
1	Mild Redness
2	Moderate Redness
3	Severe Redness
4	Joint Dusky Red

**Table 6: Showing grading Discoloration of the skin (Tvak vaivarnyata)**

Score	Status
0	No Discoloration
1	Mild Discoloration of The Skin
2	Moderate Discoloration of The Skin
3	Severe Discoloration of The Skin

**Table 7: Showing grading of Burning Sensation (Vidaha)**

Score	Status
0	No Burning Sensations
1	Mild Burning Sensation
2	Moderate Burning Sensation
3	Severe Burning Sensation
4	Very Severe Burning Sensation Causing Disturbance In Sleep

**Table 8: Showing grading Stiffness (Stabdhatta)**

Score	Status
0	No stiffness
1	Stiffness lasting for few minutes to 1 hour
2	Stiffness lasting for 1 to 8 hours
3	Stiffness lasting for more than 8 hours but not
4	Throughout the day

**Table 9: Showing grading of Tenderness (Sparsha Asahyata)**

Score	Tenderness status
0	No Tenderness
1	Patient says it is Tender
2	Patient says it is Tender and winces
3	Patient says it is Tender, winces & withdraws the limb.
4	Patient does not allow to touch the affected part

**Table 10: Showing grading of Fatigue (Shithilta)**

Score	Status
0	No fatigue
1	Fatigue on doing heavy work
2	Fatigue on doing accustomed work
3	Fatigue on doing less than accustomed work
4	Fatigue even at rest

## Objective parameters

Serum Uric acid level and ESR (table 11 & 12).

**Table 11: Showing grading of Serum Uric Acid**

Serum Uric Acid	Lab Value (mg/dl)	Grade
Normal	0-6	0
Mild	6.1-7	1
Moderate	7.1-8	2
Severe	8 & Above	3

**Table 12: Showing grading of ESR**

ESR	Lab Value (mm/h)	Grade
Normal	Upto 7	0
Mild	7-10	1
Moderate	10-15	2
Severe	Above 15	3

## Criteria for overall assessment

Overall results were established in terms of percentage relief obtained in criteria of assessment.

Complete Remission	100% relief in signs & symptoms
Marked improvement	75 - 99% improvement
Moderate improvement	50 to 74% improvement
Mild improvement	25 - 49% improvement
No improvement	0 - 24% improvement
Worsened problem	Aggravation of signs and symptoms

## Results and discussion

The effect of trial drug in 40 patients for duration of 60 days, various assessment criteria were obtained after statistical analysis of the data and is presented in tabular form as below

**Table 13: Effect of Therapy on Clinical Features of Gout in Group A**

S.No	Symptoms	N	Mean Score		% Relief	SD	T Value	SE	P Value	Sig.
			BT	AT						
1	Localized Joint Pain	18	2.85	1.15	59.64	0.865	8.794	0.193	<0.001	HS
2	Swelling of Joint	15	2.15	0.95	55.81	0.834	6.439	0.186	<0.001	HS
3	Erythema	11	1.10	0.40	63.64	0.733	4.273	0.164	<0.001	HS
4	Discoloration	7	0.45	0.05	88.88	0.598	2.990	0.134	0.008	S
5	Burning Sensation	12	1.35	0.60	55.56	0.716	4.682	0.160	<0.001	HS
6	Stiffness	16	1.90	0.80	57.89	0.788	6.242	0.176	<0.001	HS
7	Tenderness	14	1.70	0.60	64.70	0.852	5.772	0.191	<0.001	HS
8	Fatigue	15	2.10	0.80	61.90	0.865	6.725	0.193	<0.001	HS

**Table 14: Effect of Therapy on Lab Parmeters of Gout in Group A**

S. No.	Symptom	N	Mean Score		% Relief	SD	SE	P value	Significance
			BT	AT					
1	S. Uric Acid	20	2.75	2.05	25.45	0.470	0.105	<0.001	HS
2	ESR	20	2.5	1.95	22	0.510	0.114	<0.001	HS

**Table 15: effect of Therapy on Clinical features of gout in Group B**

S. No.	Symptom	N	Mean Score		% Relief	SD±	SE±	T value	p value	Sig
			BT	AT						
1	Localized joint pain	15	2.40	0.650	72.92	1.118	0.250	7.000	<0.001	HS
2	Swelling of joint	17	2.650	0.850	67.92	0.587	0.200	9.000	<0.001	HS
3	Erythema	12	1.15	0.50	56.52	0.587	0.131	4.951	<0.001	S
4	Discoloration	5	0.350	0.200	42.85	0.366	0.082	1.831	0.083	NS
5	Burning sensation	10	1.300	0.450	65.38	0.933	0.209	4.073	<0.001	HS
6	Stiffness	17	2.150	0.850	60.465	0.865	0.193	6.725	<0.001	HS
7	Tenderness	12	1.50	0.50	66.66	0.918	0.205	4.873	<0.001	HS
8	Fatigue	11	1.70	0.65	61.76	1.146	0.256	4.098	<0.001	HS

**Table 16: Effect of Therapy on Lab parameters of Gout in Group B**

S. No.	Parameter	n	Mean Score		% Relief	SD±	SE±	P value	Significance
			BT	AT					
1	S. Uric Acid	20	2.55	0.85	66.66	0.470	0.105	<0.001	HS
2	ESR	20	2.75	1.55	43.63	0.696	0.156	<0.001	HS

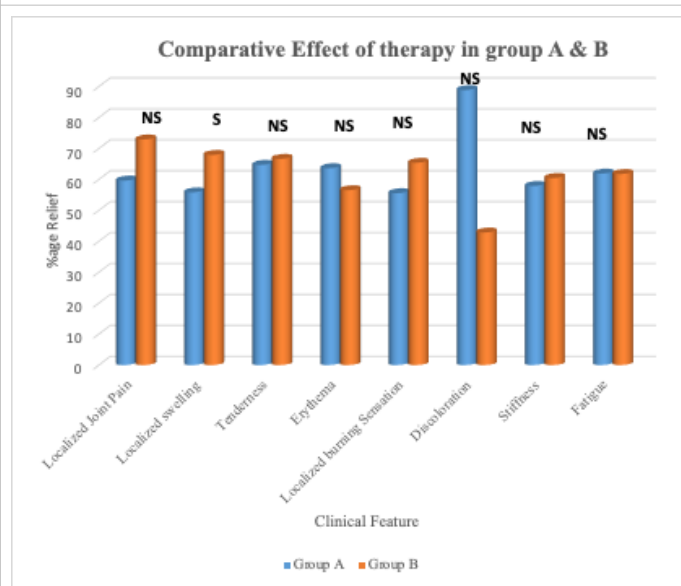
**Table 17: Comparative effect on clinical features in Group A and B**

S. No	Symptom	% Relief		SD±	SE±	T value	p value	Significance
		A	B					
1	Localized joint pain	59.64	72.92	1.118	0.250	-0.158	0.875	NS
2	Swelling of joint	55.81	67.92	0.894	0.200	-0.600	0.03	S
3	Erythema	63.64	56.52	0.587	0.131	0.238	0.813	NS
4	Discoloration	88.88	42.85	0.366	0.082	1.594	0.119	NS
5	Burning sensation	55.56	65.38	0.933	0.209	-0.380	0.706	NS
6	Stiffness	57.89	60.46	0.865	0.193	-0.765	0.449	NS
7	Tenderness	64.70	66.66	0.918	0.205	0.357	0.723	NS
8	Fatigue	61.90	61.76	1.146	0.256	0.779	0.441	NS

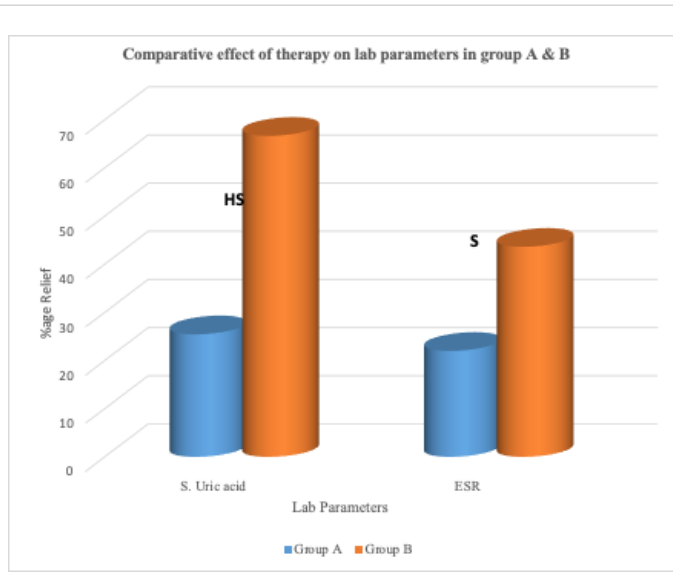
**Table 17: Comparative effect on Lab parameters in Group A and B**

Sr. No.	Parameter	% Relief		SD	SE	p value	Significance
		A	B				
1	S. Uric acid	25.454	66.666	0.470	0.105	<0.001	HS
2	ESR	22.000	43.636	0.696	0.156	0.002	S

**Fig. 1: Comparative effect on clinical features in Group A and B**



**Fig 2: Comparative effect on clinical features in Group A and B**



**Comparison of Overall Effect of Both Groups**

It is observed from the comparative study that no patient got complete remission or marked improvement in both the groups whereas number of patients improved moderately was 11 and 19 in group A & B respectively. 09 patient in group A and 01 patients in group B got mild improvement in sign & symptoms. No patient had zero improvement or worsening of disease in any group (Table no. 19).

**Table 19: Comparison of overall effect of both the groups**

Overall assessment	No. of patients in group A	No. of patients in group B
Complete remission	0	0
Marked improvement	0	0
Moderate improvement	11	19
Mild improvement	9	1
No improvement	0	0
Deteriorated	0	0

**Probable mode of action**

Action of drug is based on 5 mechanism of actions or attributes; namely *rasa*, *guna*, *virya* and *vipaka* along with certain specific properties called *prabhava*. The drugs jointly act as an antagonist to the morbid *dosha* and *dushya* and cause ‘*Samprapti Vighatana*’.

In the trial drug *guggulu* is associated with 8 other drugs- *Gokshura*, *Musta*, *Haritaki*, *Amalaki*, *Bibhitaki*, *Pippali*, *Marich* and *Shunthi* as the main ingredients. The probable effect of all the constituent drugs of *gokshuradi guggulu* can be explained as further.

**Table 20: Showing Rasa, Guna, Virya, Vipaka and Prabhava of drugs**

S.N.	Drug	Rasa	Guna	Vipaka	Virya	Doshghanata
1	Gokshura	Madhura	Guru, Snigdha	Madura	Sheeta	Vatapittashamaka
2	Shudha Guggulu	Katu, Tikita, Kashya	Laghu, Ruksha, Sara, Vishad, Sukshma, Tikshna, Sara,	Katu	Ushna	Vatashamaka
3	Musta	Katu, Tikita, Kashya	Laghu, Ruksha	Katu	Sheeta	Pitta Kaphahara
4	Amalaki	Madhura, Amla, Katu, Tikita, Kashya	Laghu, Ruksha	Madhura	Sheeta	Tridoshashamaka (Pitta shamaka)
5	Bibhitaki	Kashya	Laghu, Ruksha	Madhura	Ushna	Tridoshashamaka (Kaphapittashamk)
6	Haritaki	Madhura, Amla, Katu, Tikita, Kashya	Laghu, Ruksha	Madhura	Ushna	Tridoshashamaka (Vatashamaka)
7	Pippali	Katu, Tikita, Madhura	Laghu, Snigdha	Madhura	Anushan-sheeta	Kaphavatashamak

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8	Shunthi	Katu	Laghu, Snigdha	Madhura	Ushna	Vatakaphashamaka
9	Marich	Katu, Tikita	Laghu, Ruksha, Tikshna	Katu	Ushna	Vatakaphashamaka
10	Guduchi	Tikita, Kashaya	Laghu	Madhura	Ushna	Tridoshaghana

**Rasa**

Due to predominance of *tikta, kashaya rasa*, it pacifies *pitta dosha*. *Tikta rasa* is said to have *deepana karma* by which it corrects *mandagni* and *pachana karma* which helps in *amapachana*. Both *kashaya* as well as *tikta rasa* also reduces the *kled guna* of *rakta, kapha* and *ama*. It has also *lekhana* and *shoshana guna* which clears the *srotas* and *sira marga, avrita* with *sama rakta*.

**Guna**

*Laghu guna* of most of the constituent drugs like *trikatu* has *srotoshodhaka, agnideepak* properties. Other than this, being *ruksha guna pradhan*, it helps in absorption of *mala* and *ama*.

**Virya**

As most of the drugs in trial drug have *ushna virya*, it has *vatakaphahara* property and said to be *deepana* and *pachana*. It also helps in *vilayan* of *doshas* which is necessary step in bringing *shakhagata dosha* towards *koshtha*.

**Vipaka**

*Madhura vipaka* is predominant in the drug which has *snigdha* and *vatapittashamaka* properties and helps in easy passage of urine and stool.

**On the basis of dosha Karma**

In general, the formulation has *tridosha shamak* as well as *raktashodhaka* properties. Most of the drugs selected have their *rasayana guna*. *Rasayana* is said to be '*vyadhi vidhwansi*' (which means effective in curing the disease). It helps in maintaining homeostasis between all *doshas* and *dhatu*s by its action through *rasa, guna, virya* and *vipaka*.

**Pharmacological actions of drugs**
**Deepana karma**

Most of the drugs i.e. *guduchi, amalaki, haritaki, mustak, pippali, marich*, and *shunthi* exhibit *deepana guna* due to *pradhanata* of *vayu* and *agni mahabhoota*. As *agnimandya* is one of the factors in causation of disease, it corrects abnormality in *jatharagni* as well as *dhatvagni*.

**Pachana karma**

The formulation contains drugs having *pachana guna* like *guduchi, haritaki, mustak* and *trikatu*. *Pachana dravyas* are *agni* and *vayu pradhan*, enhance *jaran shakti* and helps in *ama pachana*. As *sama rakta* cause *sthan sanshraya* in *asthivaha srotas* by obstructing the normal pathway of *vata, pachana dravyas* help in clearing that obstruction caused by *ama*.

**Vedanasthapana**

*Guggulu, guduchi, haritaki, vibhitak, gokshur pippali, marich* and *shunthi*, all these drugs are said to

have *vedanasthapak* (analgesic) action. One function of *vata* is '*Pravartak cheshtanam uchchavachanam*'. So, when there is *vata prakopa*, this perception of senses aggravates and manifests in the form of *vedana*. Most of these drugs are *ushna virya* due to which they pacify *vata dosha* and *vedana* as well.

**Vishyandan and srotoshodhan**

Means liquification of deeply embedded *dosha* for their easy flow.

According to acharya Chakrapani, *vishyandan* and *vilayan* both are synonyms. A drug should have *ushna, tikshna guna* for *vilayan karma*. Among all 9 drugs present in formulation, 6 drugs are known to be *ushna virya* and 3 drugs (*Guggul, Marich, Shunthi*) are *tikshna* in nature, due to which they help in dissolving *doshas* as well as *ama*. *Tikshna dravya* has also the property of *lekhan karma* which leads to *srotoshodhan* at the level of microchannels.

**Shothahara and doshapkarshana**

The drugs, by above mentioned karma help in moving *doshas* from *shakha* to *koshtha*. These *doshas* when expelled into *koshtha*, are excreted out of body by different means of urine, stool etc.

Besides all these, some of these drugs have *Shothahara, vatanuloman, rasayana* and *balya* properties which help in relieving the symptoms of *vatarakta*.

**Pharmaco-dynamical aspects of Gokshuradi Guggulu in Modern parlance**

The management of hyperuricemia goes through two ways:

1. Management of Symptoms
2. Breaking down the Pathology- this comprises of two set of medications:
  - a. Inhibition of Xanthine Oxidase- Xanthine Oxidase inhibitors decrease the production of Uric Acid by interfering with Xanthine Oxidase enzyme.
  - b. Excretion of Uric acid through Uricosuric- Uricosuric increase the excretion of uric acid by reducing its re-absorption once the kidneys have filtered it out of the blood.

An important content of *Gokshuradi Guggulu* is *Guggulu* which possesses the properties of anti-inflammatory (10,11), antioxidant (12,13), Uricosuric (14), anti-rheumatoid (15) helps in breaking the pathophysiology of Gout.

*Gokshur* showed better anti-inflammatory results and analgesic action. According to a clinical study, significant analgesic effect of methanolic extract of *gokshur* was observed (16).

*Triphala* works as a Xanthine Oxidase inhibitor (17) like Allopurinol which suppresses the production of Uric Acid. Its content *Haritaki* has antioxidant (18,19) and adaptogenic (20) properties which help in

the recovery and healing of deformed tissue. *Bibhitaki*, another content of *Triphala* has nephro-protective (21) function which retards the Urolithiasis and dissolves already formed stones in kidney while *Amalaki* has anti-inflammatory, analgesic, antipyretic (22) and antioxidant (23) properties which help reducing the local and systemic inflammatory effects of Gout.

*Maricha* has Antioxidant (24), immunomodulatory (25) property subsides the hyperactive immune responses precipitated due to Uric Acid. Vasodilatory property (26) increases the blood circulation to the affected joint and enhances the process of phagocytosis of antigen-antibody complexes responsible for hypersensitivity which gave rise to inflammation.

Piperine found in *pippali* and *marich* significantly inhibited the production of two important pro inflammatory mediators, IL<sub>6</sub> and PGE<sub>2</sub>. The inhibition of PGE<sub>2</sub> production is important due to its central role in triggering pain. It has been seen that *P. longum* root has weak opioid but potent NSAID type of analgesic activity. As per Ayurveda *vedana* is chiefly manifestation of *vata dosh prakopa*. *Vata* due to its *sheeta guna* exhibits *vedana*. Most of the drugs in *gokshuradi guggulu* are *ushna virya* which inhibit the *sheeta guna* of *vata* thus giving relief of pain.

*Shunthi* is an inhibitor of both prostaglandin and leukotriene biosynthesis (27,28) and its beneficial effects could be, to a large extent, due to these inhibitory effects. It is a potent anti-inflammatory agent and the active principles include sesquiterpene lactones (29).

*Musta* rhizomes are considered as astringent, diaphoretic, diuretic, analgesic, antispasmodic (30), antiarthritis, antiinflammatory, antipyretic, analgesic, antidiabetic, antidiarrheal, cytoprotective, antimutagenic, antimicrobial, antioxidant and apoptotic (31).

In this way, *Gokshuradi Guggulu* has all the aspects of Pharmacotherapeutic effect required for the management of Hyperuricemia induced Gout like Anti-inflammatory, Antioxidant, Immuno-modulator, Xanthine Oxidase Inhibitor, Uricosuric and Diuretic effects.

The effect of *Guduchi kwatha* is due to anti-inflammatory (32,33) activity of *Amrita* which reduces the inflammation and gives symptomatic relief as well as its uricosuric action which excretes excess amounts of Uric Acid from the body (34).

Thus, *Gokshuradi Guggulu* with *Guduchi kwatha* which helped in reducing the symptoms and excreting the surplus amount of Uric Acid from the body. Hence, *Gokshuradi Guggulu* with *guduchi kwatha anupana* has shown comparatively better results over *Gokshuradi Guggulu* with lukewarm water *anupana*.

## Conclusion

Treatment modality *Gokshuradi Guggulu* with *Guduchi Kwatha* shows better efficacy in reliving subjective features as well as objective features than

*Gokshuradi Guggulu* with lukewarm water. The trial drug *gokshuradi guggulu* used for study in both groups is a good combination of *vedanasthapan*, *shothaghna*, *deepana* and *amapachak dravyas*. *guduchi*, *triphala*, *guggulu* and *trikatu* with their *tridosha shamak* mainly *vatanashak*, *rasayana*, *balya raktprasada* property helps in maintaining homeostasis in *dhatu*s as well as *doshas*.

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