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EDITORIAL

GLOBALISATION OF AYURVEDA- PAST, PRESENT AND FUTURE

Ayurveda is an ancient holistic science that inhabits all the aspects of human life with the aim to protect health and to alleviate the ailments. Ayurveda is gaining popularity all around the world despite of some strong concerns related to the scientific validation of Ayurvedic interventions in this era of evidence based medicine. 'Purush-Lok Samya Siddhanta is an important and a self revealing principle which signifies that human body is an epitome of universe and is constituted of all that is present in the universe. It is a self revealing principle which contains the very purpose of the creation of universe. For a long time, people remained fascinated by the modern medical science which follows a reductionist approach since its inception. But now the ever increasing incidences of diseases and mystifying disease patterns have compelled them to seek the principles and ventures of ancient sciences and natural remedies. From the past few years, the scenario towards Ayurveda is changed with its acceptance at large. Now people prefer to enquire about natural remedies for any type of major and minor ailment rather than seeking the management by modern science. Ayurveda is entering into a phase of globalization due to the increasing awareness and sensitization of the people towards natural remedies all over the globe. In globalization, development and challenges go hand in hand. For Ayurveda professionals it is a gateway to countless opportunities. Globalization of Ayurveda will lead to manifold increase in its capital in healthcare sector which will have a direct impact on the recognition, acceptance and accountability of this science. Additionally it will also distort the monopoly established by the modern science and result in increased employment generation capacity, increased outsourcing and many other valuable results. To achieve peak in globalization now the peers of this ancient science belonging to our country should join hands together to generate and set standards to develop an evidence based outlook of Ayurveda. Combination of technology along with scientifically valid principles will give a worldwide justifiable and acceptable existence to Ayurveda .

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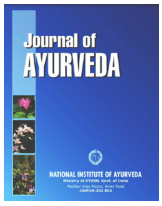

ORIGINAL RESEARCH ARTICLE - CLINICAL STUDY

A comparative clinical study on the efficacy of *agnikarma* and *eranda taila yoga* in the management of *gridhrasi*

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ABSTRACT

The art of healing of the ailments has been known from the time immemorial. Many indigenous ways and methods have been followed for the relief of suffering of mankind since Vedas. The method of Agnikarma is prevalent in our country since many centuries. Acharya Sushruta has preached, practiced and documented the details of Agnikarma which is followed by many renowned authorities till date. With advent of modern sophisticated surgical techniques the popularity of Agnikarma is declining. Most diseases of present day are due to altered life style. Gridhrasi is one such disease which is gaining prevalence in the present scenario. This condition is a Vātavyādhi which is included under the Mahāgadas1, which itself speaks of its devastating nature. The symptoms of Gridhrasi resemble with that of sciatic pain, which is radiating in nature along the course of the Sciatic nerve. Other clinical features also seem to be agreeing among these two conditions. Sciatica has a life time incidence rate of 13 – 40% and rare in ages below 20, at its peak in the 5th decade and reducing thereafter 2.

Various treatment modalities have been mentioned by Ācharyas for Gridhrasi. Among them Agnikarma has been mentioned as superior. Pain is the main symptom of Gridhrasi and Agnikarma helps in painful conditions. As a part of conservative management Eranda Taila Yoga available in Bharatha Bhaishajya rathnakara3 is taken for the trial in the form of internal medication (paana) and enema (basti).

Keywords : *Gridhrasi, Eranda Taila Yoga*, Sciatica

Introduction

Agnikarma is mainly indicated in Ruja pradhana, Vata and Kaphaja vyadhis. It is of 2 types viz Ruksha Agnikarma (performed with dry substances) and Snigdha Agnikarma (performed with oily/sticky substances). Pancha dhatu shalaka has been used on a regular basis for the purpose of Agnikarma irrespective of the structure involved or level of the pathology. But according to the classic, specificity of Dahanopakarana depends on the disease level concerned.

Most of the painful conditions are related to musculoskeletal system which comprises bones, joints, tendons, ligaments etc. The Dahnopakaranas mentioned for the diseases of these locations are Snigdha dravyas such as Kshaudra, Guda, Taila, Vasa, Madhuchista etc., as they have the deep heat penetration capacity with a greater latent heat period. Sushruta has described four types of Agnikarma on the basis of shapes which depend on different location of the body. These include Valaya, Bindu, Vilekha and Pratisarana1. Vagbhata adds three more types viz, Ardhachandra, Svastika and Ashtapada.

The word 'Gridhrasi' itself suggests the gait of the patient which is similar to Gridhra (vulture) due to pain. All the Ayurvedic classics including those written in medieval period have described the aetiopathogenesis and symptomatology of Gridhrasi in concise form. Gridhrasi is considered as Shoola Pradhana Vatavyadhi. The cardinal sign and symptoms of Gridhrasi are Ruka (Pain), Toda (Pricking sensation), Stambha (Stiffness) and Muhurspandana (Involuntary Movements) in the Sphik, Kati, Uru, Janu, Jangha and Pada in order and Sakthishepan-nigraha i.e. restricted lifting of the legs.The symptoms seen in Gridhrasi can be well correlated with "Sciatica" in modern parlance.

Surprisingly, the description narrated in these classics exactly coincides to the description of 'Sciatica' including the important diagnostic test SLR (Straight Leg Raising) which is described as 'Sakthinkshepanigraha' by Acharyas. Sciatica is a very painful condition in which pain begins in lumbar region and radiates along the postero-lateral aspect of thigh and leg. Hence, movement of the affected leg is restricted and patient is not able to walk properly. Indeed, patients at high risk for becoming disabled often receive more diagnostic tests less focus in medical management leading to chronic condition. It must be highlighted that there is a continued increase in disability and health care consumption related to chronic pain. The huge impact on the health care and social support systems of the inordinate amount of medical care expended on chronic pain is an important public health issue. Therefore, in addition to the suffering of individual patients enormous medical and social resources are expended, and pain is costly in terms of compensation and loss of work. Various treatment modalities have been mentioned by Ācharyas for Gridhrasi. Among them Agnikarma has been mentioned as superior. Pain is the main symptom of Gridhrasi and Agnikarma helps in painful conditions. Agnikarma using Pancadhātu śalāka has been found to give good effect in this condition.

Gṛidhrasi being a Snāyugata vikāra use of Tapta dravās are indicated for Agnikarma according to classics . Moreover Tapta dravās are considered to have more penetrating power than Rūkṣa instruments such as Śalāka. As a part of conservative management Eranda Taila Yoga described in Bharatha Bhaishajya Rathnakara was selected for the trial.

This Yoga is explained in the classical text especially for the disease Gridhrasi. The drug was used in the form of internal medication (paana) and enema (basti).

AIMS AND OBJECTIVES:

- ❖ To review and analyze available literature of Agnikarma explained in Ayurveda.
- ❖ To innovate an ideally suitable procedure for performing Agnikarma using Sneha.
- ❖ To compare the therapeutic effect of Agnikarma (using Sneha) and Eranda Taila Yoga (paana and basti) in Gridhrasi.
- ❖ To analyze the thermal behavior of Sneha to formulate mode of action of Agni karma.

METHODOLOGY:

CRITERIA FOR SELECTION OF PATIENT

The clinical trial was performed in patients selected from the Outpatient department Patients attending OPD and IPD of Post Graduate Department of ShalyaTantra, National Institute of Ayurveda, Madhava Vilas Hospital, Jaipur were selected for trial. During the course of selection;

a) A separate case proforma according to the protocol were used for documentation

b) Informed written consent from each patient was taken before including in the trial

Inclusion criteria:

- Patients with classical symptoms of Gridhrasi (sphik/kati/prishta/uru/ jangha/ paada shoola, stambha,supti) and diagnosed cases of Gridrasi were included.
- Patients of age limit between 20 - 60 years, irrespective of sex and socio-economic status.
- Positive SLR and Lasegues sign.

Exclusion criteria:

- Patients with systemic diseases like Diabetes mellitus, Tuberculosis,
- Traumatic lesion in lumbo-sacral region
- Infective, Neoplastic conditions of spine
- Hip joint arthritis
- Pelvic pathology
- Pregnancy

Investigations:

- Blood routine
- X-ray lumbo-sacral spine AP and Lateral view
- MRI if necessary

STUDY DESIGN:

The present clinical study comprised of 120 patients. They were divided into three groups as Group-A, Group-B & Group- C

Group A: Agnikarma was done using Sneha

Group B: Eranda Taila Yoga given orally (paana) & enema (basti)

Group C: Agnikarma was done using PancaLoha śalāka.

Observational period:

The total duration of the study was 2 weeks with periodical observations done once in a week.

Follow up period:

2weeks after the completion of treatment

Assessment criteria:

Effect of therapies were evaluated by using parameters as stated below56 with standard grading.
Procedure of Agnikarma
The procedure of Agnikarma consisted of;

Poorva Karma

Pradhaana Karma

Paschaath Karma

Poorva Karma

- ❖ Informed consent of the patient was taken.
- ❖ The patient was put on liquid diet before Agnikarma.
- ❖ For Group A sterile Sponge holding forceps, Cotton pieces, Drape, Sneha dravya , Steel dish, Borosil glass pipette, Yasti Madhu choorna, Ghrita Kumari were kept ready.
- ❖ For Group C sterile Sponge holding forceps, Cotton pieces, Drape, Panca Loha shalaka, Steel dish, Yashtimadhu choorna or Ghrita Kumari were kept ready.
- ❖ The area of Agnikarma was cleaned with antiseptic solution and draped.
- ❖ The area of maximum tenderness or pain on the spine was palpated and determined.

Pradhāna Karma

For Group A, a small amount of Eranda Taila Yoga was taken in a sterile dish, Kept over water bath and heated
For Group C the Shalaka was heated directly over the heat source until red hot.

- ❖ The patient was put in prone position \
- ❖ Agnikarma was done over the spine, covering the area of maximum tenderness
- ❖ Bindu Dahana Vishesha was adopted
- ❖ Hot oil was used in Group A. The Hot Eranda taila yoga was sucked using a Borosil glass pippette, poured on the pre – determined site and wiped off after a 1 minute. The consistency of Eranda taila yoga was helpful in adopting this procedure
- ❖ **Method adopted in Clinical Practice:**

Dattura leaves are cut into pieces, fried in a pan. This Mixture is taken in Dattura leaf and wrapped. This bolus is used for Agnikarma. A coin is used to support the bolus and prevent from direct heat contact. It is more acceptable for the patient as it doesn't cause any cosmetic disturbance. This procedure is practically fruitful in Tila taila based oil preparations and principle of indirect heat method is followed.

For group C Heated Pancha Loha Shalaka was used. At

least ½ cm gaping was maintained between the Dagdha Stāna.

Paschat karma

Yastimadhu choorna or Ghrita kumari was applied immediately after Agnikarma.

Administration of Eranda Yoga:

Eranda Taila Yoga Paana - 5ml at bedtime with warm water for 7days

Eranda Taila Yoga Matra Basti 30ml after following dietary regimens for 7 days.

Procedure:

Patient was made to lie in left Lateral position, anal orifice was lubricated. A red rubber catheter was inserted slowly into the anal orifice; Luke warm Eranda taila yoga 30ml was pushed. Mild patting was done over the Gluteal region. Patient is made to lie in Supine position for 10min.

SUBJECTIVE CRITERIA

1. Pain: Pain visual analogue scale

0	1	2	3	4	5	6	7	8	9	10
No pain	Mild pain		Discomforting		Distressing		Horrible		Excruciating	

2. Stiffness:

No stiffness -0

Mild stiffness -1

Moderate stiffness -2

Severe stiffness -3

OBJECTIVE CRITERIA

3.Tenderness:

No tenderness - 0

Patient says joint is tender - 1

Patient winces - 2

Patient winces and withdraws the effected part - 3

Patient will not allow the joint to be touched - 4

4. SLR test:

900 – 760 - 0

750 – 610 - 1

600 – 460 - 2

450 – 310 - 3

Below – 300 - 4

5. Lassegues sign:

Positive - 1

Negative - 0

6. Deep tendon Reflexes:

Ankle jerk:

Absent -0

Normal - 1

Diminished - 2

Exaggerated - 3

Knee jerk:

Absent -0

Normal - 1

Diminished - 2

Exaggerated - 3

7. Sensory impairment:

Present - 1

Absent - 0

8. Muscle wasting

Present - 1

Absent - 0

9. Gait

Normal - 0

Impaired - 1

Assessment of the total effect of the therapy: Assessment of the total effect of therapy was made by analyzing the data with suitable statistical tests of significance. Paired T Test and Analysis of Variance (ANNOVA TEST)

OBSERVATIONS:

Table No I: Showing the distribution of patients according to Symptomatology

Symptomatology No %			Group A		Group B		Group C		Total	
			No	%	No	%	No	%		
Pain			40	100	40	100	40	100	120	100
Stiffness			35	87.5	32	80	30	75	97	80.8
Tenderness			40	100	40	100	40	100	120	100
SLR test			40	100	40	100	40	100	120	100
Lassegue's Sign			40	100	40	100	40	100	120	100
Sensory Impairment			35	87.5	32	80	30	75	97	80.8
Deep Tendon Reflex	K/J	D	29	72.5	27	67.5	27	67.5	83	69.2
		A	2	5	2	5	3	7.5	7	5.8
	A/J	D	6	15	5	12.5	3	7.5	14	11.7
		A	0	0	1	2.5	2	5	3	2.5
Muscle wasting			2	5	3	7.5	5	20	10	8.3
Gait			35	87.5	32	80	30	75	97	80.8

RESULTS

Table No II: Showing the results of group A

Sl.	Parameter		Mean of difference	SD	SE	't' value	'P' value
1.	Pain		4.35	1.98	0.31	13.886	0.028
2.	Stiffness		0.75	0.58	0.09	8.06	<0.001
3.	Tenderness		1.20	0.51	0.08	14.69	<0.001
4.	SLR test		1.35	0425	0.09	14.73	<0.001
5.	Lasegues sign		0.42	0.50	0.07	5.36	<0.001
6.	Sensory impairment		0.05	0.22	0.03	1.43	>0.05
7.	Deep tendon reflex	Knee jerk	0.6	0.49	0.07	7.649	<0.001
		Ankle jerk	0.3	0.49	0.07	4.08	<0.001
8.	Muscle wasting						
9.	Gait		0.6	0.49	0.07	7.649	<0.001

Table No.III: Showing the results of group B

Sl.	Parameter		Mean of difference	SD	SE	't' value	'P' value
1.	Pain		3.52	1.46	0.23	15.193	0.028
2.	Stiffness		0.57	0.63	0.1	5.718	<0.001
3.	Tenderness		1.07	0.61	0.09	11.04	<0.001
4.	SLR test		1.02	0.61	0.09	11.04	<0.001
5.	Lasegues sign		0.42	0.50	0.07	5.36	<0.001
6.	Sensory impairment		0.04	0.49	0.07	5.09	<0.001
7.	Deep tendon reflex	Knee jerk	0.8	0.54	0.08	9.49	<0.001
		Ankle jerk	0.2	0.46	0.07	2.72	<0.01
8.	Muscle wasting		0.05	0.22	0.03	1.43	>0.05
9.	Gait		0.37	0.49	0.07	4.83	>0.05

Table No. IV: Showing the results of group C

Sl.	Parameter		Mean of difference	SD	SE	't' value	'P' value
1.	Pain		3.87	1.5	0.2	15.9	0.0018
2.	Stiffness		0.5	0.67	0.10	0.53	<0.001
3.	Tenderness		1.15	0.53	0.08	13.6	<0.001
4.	SLR test		1.25	0.58	0.09	13.43	<0.001
5.	Lasegues sign		0.55	0.5	0.07	6.90	<0.001
6.	Sensory impairment		0.52	0.50	0.07	6.565	<0.001
7.	Deep tendon reflex	Knee jerk	0.7	0.5	0.08	8.275	<0.001
		Ankle jerk	0.1	0.30	0.04	2.08	>0.05
8.	Muscle wasting		0.05	0.2	0.03	1.43	>0.05
9.	Gait		0.47	0.50	0.07	5.94	<0.001

DISCUSSION:

The result of the Group A, group B, Group C showed

- Analysis of variance within the groups and between the groups was highly significant in Pain and Sensory impairment.
- The relief in pain indicates reduced nerve irritation and hence there is positive response in relieving sensory impairment in concerned dermatomes.
- Analysis of Variance Within the groups was significant in Stiffness, Tenderness, SLR, Lassegues sign and Gait.
- Analysis of Variance was insignificant within and between the groups in Deep tendon reflexes and Muscle wasting.
- The trial revealed that the treatment modalities incorporated were successful in relieving pain and sensory impairment which troubles the individuals suffering from Gridhrasi.

❖ The maximum relief in Pain has in turn showed result in reducing the symptoms such as stiffness, tenderness, Change in SLR degree, Lasegues sign. The relief of all these symptoms clinically has shown Gait improvement in maximum patients.

CONCLUSION:

- The present study entitled "A comparative clinical study on the efficacy of Agnikarma (using Sneha) and Eranda Taila Yoga (Paana and basti) in the management of Gridhrasi "showed a promising result to the patients.
- Agnikarma using sneha can be used as an alternative method to Agnikarma using Panchaloha shalaka as it produces minimum discomfort to patients.
- The non palatability of Eranda taila yoga can be better modified with preparing Gelatinous capsules and made comfortable for oral intake.
- Matra basti using Eranda yoga can be a treatment of choice as a shamana sneha.In ancient claasics eranda taila proves its efficacy in palliating the symptoms of Gridhrasi.

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सारांश:

वैदिक काल से मनुष्यों की वेदनाओं के निवारण का प्रयत्न किया जाता रहा है । 'अग्निकर्म' का प्रयोग कई शताब्दियों से प्रचलित है । आचार्य सुश्रुत ने 'अग्निकर्म' का प्रयोग किया और उसे सूत्रबद्ध किया है, जिसका आधुनिक काल तक अनेक विद्वानों द्वारा इसका अनुलोमन किया जा रहा है। आधुनिक काल में विभिन्न शल्य के साधनों के प्रचलन से 'अग्निकर्म' की प्रचलिता कम होती जा रही है। आधुनिक काल की अनेक व्याधियां जीवन शैली में परिवर्तन के कारण उत्पन्न हो रही है। 'गृध्रसी' नामक व्याधि इन्ही कारणों से उत्पन्न होने वाले व्याधियों में एक व्याधि है। 'गृध्रसी' एक प्रकार की वातव्याधि है जोकि 'महागद' में एक है। 'गृध्रसी' रोग के लक्षण आधुनिक चिकित्सा शास्त्र के 'सियाटिका' नामक व्याधि से साम्य रखती है। इस रोग के घटित होने की दर 13–40: है। 20 वर्ष से कम आयु में यह व्याधि नहीं पायी जाती है। जीवन के पांचवें दशक में इसकी बहुलता पायी जाती है। 'गृध्रसी' रोग के लिए अनेक प्रकार के चिकित्सा साधनों का वर्णन किया गया है, जिन्में 'अग्निकर्म' को सर्वश्रेष्ठ बताया गया है। 'भरतभैषज्यरत्नाकर'' में आभ्यान्तर प्रयोग व वस्ति के लिए 'एरण्ड तैल योग' का वर्णन किया गया है। अतः अग्निकर्म व 'एरण्ड तैल योग' को शोध कार्य के लिए चुना गया है।

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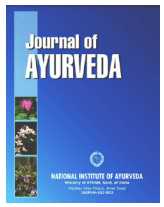

ORIGINAL RESEARCH ARTICLE - CLINICAL STUDY

Efficacy of *Varunadi kwath* in the management of *kaphaja ashmari* w.s.r. to vesical phosphate calculus, a clinical study

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ABSTRACT

One of the most common cause for stone formation is urine infection which leads to phosphate stone formation. When we see the symptoms and consistency of kaphaja ashmari mentioned in ayurvedic texts it may be correlated with the phosphate calculus in modern medical science.In ayurveda, kapha dosha in increased quantity has been accepted as the main reason for the formation of mutrashmari.In the present clinical study, 30 patients of kaphaja mutrashmari, was studied with Varunadi Kwath for 90 days and the effect of the drug on the signs and symptoms were studied. The trial compound has shown encouraging symptomatic relief in most of the clinical features with expulsion of stone. During the trial periods the treated group had shown no side effects of the drug compound.

Keywords : *kaphaja ashmari, phosphate calculus, urine infection, varunadi kwath*

Introduction

Ayurveda is the ancient Indian medical science Ayurveda combines physical, psychological and spiritual therapies as an approach to health Formation of stones in the urinary tract is a global phenomenon and is described in ancient ayurvedic scriptures as mutrashamari. It is said to be one of the eight most troublesome diseases (mahaorgas). The important factor i.e. the diagnostic part in case of a stone, the advice given by ancient acharyas seems to be true even at present who were of the idea that before going for the treatment sure shot diagnosis is important both for the physician and the patient. There are useful management and herbal treatments for urolithiasis that have been currently investigated extensively. Charaka has advised medical management and Sushruta advised both conservative and surgical removal of stone through perennial root lithotomy. Formation of mutrashmari, according to Sushruta, is due to srotovaigunya resulting from dushita kapha localized in basti, in conjunction with pradushita vata and pitta is responsible for the cause of ashmari. According to ayurved srotovaigunya resulting from dushit kapha localised in basti in conjunction with pradushit vata and pitta is responsible for the formation/ cause of ashmari. An alarming rise in the incidence of urolithiasis coupled with a motivation provided by W.H.O. to explore the possibility of discovering cure on traditional line has created an impetus for further research in the light of ayurvedic knowledge. One of the most common cause for stone formation is urine infection which leads to phosphate stone formation. When we see the symptoms and consistency of kaphaja ashmari mentioned in ayurvedic texts it may be correlated with the phosphate calculus in modern medical science.

Coming to the treatment portion many principles have been adopted to tame this problem. These are-

- ❖ Increased fluid intake to dilute the urine.
- ❖ Antimicrobial to eliminate the infection.
- ❖ Balanced diet to ensure adequate intake of vitamins.

Apart from it the main treatment for urinary calculi falls into following categories:-

- ★ Conservative treatment
- ★ Medical treatment
- ★ Non-operative
- ★ Operative

Looking into the gravity of the problem it has been decided to work on Varunadi Kwath, a preparation advocated by Chakradutt.

- **Aims and objectives:**

The present research work has been undertaken with the following aims and objectives-

- To study the disease kaphaja mutrashmari in terms of its aetiopathogenesis, clinical manifestations with possible correlation to the description available in ayurvedic as well as modern medicine for urinary stones.
- To assess the efficacy of Varunadi kwath in the management of kaphaja ashmari.
- To find out a safe, simple, effective and economical method of treating kaphaja ashmari.

❖ **Selection of the Drug**

Selection of the drug is made by following points-

- ✓ The preparation is described exclusively for mutrashmari.
- ✓ The ingredients used to make this drug are easily available.
- ✓ The drug is very much cost effective.
- ✓ Varunadi Kwatha and Yava Kshar are prepared in our N.I.A., Pharmacy by proper menour.

❖ **Drug administrations:**

Patients were treated with Varunadi Kwatha with dose of 40 ml twice a day for 90 days along with Yava Kshar and the observations were noted down regularly on follow ups. All the patients were instructed to follow their diet as advised. Further all the patients were instructed to take plenty of water.

❖ **Materials and methods**

The patients attending O.P.D. & I.P.D. of hospital N.I.A., Jaipur were selected for the present clinical study.

- ◈ All the patients in the present study were selected between the age group of 16 to 60 years.
- ◈ All the patients were chosen irrespective to their sex, religion, occupation etc.
- ◈ A special performa was prepared on the basis of signs and symptoms of mutrashmari described in ayurvedic and modern text.
- ◈ Diagnosis was made on the basis of special performa prepared in relation to signs and symptoms of kaphaja ashmari Routine and microscopic examination of urine, presence of RBC, Pus cells, epithelial cells, renal casts and crystals were carried out.
- ◈ Special investigations such as X-ray (KUB region) were taken for the confirmation of the diagnosis. Ultrasonography of KUB region was done in cases of radiolucent stone and to know the site and size of stone.

◈ **Inclusion Criteria:**

- Age between 16 to 60 years
- Increased frequency of micturition
- Burning micturition
- Haematuria
- Pyuria
- Fever
- Dysuria

◈ **Exclusion Criteria:**

- Age less than 16 years and more than 60 years
- Renal tuberculosis

- Diabetes Mellitus
- Hypertension
- Polycystic kidney
- Renal failure
- Pyelonephritis

◈ **Sampling Technique**

A total number of 30 Patients with signs and symptoms of kaphaj ashmari were registered from O.P.D. & I.P.D. of hospital of National Institute of Ayurveda, Jaipur. The patients were selected

★ **Dose:**

- Varunadi kwath-10 gm. Twice a day
- Yava kshar-500mg twice daily.

★ **Duration:**

- 3 months (90 days)

➢ **Criteria for Assessment:**

Assessment of the therapy was done according to scoring technique, observed in the relief of signs and symptoms and investigations of the disease kaphaja ashmari as various investigations are also there to make a diagnosis and the count the extent of relief.

➢ **Subjective Criteria**

The symptoms were noted before and after treatment. Assessment of the therapy was done according to the relief observed in the following symptoms with the help of scoring pattern i.e. pain burning micturition dysuria

➢ **Objective Criteria**

Various signs e.g. hematuria pyuria ph of urine wbc count of urinewere noted and investigations were done before and after treatment.

❖ **Plan of work :** The study was carried out as follows-

- **Performa**

A Special performa was prepared to maintain the records of all finding regarding the patients.

- **Investigations**

For the purpose of assessing the overall condition of the patients complete urine(routine and microscopic), plain X-ray (KUB region), USG (KUB region) were carried out before and after completing the due course of the treatment. The changes in the values and in signs and symptoms were recorded for the assessment of results.

The changes in the values and in signs and symptoms were recorded for the assessment of results relief.

All the patients who were studied under this clinical trial were instructed to have regular check up at the internal of 30 days for the period of 3 month (90 days). During this period patients were examined thoroughly for the signs and symptoms. Additionally, they were instructed about pathya and apathya.

❖ **Observation and result:**

In the clinical studies carried out in the present series, it was observed that maximum number of patients (76.66%) in the present study were in the age group of 16-35 yrs. Sex wise distribution of patients reveals that the highest number of patients were male i.e. 66.66% followed by female 33.33%. Analysis based on socio-economic status of the patients of present study, depicts incidence of kaphaj mutrashmari among lower middle 63.33% and poor 23.33% classes of society. Distribution of the patients according to diet, showed little higher incidence of mutrashmari (kaphaja type) in vegetarians i.e. 53.33% followed by non-vegetarians i.e. 46.66%. Maximum number of patients were possessing vata-kapha prakriti i.e. 46.66% followed by 30% kapha-pitta prakriti. 73.33% of the patients in the present study were having negative family history, where as 26.66% were having positive family history.

❖ **Clinical recovery:** The therapy (Varunadi kwath with Yava kshar orally) provided excellent relief in gomedaka prakasha (100%), sarudhiramutrata (100%), basti guruta(92.00%), mehana vedana (93.33%), mutradharasanga (91.89% nabhi vedana (95.83%), basti vedana (92.11%), vishirṇadhara(91.07%), ati avilamutrata (91.38%), , basti shitalata(87.18%), sevani vedana(87.50), pain

(82.46%), burning micturition (91.04%), haematuria (86.21%), dysuria (82.35%), pyuria (91.80%) and fever (88.88%). The relief was found statistically highly significant (P<0.001).

❖ **Effect of therapies on urine Analysis:**

In present study, complete urine analysis was carried out. Microscopic urine analysis revealed that 86.21%, 91.80% and 92.31% relief was observed in R.B.C., pus cells and W.B.C. respectively. The alkaline nature of urine changes to normal ph up to 90.28%. The treated group showed highly significant effect (P<0.001) in pus cells, R.B.C.,W.B.C. and urine Ph.

❖ **Effect of therapies on stones at different site and size:**

From the study, the patients treated with drug compound has shown good effect on uretero vesical junction stones, Both bladder and UV junction stone and bladder stones of 6mm-10mm in diameter and less effect on stones of 11mm-20mm in diameter.

Objective parameters: There was highly significant result in various clinical features like, basti vedana nabhi vedana sevani vedana mehan vedana mutradhara sanga sarudhira mutrata etc. as showed in table no 1& 2

Table no. I

Clinical Features	Mean		%	S.D.	S.E.	't'	P
	B.T.	A.T.					
Basti vedana	1.27	0.10	92.11	0.99	0.18	06.48	<0.001
Nabhi vedana	0.80	0.03	95.83	1.22	0.22	03.43	<0.001
Sevani vedana	0.53	0.07	87.50	0.97	0.18	02.63	<0.01
Mehan vedana	1.50	0.10	93.33	1.10	0.20	06.96	<0.001
Mutradhara sanga	1.23	0.10	91.89	0.97	0.18	06.38	<0.001
Sarudhira mutrata	0.60	0.00	100	0.93	0.17	03.53	<0.001
Gomeda prakasham	0.40	00	100	0.86	0.16	02.56	<0.01
Ati avilamutrata	1.93	0.17	91.38	0.97	0.18	09.96	<0.001
Basti guruta	1.67	0.13	92.00	0.86	0.16	09.76	<0.001
Basti shitalata	1.30	0.17	87.18	1.04	0.19	05.96	<0.001
Vishirnadhara	1.87	0.17	91.07	0.95	0.17	09.78	<0.001

Table no. II

Clinical Features	Mean		%	S.D.	S.E.	't'	P
	B.T.	A.T.					
Pain	1.90	.33	82.46	0.50	0.09	17.03	<0.001
Burning micturition	2.23	.20	91.04	0.56	0.10	20.03	<0.001
Haematuria	0.97	.13	86.21	1.32	0.24	03.47	<0.001
Dysuria	1.13	.20	82.35	0.87	0.16	05.89	<0.001
Pyuria	2.03	.17	91.80	0.57	0.10	17.89	<0.001

From the study, the patients treated with drug compound has shown good effect on uretero vesical junction stones, both bladder and UV junction stone and bladder stones of 6mm-10mm in diameter and less effect on stones of 11mm-18mm in diameter as mentioned in table no 3.

Table no. III

Size	Site	No.of patients	Effect
6-10 mm	Uretero vesical junction	2	Exp.2, DS.-0, DM.-0, NC-0
	Bladder	4	Exp.4, DS.-0, DM.-0, NC-0
	Both bladder and UV junction	3	Exp.3, DS.-0, DM.-0, NC-0
11-18 mm	Uretero vesical junction	3	Exp.1, DS.-2, DM.-1, NC-0
	Bladder	11	Exp.8, DS.-3, DM.-0, NC-0
	Both bladder and UV junction	7	Exp.2, DS.-5, DM.-3, NC-0

Microscopic urine analysis revealed that the alkaline nature of urine changes to normal ph up to 90.28% and 92.31% relief was observed in W.B.C. respectively which are showed in table no 4 & 5.

Table no. IV

Features	Mean		%	S.D.	S.E.	't'	P
	B.T.	A.T.					
Urine ph	2.40	.23	90.28	0.59	0.11	20.04	<0.001

Table no. V

Features	Mean		%	S.D.	S.E.	't'	P
	B.T.	A.T.					
W.B.C. in Urine	2.17	0.17	92.31	0.53	0.10	20.86	<0.001

Discussion:

Total 30 no of patients were registered for the study. The study showed that males were more predominant for stone formation than female. Occupational distribution of patients indicates that highest number of the patients i.e. 40% were self employed, As per observation the highest number of patients i.e. 40% were addicted to tea/coffee Distribution of the patients according to diet, showed little higher incidence of mutrashmari (kaphaja type) in vegetarians i.e. 53.33% followed by non-vegetarians i.e. 46.66%. Maximum number of patients were possessing vata-kapha prakriti i.e. 46.66% followed by 30% kapha-pitta prakriti. Kapha dosha can easily be provoked in kaphaja prakriti persons, so they are more prone to kaphaja diseases, among which mutrashmariAll the main signs and symptoms were given scoring as mentioned in the criteria for assessment in clinical study. The effects of therapies on signs and symptoms were assessed on the basis of these scorings.

The therapy (Varunadi kwath with Yava kshar orally) provided excellent relief in gomedaka prakasha (100%), sarudhiramutrata (100%), basti guruta(92.00%), mehana vedana (93.33%), mutradharasanga (91.89% nabhi vedana (95.83%), basti vedana (92.11%), vishirṇadhara(91.07%), ati avilamutrata (91.38%), , basti shitalata(87.18%), sevani vedana(87.50), pain (82.46%), burning micturition (91.04%), haematuria (86.21%), dysuria (82.35%), pyuria (91.80%) and fever (88.88%). Among clinical features, about Burning micturition the patients responded at first and relieved within two weeks. The relief was found statistically highly significant ($P<0.001$). prakupitta pitta and secondary infections were the causes for this sadahamutrata. This prakupita pitta has antagonised with pittahara properties like tikta and kshaya rasa and the infection was controlled by mutrala property of Gakshura of the drug compound. Nabhi vedana, basti vedana and haematuria have responded well. The drug compound showed good result on kaphaja vesical stone. Ph of urine came to normal from alkaline stage.

Probable mode of action of drug compound:

For the manifestation of the disease 'ashmari', the 'kaphadosha' is the main factor, which contribute the nucleus for the pathogenesis. It can be clarified that kapha is essential for ashmari formation, because kapha possess prithvi mahabhuta and also having the property of bandhana. It is also a known fact, that when the urine becomes stagnated in the urinary system for long time, it gets concentrated and infected. Thus there is more chance yielding for phosphate stone formation. For that, the main motto of the treatment must be kaphahara, lekhana and mutrala (diuretic).

The formulation taken for the study is indicated in 'ashmari roga' by the author of 'Chakradutta' by the name 'Varunadi kwath' The compound possess all the needful actions like kaphahara, lekhana and mutrala. The ingredients of the compound pacify kapha dosha by virtue of their ruksha guna, katu vipaka and ushna virya and also shows "lekhana" property due to ushna virya. The lekhana karma is again enhanced by famous lekhana dravya i.e. yavakshar, which is one ingredient in it.

All the ingredients in the drug Varunadi Kwath, are having a particular mode of action on dosa, dushya, agni and srotas. The properties of the ingredients like vedana sthapan, vatanulomana, shulaprashaman, daha prashmana, trishnahara, bhedana, shothahara, medohara, mutrala, mutra virecaniya, deepana, pachana act on the dosa(vata, pitta and kapha), dusya(rasa, mutra), srora(mutravaha srota) and agni. e.g.

The drug Varunadi kwath, are having a particular mode of action on dosa, dushya, agni and srotas as follows-

Vata - Vedana sthapan, vatanulomana, shulaprashaman

Pitta - Daha prashmana, trishnahara

Kapha - Bhedana, shothahara, medohara

Dushya (rasa mutra) - Mutrala, mutra virecaniya

Agnimandya - Deepana, pachana

Mutravaha srotodusti – Mutrala, mutra virecaniya

Thus The vatanulomana , shothahara and mutrala properties of ingredients helps to relieve pain and sthanika sotha. Jwara is also relieved due to the jwarahara action of Pasanbhed, Varun and Shunthi. Deepana property of drug helps to increase the agni, which further check the formation of ama at jatharagni level itself. Pachana property of ingredients helps in assimilations of drug in the body in case of jatharagnimandya. Due to the ashmari bhedana or ashmari hara property of ingredients present in the drugs, stone might be dissolved.

Remaining drugs of the compound act as mutrala (diuretic) by virtue of their 'sheeta virya' and madhur rasa. Gakshura, Varun, Yavakshra and Pasanbheda, these well known mutrala dravyas are again an ingredient in this formulation.

All the ingredients of the drug, by their bhedana, ashmarihara and kaphahara karmas along with mutrala karma, are helpful to reduce the size of the ashmari and expelled it out from the body.

The ingredient (Gokshura, Pashanabheda etc.) in good

proportion with Yavakshar, have cumulative effect as ashmai bhedana, mutrala and vrana ropana, and yavakshara with its lekhana, shodhana etc. properties may have reduced the size of the stone and Varunadi kwath made them easy to expelled out .

Thus in total this formulation has the capacity to disintegrate the pathogenesis of the disease 'ashmari' and due to its diuretic action it flushes out the disintegrated 'ashmari' by the process of diuresis.

Conclusion:

- From the study of ancient surgical treatise, it becomes evident that the urological problems form an important part of medical deliberations. The clear cut cause of the disease is still unknown. But in ayurveda, kapha dosha in increased quantity has been accepted as the main reason for the formation of mutrashmari.
- The concepts of mutrashmari, its classification, symptomatology, etiological factors pathology, complications and management have been dealt with both medico surgical producers.
- The study suggests that kaphaja ashmari can occur in both the sex at any age, but the age group of third and fourth decades of life is more likely to get mutrashmari.
- Through urine the stone forming dosha- vata, pitta and kapha comes in the system. The process of "anu pravesha" (diffusion layer wise) takes place in the stagnated urine. The dosha with cementing substances form urinary stone of that particular doshas. In ayurveda, kapha dosha in increased quantity has been accepted as the main reason for the formation of mutrashmari.
- The predominant dosha in ashmari is kapha. So, guru, sheeta, snigdha, madhura ahara, irregular food habits, days sleep etc. may increase kapha leading to formation of mutrashmari.
- There are more chances of mutrashmari formation in the persons having kaphaja-pittaja prakriti.
- Majority of stones were seen in the bladder followed by uretero-vesical junction.
- Patients having kaphaj type of ashmari were selected.
- Varunadi kwath was found to have highly significant effect on nabhi vedana, basti vedana, mutradharasang, significant effect on mehana vedana, gomedaka prakasha and sarudhiramutrata .
- Treated group was found to have highly significant effect on pain, burning micturition, haematuria, dysuria and pyuria.
- The drug compound has shown its role in decreasing pus cells, R.B.C, W.B.C and Ph of urine.
- The drug compound was found to be effective in stones of urinary bladder.
- The drug compound was found to be effective on kaphaj ashmari,
- The overall effect obtained shows the 66.66% of the patients recorded a complete cure, 13.33% were markedly improved and 20% were improved and the result is statistically highly significant.
- Observations obtained from the treated group had shown no side effects of the drug compound.

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सारांश:

मूत्र संक्रमण अश्मरी रोग की उत्पत्ति में एक महत्वपूर्ण कारण है जो उत्पन्न करने का भी एक कारक है। आयुर्वेद में वर्णित कफज अश्मरी के लक्षण के अनुसार इसको आधुनिक चिकित्सा विज्ञान में चीवेचींजम बंसबनसने के साथ तुलना कर सकते है।

आयुर्वेद में वर्धित कफ दोष को ही अश्मरी उत्पत्ति की प्रधान कारण माना गया है।

प्रस्तुत शोध कार्य में कफज मूत्राश्मरी के कूल 30 रोगीयो को वरूणादि क्वाथ से 90 दिन तक चिकित्सा की गई और औषधि के प्रभाव का अध्ययन किया गया। लक्षण और अश्मरी निष्काषन में योग का उत्साह जनक परिणाम प्राप्त हुआ।

प्रयोग अवधि के दौरान योग का कोई भी प्रतिकूल प्रभाव नहीं देखा गया।

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ORIGINAL RESEARCH ARTICLE - CLINICAL STUDY

Efficacy of *Shvitrari Yoga & Jyotishmati Tailam* on *Shvitra*

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ABSTRACT

From the ancient time human being is trying to build up a healthy society and in achieving this goal Ayurveda science has played a very important role. Now a day's due to western culture, it is very difficult to follow the schedules as described in Ritucharya, Dincharya of Ayurveda science and due to disturbed living style physical as well as mental diseases are increasing. Shvitra (Vitiligo) is mainly lifestyle related disorder is characterized as Hypo-pigmentation of the skin.

The collected data proved the role of Shvitrari Yoga & Jyotishmati Tailam in the treatment of Shvitra (Vitiligo). Shvitrari Yoga & Jyotishmati Tailam clears the dusti (anomaly) of Bhrajaka Pitta stimulating the formation Tyrosinase, thus increasing the Melanin formation and the coloration of skin. The study indicated that, Shvitrari Yoga and Jyotishmati Tailam were significantly useful in the management of Shvitra (Vitiligo). The result was inferred and concluded using T-test of significance.

Keywords : *Shvitra, Shvitrari Yoga & Jyotishmati Tailam*

Introduction

Ayurveda is an ancient health science which helps in the eradication of disease as well as maintaining health of healthy person .It forms a precious base of Indian culture. It is best among all the health sciences because of its basic Sidhantas e.g. Tridoshas, Panchmahabhootas, Dincharya, Ritucharya, Sadvrita etc.

Now a day's due to western culture, it is very difficult to follow the schedules as described in Ritucharya, Dincharya of Ayurveda science and due to disturbed living style physical as well as mental diseases are increasing. Shvitra is also a disease which does not renders any pain to patient but it makes the patient feel depressed by affecting his physical beauty and social ignorance.

Acharya Charaka has described Shvitra while describing 7 Mahakushta and 11 Kshudrakushta and clinical part of Shvitra is separately described as non infective and pain free disease.

Acharya Charaka has included Shvitra while describing the types of Shvitra, and stated it as a Tridoshaja disease. Shvitra develops when a person takes Viruddha Aahara and how this disease develops is described by Acharya Charaka is as follows-

In the day-today life style fast food habits and irregular living schedules are very common, as a result of which "Viruddha Aahara Janya disease" are increasing. Due to this reason a big population is suffering from diseases like Shvitra. Allopathy science seems to be helpless regarding diseases like Shvitra. So bringing the disturbed skin

coloration to its normal stage and cure this disease is the main aim of Scholar.

AIMS AND OBJECTIVES-

The following aims were decided to continue the following thesis –

- Literary review of Shvitra from physiological point of view.
- Clinical trial of Ayurvedic drugs for Shvitra and evaluation of the effectiveness.

Selection of drug-

For this research work Shvitrari Yoga (Ras Chinta Mani / Stak 2) and Jyotishmati Tailam (Yogratnakar, Kushtha Cha. Page 696) are selected according to Shashtras.

MANAGEMENT PROCEDURE-

The patients selected ware directed for the medication as well as Pathya-Apathya so that the patient may able to follow the Pathyas and avoid Apathyas. Selected patients were given medication as follows-

AFTER MEAL MORNING AND EVENING

SHVITRARI YOGA 375mg/1 x 2

ANUPAANA- 1. Madhu 2. Ghrita

FOR EXTERNAL APPLICATION-

JYOTISHMATI TAILAM (As per required)

Duration- 90 days

METHOD AND MATERIALS-

• Selection of patient-

For this research study, 30 patients were selected from OPD of Sharir Kriya department of National Institute of Ayurveda, Jaipur.

• Exclusion criteria of patients-

Exclusion criteria for the patients were as follows-

1. The patients having this disease since birth.
2. The patients having this disease more than 75% of total area.
3. The patient whose age is below 1 yr or above 60yr.
4. Pregnant or lactating women.
5. Very weak or patients suffering from mental disease.
6. Patient in which white patches are formed due to burning.
7. Patient suffering from any other diseases.
8. Patient suffering from Albinism.
9. Patient who is not able to follow Pathya –Apathya properly.
10. Patient who is suffering from disease from more than 15yrs.

- **Criteria of assessment-**

Above mentioned medicines were assessed on following basis-

1. Evaluation of symptoms- It was based on-

1. Sige(Diameter) of patches
2. Number of patches
3. Color of patches

2. Evaluation of result- Result is displayed on the basis of the statistical datas.

Discussion-

Patients were divided in the following manner and max. number of patients were as described below-

1. Diet- Vegetarian (76.66%)
2. Sharirika Prakriti- Pitta-Kaphaja (36.66%)
3. Manasika Prakriti- Vyamishra (56.66%)
4. Saara- Rakta Saara (30.00%)
5. Ahaara Shakti- Madhyama (66.66%)
6. Family history- No history (86.66%)
7. Duration of Diseasse- 0-1yrs (30.00%
8. Rule of Nine- 9% (30%)
9. Number of affected area- 6 - 1 0 , 1 1 - 1 5 , 3 1 - 3 5 (13.33%)

10. Max. size of white patches- 51-60mm (23.33%)

11. Man. size of patch 4mm (23.33%)

Analysis of Result-

Table no.I Coloration period on affected area wise patients distribution

Sr.no.	Coloration	No. of patients	Percentage
1	15 days	13	43.33
2	30 days	17	56.66
3	45 days	00	0.00
4	60 days	00	0.00
5	75 days	00	0.00
6	90 days	00	0.00
7	No effect	00	0.00
	Total	30	100.0

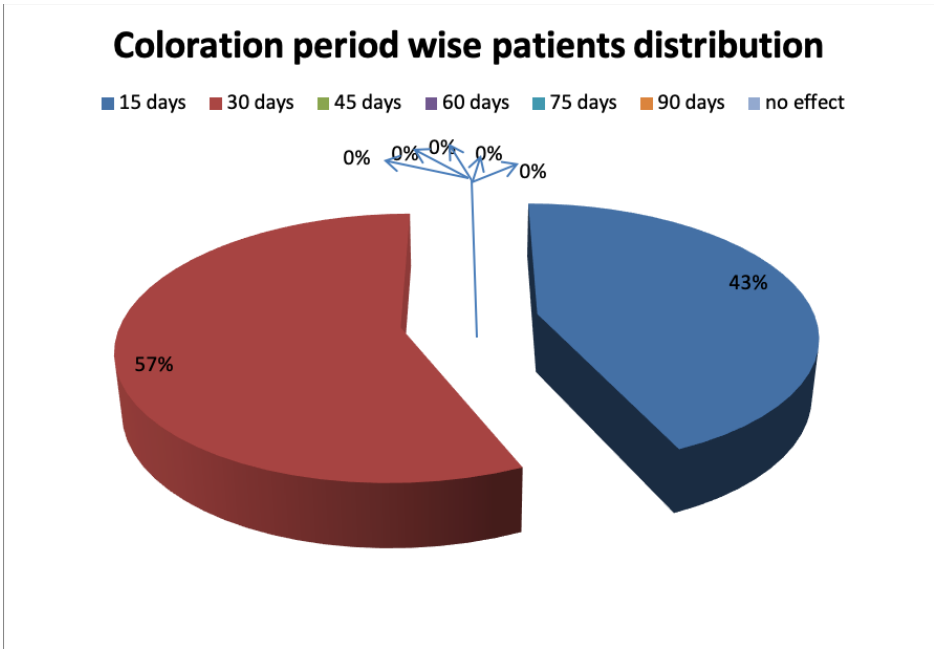


Table no.II Coloration on max. size of patches wise patients distribution

Sr.no.	OPD no.	B.T.	A.T.	Max. size of patches in mm.	
				Changes in mm.	
				Size	Percentage
1	9778	35	14	21	60.00
2	9802	20	10	10	50.00
3	9816	40	25	15	37.50
4	9820	56	20	36	64.28
5	9856	60	20	40	66.66
6	10127	107	35	72	67.28
7	10616	78	20	58	74.35
8	11111	45	30	15	33.33
9	11640	88	34	54	61.36
10	12239	35	10	25	71.42
11	12308	45	20	25	55.55
12	12318	90	20	70	77.77
13	12359	80	24	56	70.00
14	12379	70	50	20	28.57
15	13695	20	5	15	75.00
16	16873	30	15	15	50.00
17	17146	55	25	30	54.54
18	17147	90	50	40	44.44
19	17148	60	30	30	50.00
20	17272	57	26	31	54.38
21	18330	80	20	60	75.00
22	18486	95	60	35	36.84
23	18642	78	35	43	55.12
24	19863	95	40	55	57.89
25	23040	35	15	20	57.14
26	24127	55	15	40	72.72
27	33652	67	25	42	62.68
28	35727	58	25	33	56.89
29	41565	23	10	13	56.52
30	41566	67	25	42	62.68

Table no.III Coloration on min. size of patches wise patients distribution

Sr.no.	OPD no.	B.T.	A.T.	Min. size of patches in mm.	
				Changes in mm.	
				Size	Percentage
1	9778	2	0	2	100.00
2	9802	3	1	2	66.66
3	9816	6	2	4	66.66
4	9820	5	3	2	40.00
5	9856	4	1	3	75.00
6	10127	7	3	4	57.14
7	10616	5	2	3	60.00
8	11111	4	2	2	50.00
9	11640	6	3	3	50.00
10	12239	7	3	4	57.14
11	12308	2	0	2	100.00
12	12318	4	2	2	50.00
13	12359	6	2	4	66.66
14	12379	5	3	2	40.00
15	13695	7	3	4	57.14
16	16873	8	3	5	62.50
17	17146	5	2	3	60.00
18	17147	4	2	2	50.00
19	17148	3	2	1	33.33
20	17272	6	3	3	50.00
21	18330	7	3	4	57.14
22	18486	4	2	2	50.00
23	18642	3	1	2	66.66
24	19863	3	2	1	33.33
25	23040	4	1	3	75.00
26	24127	6	3	3	50.00
27	33652	7	3	4	57.14
28	35727	4	2	2	50.00
29	41565	5	2	3	60.00
30	41566	5	3	2	40.00

Table no. III Number of Coloration of patches wise patients distribution

Sr.no.	OPD no.	No.of patches BT	AT						Changes in no.	
			15 days	30 days	45 days	60 days	75 days	90 days	No.	Percentage
1	9778	12	12	10	9	8	6	6	6	50.00
2	9802	8	8	8	6	5	4	3	5	62.50
3	9816	4	4	3	3	3	2	2	2	50.00
4	9820	6	6	5	5	4	4	3	3	50.00
5	9856	5	5	4	3	3	3	2	3	60.00
6	10127	37	37	30	25	23	23	22	15	40.54
7	10616	20	20	18	14	12	12	10	10	50.00
8	11111	13	13	11	10	8	7	6	7	53.84
9	11640	32	32	31	25	20	16	16	16	50.00
10	12239	9	9	8	8	7	7	6	3	33.33
11	12308	17	17	15	15	11	11	10	7	41.17
12	12318	23	23	19	17	16	15	13	10	43.47
13	12359	27	27	22	20	19	18	17	10	37.03
14	12379	36	36	34	30	24	24	20	16	44.44
15	13695	14	14	12	12	10	8	6	8	57.14
16	16873	18	18	16	16	14	10	8	10	55.55
17	17146	25	25	22	18	18	16	14	11	44.00
18	17147	39	39	34	29	24	20	18	21	53.84
19	17148	33	32	31	28	25	20	18	15	45.45
20	17272	7	7	7	5	5	4	4	3	42.85
21	18330	3	3	2	2	2	1	1	2	66.66
22	18486	35	35	30	25	25	22	19	16	45.71
23	18642	11	11	9	8	7	7	5	6	54.54
24	19863	31	31	28	25	24	21	18	13	41.93
25	23040	20	20	18	17	15	14	13	7	35.00
26	24127	22	22	19	16	15	13	8	14	63.63
27	33652	27	27	23	21	18	16	12	15	5.55
28	35727	10	10	9	8	7	6	5	5	50.00
29	41565	4	4	3	2	2	2	1	3	75.00
30	41566	18	18	17	15	15	12	10	8	44.44

EXPECTED POTENCY OF DRUG

In the following thesis work, Shvitrari Yoga (internal use) and Jyotishmatadi Tailam (external use)have been used for the treatment of Shvitra, the result of which are found encouraging. The possible reasons behind this can be stated as follows-

Firstly if we study the Rasa, Guna ,Virya and Doshagnata of the medicine used in Shvitrari yoga then it can be found that the medicines used in yoga,because of its predominant Tikta Rasa(85.71%),Katu-Kashaya Rasa(71.42%),Lagu Guna(85.71%),Ruksha Guna(57.14%), Madhur Vipaka(57.14%) ,mainly Katu Vipaka(42.86%), Ushna Virya(71.42%) and Tridoshhar(57.14%) are highly potent. In the Shvitra Sroto-Dushti is found which is removed by the Tikta ,Katu – Kashaya ,Lagu-Ruksha Guna and Katu Vipaka and Ushna Virya of this Yoga. Shvitra is Sannipataja in nature and the above Yoga contains mainly Tridoshshamak drugs that's why the result obtained by this Ras Aushdhi are highly significant.

Along with the internal use of Shvitrari Yoga ,when the Jyotishmatadi Taila is externally used, it is seen that due to the Tikta – Katu Rasa , Tikshna Guna ,Katu Vipaka, Ushna Virya and Kapha – Vata Shamaka Gunas of this Taila ,it expresses its potency in the context of Shvitra.

As this Taila is having Katu-Tikta Rasa,Lagu-Tikshna Guna,Katu Vipaka and Ushna Virya so on its local use ,it removes the Sroto Sang present locally and also increases the blood circulation locally,thus provides nutrition to the cells present there and helps in the adequate formation of Bhrajak Pitta in the skin.

Conclusion-

After the completion of trial and study, the scholar has reached to the following conclusion which has been presented in the following points-

- Deformities occurring in the skin due to the physiological Vikrati of Bhrajaka Pitta is also studied.
- Etiology,pathogensis,prodromal symptoms,signs and symptoms ,curitivity and non curitivity, medicines used for Shvitra according to Ayurveda point of view are described.
- Modern literary review of Shvitra and its co-relation with vitiligo is also included.
- This disease is predominantly found in age group 16-30yrs.
- This disease is predominantly found in middle class patients.
- This disease is predominantly found in those who lives in sadharan desh.
- On the basis of the prakurti36.66% patients were pitta kaphaj, 33.33% were vata pitaj and 30% were vata kaphaj in prakurti.
- This disease is predominantly found in madhyam satva persons i.e.46.66%
- On examining the patches of shvitra, they were found to be uneven and non secretory.
- Area affected by Shvitra got repigmented in 26-30 days in 56.66% of patients.

ANALYSIS OF PATIENTS AFTER THE COMPLETION OF MEDICATION AS PER SCHEDULE-

1. Coloration of maximum size of patches-

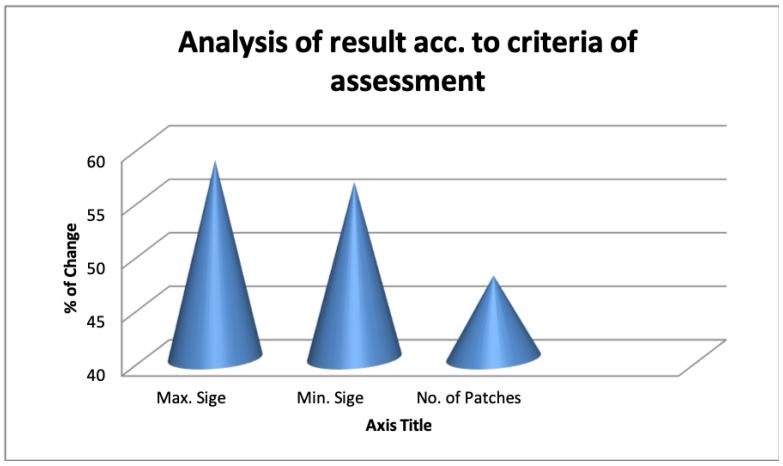
Effect in %=58.48% t=11.115 p<.001

2 Coloration of minimum size of patches-

Effect in %=56.46% t=15.059 p<.001

3 Effect on number of coloration of patches-

Effect of %=47.70 t=9.445 p<.001



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सारांश:

प्राचीन काल से मनुष्य स्वस्थ समाज के लक्ष्य की पूर्ति कर्येि आयुर्वेद एक महत्वपूर्ण भूमिका के रुप मे है आजकल पाश्चात्य संस्कृति कि वजह से मनुष्य आयुर्वेद ग्रन्थो मे कहे गये ऋतुचर्या, दिनचर्या के उपदेशो का पालन नही कर पा रहा है अतरू अस्त व्यस्त जीवन शैली के कारण मनुष्यो मे शारीरिक व मानसिक व्याधिया बढती ही जा रही है श्वित्र प्रमुख रुप से अस्त व्यस्त जीवन शैली के कारन उत्पन्न एक विरन्जक त्वचा की व्याधि है प्राप्त परीणामो के संकलन से श्वित्र रोग की चिकित्सा मे श्वित्रारी योग एवम जोतिष्मति तैलम का बहूत अच्छा प्रभाव प्राप्त हुआा श्वित्रारि योग एवं ज्योतिष्मति तैलम मुख्य रूप से भ्राजक पित्त के विकार को नष्ट कर टायरोसिनेज एन्जाइम के उत्पादन को प्रेरित करते हैं, इस कारण मिलेनिन का उत्पादन बढता है तथा त्वचा का रंजन होता है

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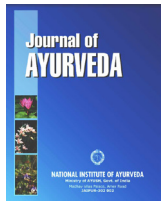

PHARMACOLOGICAL STUDY

A Comparative - In Vitro Study of Hinguleshwara Rasa Against Different Pathogenic Microbes

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ABSTRACT

Though there is little concept of antibiotics in Ayurveda, many Ayurvedic drugs show significant results in infectious diseases, these results are comparable with modern antibiotics. So it is presumed that the Ayurvedic Rasaushadhi has also possesses antimicrobial property. Hinguleshwara Rasa is widely used as anti-pyretic agent. Hence, it is considered as it posses antimicrobial activity against pyrexia (Jwara) causing organism.

In present study, three different samples of Hinguleshwara Rasa (first sample was prepared according to Ayurvedic text (A.F.I.) & the other two samples according to modified method) were tested for antimicrobial activity against common five pathogenic microbes causing pyrexia (jwara) by culture and sensitivity method (Cup Plate Method).

The results were encouraging, all three sample of Hinguleshwara Rasa exhibits good antimicrobial activity against microbes. But as compared to each other sample H1 (AFI) was more effective than sample H2 & H3 (modified methods).

Keywords : *Hinguleshwara Rasa, Kajjali, Rasa Sindoora & Antimicrobial.*

Introduction

Now a day's infectious disease makes a trouble for human being. In order to avoid different infections there are lots of antibiotics which derived from the microbial sources in synthetic manner. However all synthetic antimicrobial agent are local irritants & are responsible for hypersensitivity reactions. Second important thing is this that antibiotics from microbial sources have become ineffective & the infectious organism develops resistance against them.

Antimicrobial sensitivity test is mainly necessary when usually effective agents fail to reduce the desired effects in the treatment and control of infectious diseases which are caused by pathogens that are drug resistance. Sensitivity testing is helpful in selecting effective antimicrobial drugs.

Antimicrobial activity is a process by which response of an organism to a drug or crude extract can be evaluated as its inhibiting effect towards the growth of bacterium in nutrient broth or nutrient agar. To evaluate the efficacy of these agents for their antimicrobial activity different scientific procedures are established.

Number of Ayurvedic preparations were being used in cases of infections, and they were found to be effective clinically. Therefore, to make the treatment

scientifically more validation, there is need to assess the antimicrobial activity of such preparations in vitro (i.e. culture and sensitivity Tests).

Materials and method

For present study three different sample of Hinguleshwara Rasa (H1, H2 and H3) were prepared in N.I.A. laboratory, which were codes as: -

- H1 - Hinguleshwara Rasa prepared as per the specification mentioned in

  A.F.I. vol. - 2, page no. – 297, rasa yoga- 16:18.

The other two Samples were prepared on the basis of modified methods.

- H2 - Hinguleshwara Rasa prepared by using Hingula (HgS) in place of

  Kajjali (HgS).

- H3 - Hinguleshwara Rasa prepared by using Rasa Sindoor (HgS) in place of Hingula/Kajjali (HgS).

To study of antibacterial property of Hinguleshwara Rasa-

Three different concentration solutions 5%, 10%, 12.5% of each sample of Hinguleshwara Rasa was prepared with solvent DMSO (Di Methyl Sulfoxide). The method employed was 'Hot extraction method' recommended by W.H.O. (Quality Control Methods for Medicinal Plant Materials).The Antibacterial Study was done at "Chemind Diagnosis and biosolution", Jaipur.

Microbial strains

The antimicrobial activity of three different sample of Hinguleshwara Rasa was tested against different five species of common pathogenic bacteria. The strains of different microbes were procured from 'Institute of Microbial Technology' (IMTECH), and 'SMS medical college, Jaipur' as mentioned below table No. 1.

Table No.I. Showing Pathogens used for the study along with method & source.

S.No.	Species	MTCC No.	Media Used
1.	Staphylococcus aureus	3160	Nutrient Agar
2.	Streptococcus pyogenes	1928	Blood Agar
3.	Pseudomonas aeruginosa	647	Nutrient Agar
4.	Escherichia coli	1652	Nutrient Agar
5.	Salmonella typhi	734	Nutrient Agar

Microbiological techniques adopted

For the study, standard techniques were used and were taken from "Indian Pharmacopeia.

- **Preparation of Media and Media Plates**

In this regard, first of all Nutrient broth (13gms/1000ml of distilled water) was dissolved in distilled water in a conical flask then, Nutrient Agar (28gms/1000ml of distilled water) was also added and dissolved in a conical flask having Nutrient broth. Flasks were then plugged with cotton and autoclaved for complete sterilization. After autoclave, media was immediately poured in sterile Petri dishes aseptically in a Laminar flow cabinet. The Agar, which is added in a broth medium, hardens as it cools. After solidifying of Agar plates, they were kept in incubator at 37°C for overnight for checking any contamination.

- **Cup Plate Method / Cylinder Plate Method**

It is also called Well Diffusion Method. In this method, sectors were marked on the media plate for different samples and one for Standard. A 24 hr. test bacterial subculture was prepared in sterile broth medium and then 100 -l of it was spread on the plate with the help

of spreader. It was allowed to dry at room temperature for 30 min. After than 4 well (holes each 3 mm diameter) was made in each media plates by using a sterile borer in suitable distance. Total 15 media plates (3 x 5) were prepared for study. In each media plate 3 holes was filled by three different samples (same concentration solution) and one hole was filled by same concentration solution of standard or control. The samples and the control (0.1ml) were places in 3-mm diameter well.

The plates were incubated at 37°C for 24 hours and after then diameter of the inhibition zone was measured.

Observation & Results

The antibacterial activity of three different formulations of Hinguleshwara Rasa, in different concentration as mentioned earlier were evaluated against a number of pathogenic bacterial strains and zone of inhibition was observed in DMSO solution. The zone of Inhibition and results of drug sensitivity compared from standard (Streptomycin) was mentioned as below.

Table no-II showing the relation between zone of Inhibition drug sensitivity.

S.No.	Inhibition Zone (I.Z.)	Drug Sensitivity
1.	No Inhibition Zone	Insensitive (I.S.)
2.	Drug I.Z.<<< Standard I.Z.	Less sensitive (L.S.)
3.	Drug I.Z. << Standard I.Z.	Moderate sensitive (M.S.)
3.	Drug I.Z. ≤ Standard I.Z.	Highly sensitive (H.S.)
4.	Drug I.Z. > Standard I.Z.	Very Highly sensitive (V.H.S.)

The results are summarized in the form of tabular form as below -

Table no-III showing Antibacterial activity of three Samples of Hinguleshwara Rasa (in different concentrations) on Staphylococcus aureus MTCC no. 3160

S. No.	Drug conc. mg/ml	Inhibition zone in different Sample (In cm)			
		H_1	H_2	H_3	Standard (Streptomycin)
1.	50	0.3	0.3	0.65	0.7
2.	100	0.86	0.62	0.9	1.0
3.	125	1.05	0.76	1.17	1.28

Staphylococcus aureus was highly sensitive against the sample H3 compared to Standard in all concentration. But sample H1 & H2 was moderate sensitive in con. 100 & 125 mg/ml.

Table no-IV showing Antibacterial activity of three Samples of Hinguleshwara Rasa (in different concentrations) on Staphylococcus pyogenes MTCC no. 1928

S. No.	Drug conc. mg/ml	Inhibition zone in different Sample(In cm)			
		H_1	H_2	H_3	Standard (Streptomycin)
1.	50	0.65	0.67	0.3	0.7
2.	100	0.92	0.75	0.85	1.0
3.	125	1.1	0.83	1.01	1.4

Staphylococcus pyogenes was highly sensitive against the sample H1 compared to Standard in all concentration. But sample H2 & H3 was moderate sensitive in con. 100 & 125 mg/ml.

Table no-V showing Antibacterial activity of three Samples of Hinguleshwara Rasa (in different concentrations) on Pseudomonas aeruginosa MTCC no. 0647

S. No.	Drug conc. mg/ml	Inhibition zone in different Sample(In cm)			
		H_1	H_2	H_3	Standard (Streptomycin)
1.	50	0.65	0.62	0.3	0.75
2.	100	0.81	0.78	0.7	0.98
3.	125	1.4	1.1	0.85	1.3

Pseudomonas aeruginosa was Very highly sensitive against the sample H1 compared to Standard at the con. 125 mg / ml, But sample H2 was highly sensitive & sample H3 was moderate sensitive.

Table no- VI showing Antibacterial activity three Samples of Hinguleshwara Rasa (in different concentrations) on Escherichia coli. MTCC no. 1652

S. No.	Drug conc. mg/ml	Inhibition zone in different Sample (In cm)			
		H_1	H_2	H_3	Standard (Streptomycin)
1.	50	0.72	0.81	0.3	0.9
2.	100	0.8	1.05	0.75	1.25
3.	125	1.01	1.3	0.9	1.4

Escherichia coli were highly sensitive against the sample H2 compared to Standard in all concentration but sample H1 & H3 was moderate sensitive.

Table no- VII showing Antibacterial activity three Samples of Hinguleshwara Rasa (in different concentrations) on Salmonella typhi MTCC no.734

S. No.	Drug conc. mg/ml	Inhibition zone in different Sample (In cm)			
		H_1	H_2	H_3	Standard (Streptomycin)
1.	50	0.63	0.7	0.7	0.8
2.	100	0.9	0.98	1.0	1.15
3.	125	1.2	1.15	1.1	1.3

Salmonella typhi was highly sensitive against the all sample compared to Standard in all concentration.

Discussion & Conclusion

From the present study, the antimicrobial activity of three different samples of Hinguleshwara Rasa has got good antimicrobial property against all selected microbes. But H1 sample (according to Ayurvedic text) was more effective from other two samples H2 & H3 (according modified method). So it is presumed to conclude that these encouraging results obtained are purely based on invitro experimental methods. For establishment of authentic conclusion, in vivo efficacy on well diagnosed patients should also be carried out. And this study supports the therapeutic potential of said drugs as they have inhibited the growth of micro-organisms responsible for different diseases. However, proper understanding of formulation and its mechanism action appropriate models and parameters on pharmacological studies are necessary.

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सारांश:

पी.हनसमग्अत ते की जीवाणु प्रतिरोधक क्षमता की परीक्षा पाँच रोगोत्पादक जीवाणुओ पर की गई जो इस प्रकार है– स्टेफाइलोकोकस ओरियस , ई कोलाई , स्ट्रेप्टोकोकस पायोजिनस ,स्युडोमोनास ऐरुजिनोसा एवम् साल्मोनेला टाईफी ।

जीवाणु प्रतिरोधक क्षमता की परीक्षा के लिये ाच च्सम3 उम4क को काम मे लिया गया।इस अध्ययन हेतु पी.हनसमग्. अत ते की अलग –अलग सान्द्रता वाले विलियनो को तैयार कर उनका अध्ययन उपरोक्त लिखित जीवाणुओ पर किया गया । अध्ययन से प्राप्त परिणाम की तुलना समान सान्द्रता वाले मानक विलियन जो की स्ट्रेप्टोमाईसिन से तैयार किया गया था से की गयी। अध्ययन से प्राप्त तुलनात्मक परिणाम का विश्लेषण किया गया।

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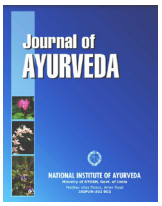

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REVIEW ARTICLE

A review article on drug abuse and psychosomatic disorder: an ayurvedic approach

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ABSTRACT

A psychological disorder is a disorder of the mind involving thoughts, behaviours, and emotions that cause either self or others significant distress. Psychological disorders are result of complex interactions between genetic and environmental factors. Globally, it is found that in 2012, nearly 243 million people of the world population used an illicit drug. Ayurveda is ancient health science which has already mentioned the psychological disorder under the heading of the Unmad. The Etiology, Pathogenesis and Management of psychological disorder has also found in all the Text Book of Ayurveda. As the abuse substance causes psychological disorders along with the somatic disorders due to prolonged administrations causing addiction .The management of psychological disorders due to drug abuse will be same as Unmad. Hence the Drugs Abuse and its disorder along with psychological hazards will be managed by using Satvajaya chikitsa, Yukti Vyapashraya including detoxification and Medhya Rasayan.

Keywords : Drug abuse, Unmad, Psychological disorders

Introduction

Improper use of a therapeutic or non therapeutic drug, which may or may not be harmful, even in absence of addiction constitutes drug abuse. Teens are increasingly engaging in prescription drug abuse, particularly narcotics (which are prescribed to relieve severe pain, and stimulant medications, which treat conditions like attention deficit disorder and narcolepsy. [1] Globally, it is found that in 2012, Nearly 243 million people of the world population used an illicit drug — mainly a substance belonging to the cannabis, opioid, cocaine or amphetamine-type stimulant (ATS) group — at least once in the previous year. The extent of problem drug use, by regular drug users and those with drug use disorders or dependence, also remains stable, at about 27 million people [2]. In Ayurveda the psychological disorders have been described under the heading of Unmada having Visha is one of cause. Clinical manifestation, pathogenesis and management has also describe in detailed. The psychological disorder due to prolonged administration of abuse substance its Ayurvedic aspects of pathogenesis and management has been highlighted in this article.

2. Aims and Objective

1. To evaluate, elaborate and discuss the psychological disorders due to abuse drug.
2. To evaluate, elaborate and discuss the aetiology, pathogenesis and Ayurvedic method of psychological disorders
3. To evaluate, elaborate and discuss the management of psychological disorders.

3. Material and Method

Material related to psychological disorders is collected from text book of Ayurveda, commentaries and modern medicine respectively. The index, non-index medical journals has also referred to collect information of relevant topic.

4. Conceptual study

- **Causes of Psychological disorder due to abuse substance as per Ayurveda (Hetu)-**

Acharya Charak has stated the cause of psychological disorders which include dushta means these substances which vitiated the vatadi doshas.[3] The abuse substance causes psychological disorders along with the somatic disorders due to prolonged administrations causing addiction.

- **Pathogenesis of psychosomatic disorder due to abuse substance-**

Acharya Charak has stated that the psychological disorder has manifested due to vitiation of manovaha srotas by vitiation of vatadi doshas within the brain (Budhi). [4]

Sr.	Drugs	Long term effect
1.	Opioid	Mood instability[5]
2.	Cannabis	Psychosis [5]
3.	Cocaine *Stimulant*	Paranoid ideation, visual and auditory hallucinations [6].
3.	Amphetamines *Stimulant*	Psychosis, dizziness, mood or mental changes,mental illness[7].
4.	Methampheta-mine *Stimulant*	Anxiety, confusion, insomnia, mood disturbances, violent behavior, psychotic features, including paranoia, visual and auditory hallucinations, and delusions [8].
5.	MDMA *Stimulant*	Confusion, Depression, Sleep problems, Severe anxiety, Possible depletion of serotonin and memory [9]
6.	Barbiturates *Depressant*	Insomnia [10].
7.	Benzodiazepines *Depressant*	Impaired thinking, memory loss, anxiety, depression, irritability, aggression, personality change, difficulty sleeping. [11].
9.	LSD *Hallucinogen*	Psychosis, A motivational syndrome, Flashbacks.
10.	PCP *Dissociative Anesthetics*	Impaired memory, Flashbacks (similar to chronic LSD), anxiety and depression, suicide attempts, Social withdrawal and isolation, Toxic psychosis, paranoia and auditory hallucinations [12].
11.	Inhalants	Psychosis and permanent brain damage[13]

5. Management of psychological disorders due to drug abuse

5.1. Satvajayachikitsa (psychological counselling):- It is needed to create awareness about the ill-effects of alcoholism and substance abuse to the individual. A warm, friendly and sympathetic relationship between the therapist and the patient is the basis of any psychotherapeutic procedure.

5.2. Yukti Vyapashraya:- Patient of Psychological disorder due to drug abuse, has need at first Detoxification which will be achieved by stopping the drugs and managing the withdrawal syndrome followed by either Induced Emesis (Vaman) or Purgation (Virechan) as per instruction given by Ayurveda. Mahapeshachik Ghrit containing the herbal drugs having Medhya in nature and Puran Ghrit will be found very effective to suppress and

cure the psychological disorders due to drug abuse.

5.3 Some Ayurvedic formulation used in psychological disorders and drug abuse

Sr. no	Ayurvedic formulation	Dose	*Anupan*	Indication
1.	*Sarasvatarista*	12-24 ml	*Water*	*Apasmara, Manasa dosa*
2.	*Brahma rasayana*		*Milk,water*	*Tandra,Shrama,Manodaurbalya*
3.	*Brahmi ghrta*	12g	*Warm milk,warm water*	*Apasmara,unmade,vandhyatva,kushth*
4.	*Kalyanaka ghrta*	12g	*Warm milk,warm water*	*Kasa,Pandu, Apasmara,Balagraha,garavisa, Bhutonmada*
5.	*Maha kalyanaka ghrta*	12g	*Warm milk,warm water*	*Mandagni,Pandu,Kasa,Smrti kshay*
6.	*Maha pancagavya ghrta*	12g	*Warm milk,warm water*	*Udara rog,Jvara,Sopha,Apasmara*
7.	*Pancagavya ghrta*	12g	*Water*	*Pittaja unmade,Bhrama*
8.	*Sarasvata curna*	5 gm	*Water*	*Shrama,Sirahshula*
9.	Manasamirta vataka	1-2 tab	*Milk,*	*Manodosa,unmad,apasmara*
10.	Sarpagandha vati	2-3tab	*Water,milk*	*Unmada,nidranasa,apasmara*
11.	Smrtisagara rasa	125 mg	*Honey,ghee*	*Manasaroga,cittodvega,smrtinasa, Anidra*
12.	Unmada gajakesari rasa	250 mg	*Ghee,honey, nagvalli ras*	*Anidra, Unmada, apasmara*

6. Discussion

Achrya Charak has mentioned Daivavapasaryachikitsa, Stvajeyachikitsa and yuktivypasarya chikitsa for the management of any diseased including psychological disorder. The treatment of 'manasrogas'are basically done by vigyaan ,gyan , dhairya, smariti, smadhi.. [14] In modern Satvaavjeya is correlated with 'psychotherapy'. Satvaajeya chikitsa' mind is diverted from harmful factors. Yuktiayapasarya means which restore to elimination of disorders through rational use of drugs. The word 'vyapasraya' also indicates avoidance of etiological factors which is primarily essential in treatment of diseases. Panchkarma is also mentioned in psychosomatic disorders along with some preparations like Mahapeshachikgrith, Puraan Ghrit.[15]

7. Conclusion

Psychological disorders due to drug abuse is one of the most burning problem in the world along with India, which are affected the Youth. The Drugs Abuse and its disorder along with psychological hazards will be managed by using Satyajaya chikitsa (psychological counselling, Yukti Vyapashraya including Detoxification and Medhya Rasayan.

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सारांश:

मनोवैज्ञानिक विकार मन का एक विकार है जिसमें विचार, व्यवहार और भावनाएं शामिल होती हैं जो स्वयं या दूसरों के लिए महत्वपूर्ण संकट का कारण बनती हैं। वैश्विक रूप से, यह पाया जाता है कि 2012 में, दुनिया की आबादी के लगभग 243 मिलियन लोगों ने गैर कानुनी दवा का इस्तेमाल किया। आयुर्वेद प्राचीन स्वास्थ्य विज्ञान है जिसमें पहले से ही उन्माद के शीर्षक के तहत मनोवैज्ञानिक विकार का उल्लेख है। मनोवैज्ञानिक विकार के कारण, व्याधि जनक कारक और चिकित्सा का वर्णन आयुर्वेद में पाया जाता है। चूंकि दुरुपयोग पदार्थ लंबे समय तक सेवन के कारण दैहिक विकारों के साथ मनोवैज्ञानिक विकार का कारण भी बनता है। नशीली दवाओं के दुरुपयोग के कारण मनोवैज्ञानिक विकारों की चिकित्सा उन्माद के समान ही होती हैं। इसलिए ड्रग्स एब्यूज और मनोवैज्ञानिक विकारों में सत्त्वाजय चिकित्सा, युक्ती व्यापाश्रय चिकित्सा,विषहर योग और मेध्य रसायन का उपयोग किया जाता हैं।

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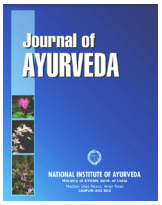

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REVIEW ARTICLE

Study on Identification and drug standardization of fruit of Plant Carum roxburghianum (Benth and Hook), Ajmoda

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ABSTRACT

Standard quality of drug was always emphasized as an essential requirement of treatment in Ayurveda. Dravya Sampanth was therefore held as one among the Dravya Chatushka. The word Dravya Sampath has been used by our ancient acharyas to describe what is the presently known by the term Standardization. Dravya Sampath or quality drug is the prerequisite for a successful and reliable treatment. It is basic for survival of the system and also a statutory requirement under Drug & Cosmetic Act. Standardization of raw materials is a precursor to the standardization of pharmaceutical preparations. Unfortunately former is the totally neglected side in comparison to the later.

Ajmoda, a crude drug mentioned by Maharshi Charaka in Shula parshmana and Dipaniya mahakshaya. It is the drug used in many formulations like Ajamodadi Churna, Hingwadi Churna, Vidangadi Taila, Phala Ghrita, Eladi sarpi, Yograj Guggulu etc. Authentic source of Ajmoda is Carum roxburghianum. (Syn. Trachyspermum roxburghianum). Inspite of so much uses surprisingly in market of different areas different plant species are sold by the name of Ajmoda which causes variable efficacy, It is easy to identify these species from one another by simple procedures. Since crude drugs ultimately used singly or in formulations will affect the health of an individual.

Keywords : *Standardization, Carum roxbrghianum*

Introduction

Bhisag (Physician), dravya (Drug), upasthata (Nurse) and atur (Patient) are important pillars of Chikitsa Chatuspada. Drug being the integral part and prime tool of Chikitsa, its purity, genuinity and awareness towards its therapeutic properties are very necessary. Standard quality of drug was always emphasized as an essential requirement of treatment in Ayurveda. Dravya sampanth was therefore held as one among the Dravya Chatushka. Our ancient Acharyas incorporated these aspects by introducing Dravya parreksha under dashavidha parreksha. In Ayurveda texts there are references for collection and storage of dravyas. Further the expiry period after which the raw drug loses its potency is also mentioned. Unfortunately in the present day practice the above standard guidelines have been totally neglected thus compromising the quality of the drug to serious proportions. Proper identification of the drugs mentioned in our texts, standardization and quality control of dravyas is indeed a very challenging task.

Back from the history as we see, The remarkable progress of Indian medicine was seen from Vedic period to period

of Compilation. During the latter period of compilation, the Ayurveda crossed the borders of India. Invasion of Greeks, the Mohammedans, in the early part of the medieval period gave way for deterioration of Indian Medicine. Then with the advent of Europeans after 16th cent. A.D. The decline in Indian medicine was still further marked.

During the medieval and succeeding periods Ayurvedic literary works flourished at regional levels mainly Nighantus came into existence. This created a new horizon of knowledge of medicinal plants, which in turn also triggered controversies in Identification of drugs. In every Nighantu while enumerating a drug 5-6 synonym were mentioned. In some cases a particular synonyms was accredited to more than one drug.

Due to excessive urbanization indiscriminate use, deforestation industrialization, increase of pollution at a greater pace, lust for being healthier, not only precious drugs but also common drugs were obliterated from source. In India after Independence many useful herbs become extinct. Due to Internationalization of herbal drug demand is increasing day by day.

The prime difficulty faced in Dravyaguna is Identification of drugs, which is possible when prominent characters of each drug are established. The therapeutic uniformity is secured and established by physical, morphological, biological and chemical assay of each drug. After proper identification then stress should be given on quality control of raw material. The quality of medicinal plant raw materials depends on multiple interrelated factors such as quality of genoplasm, habitat, climate, cultivation, harvesting and post harvesting processes, collection methods, and time of collection, primary processing methods, transport and storage methods, inadvertent contamination by microbes.

The Ayurvedic Pharmacopeia of India has ensured its fundamental object as to provide standards of drug, which are therapeutically useful. In the year 1964, the Govt of India amended the Drug and Cosmetic Act, 1940 and brought Ayurvedic drugs in Preview hence there is extra awareness about the standardization of Indigenous drugs. But still some drugs are not properly identified in Ayurvedic Pharmacopeia of India. Considering above factors, Identification and drug standardization of Carum roxburghianum (Syn. Trachyspermum roxburghianum), (Ajmoda) research work is done.

NEED OF STUDY

In old times Vaidyas used to treat patients on individual basis, and prepare drug according to the requirement of the patients. They people knew the proper identification, their characters, morphology, actions. But today due to life style, industrialization, lack of knowledge even vaidyas do not go upto the source and most of them are not able to identify the proper drug. So what the companies are supplying, patients are using that drug. Moreover in Pharmaceutical companies due to lack of proper knowledge of identification of drugs, or due to some other reason e.g. sometimes drug source away just for their own benifits companies start use of substitute easily available which will ultimately affect the potency of the drug or formulation. It is important to properly identify a drug. After proper identification of that drug it is essential to maintain proper quality of crude drug or formulations.

In fact former is the totally neglected side. So identification and drug standardization is chosen as topic of research. Present day researches are going on experimental and clinical aspect but no one is caring about quality, standardization of the drug used. So in today life this is a great necessity to do work on standardization.

Ajmoda drug happens to be very useful drug in cure of many diseases of G.I.T., arthritis, cardic diseases, urinary disorders etc. Maharshi Charaka has mentioned the drug in Shula parshmana and Dipaniya mahakshaya. It is the drug used in many formulations like Ajamodadi Churna, Hingwadi Churna, Vidangadi Taila, Phala Ghrita, Eladi sarpi, Yograj Guggulu and many more.

Therefore, it is pertinent to determine correct botanical source of Ajmoda and its quality assurance values through standardization. Authentic botanical source of Ajmoda is Carum roxburghianum (Syn. Trachyspermum

roxburghianum). Further, it is essential to know the botanical sources of the drugs sold in market in the name of Ajmoda. Ajmoda is selected as the trial drug because, inspite of so much uses surprisingly in market of different areas different plant species are sold which causes variable efficacy, Since crude drugs ultimately used singly or in formulations will affect the health of an individual. But there is no research work yet done on its standardization.

AIMS AND OBJECTIVES OF STUDIES

- To collect, compile and analyze the currently available literature with regard to standardization and quality control of medicinal plant raw materials.
- Study about literature of plant samples coming in market by the name of Ajmoda.
- To make a market and field survey for collection, comparison.
- Standardization of the authentic sample.
- Organoleptic analysis in order to establish identity and quality of crude drugs traded in the market.
- Detail study of literature, morphology, phytochemistry, macroscopic and microscopic characters of the drug.
- Comparing different market sample drugs with genuine sample.

PLAN OF STUDY:

The work was carried out in the following phases-

1. **Literary review:** Literature Ayurvedic as well as modern was studied in detail.

2. **Collection of Samples and Photography:**

Samples are collected from different areas field and market. Authentic 3 samples were collected from Kolkata in the month of April,2010. (By Dr. N. D. Paria, Taxnomist, Professor, Botany department, Kolkata University, West Bengal). Then market samples were collected from crude drug markets like Ahmedabad, Jammu, Karnataka, and U.P., sold by the name of Ajmoda. One market sample was collected by my colleague from Bangladesh. U.P. sample as told was two years old at the time of research was taken in consideration to see changes happened with time .Samples were collected and photographed. The attempt was made during survey of markets to collect information regarding trade name, local name, origin, time of collection of the sample drugs to the extent possible in addition to procurement of samples of crude drugs. Relevance of local names in establishing identity of a particular plant is discussed. (Naamép}an)

3. Conservation of germplasm and in situ cultivation for herbarium of the authentic drug plant:

Samples collected were packed in air tight containers because they absorb moisture or to avoid any infection by insects. They are grown in the garden of NIA, Jaipur. Authentic sample as well as market samples as much as possible tried to cultivate them. Then photography of plants was done. Herbarium was prepared of authentic sample.

4. Lab investigations:

Then further evaluation of all the samples was done. Market samples as well authentic samples-

a. Pharmacognostic evaluation – All the samples were observed. Firstly macroscopic features. Then with the help of magnifying lens. After that organoleptic testing [pÁceiNÔy prI]a] was done. Then after section cutting(microscopic) was done. Their standard procedure was studied.

b. Phytochemical evaluation-Then all the samples market as well authentic was investigated in Lab for phytochemical testing. So, all the standard procedures were studied in detail and compiled.

5. Observations and results:

Then all the readings were noted down for value of phytochemical as pharmacognostical findings.

6. Preparation of comparative table:

Then macroscopic, microscopic, phytochemical as well

pharmacognostical features were compared of different samples. tables are prepared. Then matching with standard keys we identified samples.

LITERARY REVIEW

Word 'Ajmoda' was firstly used in Samhitas .There are no references in Vedas about drug Ajmoda as well as in Puranas. Then from Samhita period onward in Charka Samhita, Sushruta Samhita, Astang Samgrha, Astang hridya references of Ajmoda are found. Acc. to Acharya P. V. Sharma it is an exotic plant, native of Europe. In Samhitas it is used in various formulations e.g. external or of internal use. Tikakaras in comm. of samhitas cleared the differences between Ajmoda and Yvani .e.g. in Dipika and Guda artha dipika for external use of Ajmoda is prescribed and for internal use we have to take Yvani. Coming in Nighantu period literature about Ajmoda is available e.g. in Amarkosha, Dhanvantri Nighantu, Shodal Nighantus etc. In many Rasa Grantha also references of Ajmoda are found.

In nighantus many synonyms of Ajmoda has been described according to its different characteristics e.g. because of its characteristic odour due to which animals are attracted to it (Markat, Khravha, Ajmoda, Ugragandha, Modha). Some due to its used part (Phalemukhya) etc., some acc. to actions like Dipyaka, Vahnidipika, and Hridyagandha etc.

Rasapanchak of Ajmoda

- Rasa - Katu
- Guna - Laghu, Ruksha, Ushna, Tikshna
- Virya - Ushna
- Vipaka- Katu
- Karma - Doshagantha- Kaphavata hara dravya, Dipaniya, vidahi, hridya, vrishya, pachni, mala avsthambkari dravya.

In Ayurveda literature substitute of Ajamoda is mentioned Khurasani Ajowain. Abhav Dravya of Ajmoda in some nighantus is called Yvani.

When market survey of Ajmoda was done then it was found 4-5 different plant species (Trachyspermum roxburghianum=Carum roxburghianum Syn., Apium graveolens, Apium leptophyllum, Trachyspermum ammi etc.) are coming in market in same name of ajmoda all are in family Apiaceae. As in Today time authentic plant by the name of Ajmoda is considered Trachyspermum roxburghianum because having max closeness to the synonyms, properties, actions mentioned by our texts.

- Phalemukhya- Fruit is its main used part. In case of A. graveolens used part are its leaf, tuber like root, fruit.
- Yvanika- Differentiated from Yvani (T. ammi) by having broad fruit. But smaller in length than Yvani.
- Lochmastka- Resemblance of inflorescence with head feathers of peacock. As in case of A. leptophyllum flowers are sometime sessile.
- Markati- As the Nirukati of synonym "markatakhyo snigdhataven" but when literary survey was done in modern literature too Apium graveolens was having maximum concentration of water in it. (>80%). But singdhta (oil conc.) as observed from study was found after Yvani concentration was max in Trachyspermum roxburghianum. (But reported values for both are almost same.)

During the study five samples from different areas (U.P., Bangladesh, Jammu, Karnataka, and Ahmedabad) were taken to know about what is supplied in market by the name of Ajmoda. Then detailed pharmacognostic as well phytochemical study was done.

Pharmacognostical Evaluation:

Firstly pharmacognostical evaluation of all the samples was done which include organoleptic, macroscopic as well as microscopic.

- Shape of Kolkata sample fruits elongated laterally flattened, Ahmadabad ovoid, U.P. partially spherical, Bangladesh elongated, South partially spherical and Jammu also partially spherical in shape.
- Average Size-Kolkata sample in size 2.8 mm long, 2.5 mm broad, 0.5 mm thick. Ahmadabad 2.5-1.5-1 mm,

U.P. 1.5-2.5-1, Bangladesh sample 2 mm long,1.5 mm broad,0.5 thick, South2-2.5-1mm, Jammu 2-2.5 -1mm.

- Colour was darkest (Brown) of the fruit of Bangladesh, then from Kolkata, other samples were yellowish brown or yellowish in colour.
- Taste-In Kolkata and Bangladesh samples Katu Rasa is felt not just after taking in mouth but as we chew katu rasa increases, but in Jammu, South and U.P. katu rasa diminishes as we chew the drug. At first we feel katu but latter it diminishes.
- Bangladesh and Kolkata samples having pleasant spicy smell, Jammu and South sharp smell different from Kolkata, Sharp smelling Ahmadabad like that of thymol.
- Sound-No significant difference found.
- Touch-All samples are rough, Max Ahmadabad, then U.P. sample.
- Magnifying lens-5 ribs in all samples, ribs least prominent in Kolkata and Bangladesh .Corky in U.P. sample.
- Microscopy-Bangladesh and Kolkata-Trivittate condition, Kidney shaped cross section; Trichomes present very densely hirisutus, 6 vittae 4 on dorsal side 2 on commissural side. (Characteristic -T. roxburghianum).In Ahmadabad sample T.S. hexagonal in outline, having tubercular surface(characteristic of T. ammi),6 vittae 4 on dorsal two in commissural surface, mesocarp cells barrel shaped. In case of Jammu and South samples .Jammu and South fruit surface devoid of hairs (trichomes) as well as protuberances. Dorsal channels with single vittae lateral 2-3, vittae broad occupying whole breadth. Mesocarp cell max. round from all samples (A. graveolens). In case of U.P. samples from macroscopy ribs are prominent and thick corcky than Jammu sample. All other features almost same as that of Jammu. (A. leptophyllum) .
- As the plants were cultivated in the garden it was clear demarcation between leaves too. Kolkata leaves-trifoliate dark green in colour, leaflet not coarsely toothed, and In Jammu sample leaves tripartite but coarsely toothed leaflet was present. In case of U.P. very minute leaves needle like was present characteristic of A. leptophyllum.

Phytochemical observations:

- Foreign matter -Hence average value of Kolkata sample 0.623%, Bangladesh 0.466%, Jammu 2.23%, Gujrat 1.00%, U.p.3.45%, South 6.02 %
- Moisture content was 5.04% in Kolkata, 6.5% in Bangladesh, 7.7% in U.P. Sample, 9.5% in Jammu, 7.6% in South, 4.5% in Gujrat sample.
- Ash value (in %) Kolkata 4.7, Jammu 8.3, South 6.6, U.P.6.5%, Ahmadabad 10.8, Bangladesh 4.7%.
- Acid insoluble ash was Kolkata 0.249%, Jammu 0.49%, South 0.25%, U.P. 0.38%, Ahmadabad 0.26%, and Bangladesh 0.22%.
- Colour of ash was Kolkata White, Jammu Black white, South Blackish white, U.P. Red white, Ahmadabad white black, and Bangladesh Reddish.
- Inorganic matters calcium, iron, potassium was positive in all. Magnese only in Kolkata and Bangladesh. Phosphorus negative in South. Sulphur in U.P. was negative. Sodium negative in South. Only Zn heavy metal positive in all samples.
- Extractive value-By hot method of Kolkata sample Max was in ethyl acetate, then ethanol and least in acetone.
- By cold method extractive value-Max of Kolkata (15.1%), Least in U.P.(Alcoholic extractive value)
- By cold method aq. Extractive value max south, least U.P.
- Tests of Carbohydrates, proteins, alkaloids, phenol (negative in south), terpenoids were positive in all samples. Steroid was negative in U.P., Phenol in South negative.
- Volatile oil 3.7% in Kolkata, 3% in Bangladesh,

0.4% in U.P.,2.5 and 2.8% in Jammu and South respectively,4% in Ahmadabad.

- HPTLC results-Kolkata and Bangladesh both samples shows similar Rf values, peaks, graphic patterns for Kolkata sample1 major Rf points(254 nm)-0.49,0.61,0.7(Blue in colour),Sample 1b 0.50,0.61,0.72) (Sample 1b and 1C almost same as 1a), in case of Bangladesh 0.52, 0.61, 0.74(Blue in colour) copy of Kolkata ,in case of Gujrat major spots 0.14, 0.38, 0.45, 0.53(blue in colour), 0.63, 0.73 ,in case of Jammu and south again carbon cory spots at 0.67,0.67 respectively. In case of U. P. spots were at 0.38, 0.46.
- At 366 nm Kolkata 0.06, 0.16, 0.43, 0.51, 0.66, 0.71 same in Bangladesh at 0.06, 0.16, 0.44, 0.52, 0.67, 0.74 respectively. In Gujrat 0.02, 0.06, 0.09, 0.32, 0.40, 0.46, 0.52.In U.P. 0.02, 0.06, 0.13, 0.20, 0.39, 0.46, 0.56, 0.73 were major spots. In Jammu and South 0.18, 0.54, 0.73.
- After derivitization spots were at Kolkata Rf 0.18,0.24,0.30,0.7 and 0.9, Bangladesh 0.18,0.25,0.32,0.62,0.75,0.93, U.P.0.2, 0.46, 0.6, 0.83, 0.92, Ahmadabad 0.19, 0.31,0.41, 0.48, 0.53,0.63,0.73 Jammu and South 0.18,0.32,0.46,0.65,0.91 and 0.19,0.30, 0.42, 0.49, 0.65,0.91.
- Blue colour spot thymol was in Kolkata, Bangladesh and Ahmedabad samples showing presence of thymol (Characteristic) but at lower length in Ahmedabad showing max. concentration in that sample
- Moreover of graphs of Kolkata and Bangladesh; Jammu and South are again same .Which show same species of sample.

Sr. no.	Plant	Main Chemical constituent
1.	*Carum roxburghianum*	Limonene (15%),), Cadinene (24%), β-cyclolavandulal/ acid is 15-25%, Seselin (~12-15%)
2.	*Apium graveolens*	Limonene (85%), pentyl benzene, 3-n-*b*utyl phthalide & other phthalides
3.	*Apium leptophyllum*	1-2% Monoterpenes, coumarins
4.	*Trachyspermum ammi*	2-5% p-cymene, γ-terpinene, thymol(35-60%)

- As there is no available fix key for Carum roxburghianum, so from the literature (Wealth of India, Flora of British India, Flora of China, Encylopedia of Word Medicinal Plants a key is developed for comparing our findings.

Conclusion of the study work-

- Ajmoda is concluded as based on literature, morphological, chemical correlation as Caum roxburghianum
- In market 4 different plants are seen on the same name of Ajmoda which are Carum roxburghianum, Trachyspermum ammi, Apium graveolens ,Apium leptophyllum.
- Phytochemistry and pharmacological findings of All the 4 samples are different.
- Since all the 4 samples are botanically and phytochemically different,it is not possible without clinical verification to suggest wheather any of 3 (Trachyspermum ammi,Apium graveolens ,Apium leptophyllum) can be substituted for Ajmoda.

- There for Trachyspermum roxburghianum should be used in the name of Ajmoda.
- A key has been devised to recognise the botanical source of the traded drugs in the name of Ajmoda.

Key of Identification

Feature	***T.roxbur ghianum***	***A.graveolens***	***T.ammi***	
Leaf	Tripartite,leaflet not coarsely toothed	Tripartite,leaflet coarsely toothed	Small feathery leaf	
Fruit	Elongated to somewhat ovoid, hispid fruit,minutely puberopunctate	Ovoid,Glabrous fruit	Ovoid, Rough fruit,Presence of Pappilae and tubercles	
Taste	Firstly not so much bitter latter aromatic and numbness to tongue	pungent	pungent (most)	
Odour	Pleasent	Sharp smelling	Smell of thymol	
Ridges	5,faint(Flora of British india)	5,much prominent, broad	5,much prominent	
Transverse section	Kidney shaped,smallest vittae, trivittae,6 in number, trichomes present	No trichomes,thick cuticle, Vittae 6-12,(lateral commisure 2 vittae sometimes) ,pentagonal in shape	Protuberanceson surface, thick cuticle,Vittae 6, hexagonal in shape	
Essential oil	2.5%(2-4%)	2-3%	2-4%	

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सारांश:

उच्च स्तर के गुणयुक्त द्रव्यों का प्रयोग चिकित्सा की सफलता के लिये नितांत आवश्यक है। आयुर्वेद मे द्रव्यसंपत् नाम से द्रव्यों की गुणवत्ता का विवेचन किया है। द्रव्यसंपत् न केवल आयुर्वेद चिकित्सा पद्धति की परंपरा की रक्षा हेतु आवश्यक है परन्तु औषध एवं रूपसंसाधन अधि ानियम के अन्तर्गत वैधानिक जिम्मेदारी है। महर्षि आत्रेय द्वारा सूचित द्रव्यपरीक्षा की प्रणाली अत्यन्त प्राचीनतम एवं अबतक की प्रस्तुत द्रव्यसंपत् नियमावली मे सर्वोत्कृष्ट माना जायेगा।अजमोदा महर्षि चरक द्वारा दीपनीय और शूलप्रशमन महाकषाय में वर्णित अतिमहत्वपूर्ण द्रव्य है। देश के विभिन्न भागों में अजमोदा क`नाम पर विभिन्न द्रव्य मिल रहें हैं।असली अजमोदा उतरीपूर्वी भारत में ही मिल रहा है।अन्य भागों में मिलने वाला अजमोदा असली से गुणों व रसायनिक संगठन में पूर्णतरू भिन्न है।असली अजमोदा की पहचान बहुत सरल है। एकल द्रव्य या योगों में प्रयुक्त होने वाले द्रव्यों का व्यक्ति के स्वास्थ्य प्रभाव होता है। अतरू द्रव्य परीक्षण नितांत आवश्यक है।