WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 13, 2247-2261. Review Article ISSN 2277– 7105

ROLE OF *SAPTAPARNA* LEAVES (*ALSTONIA SCHOLARIS* ROXB) INTERNALLY AND EXTERNALLY IN SUPERFICIAL DERMATOPHYTOSIS (*DADRU*).

Dr. Komal Gangadhar Bele*[1] and Dr. Sharayu A. Kore[2]

[1]Post Graduate Scholar, Department of Dravyaguna, MAM'S Sumatibhai Shah Ayurved Mahavidyalay, Hadpsar, Pune, Maharashtra, India.

[2]Professor, Department of Dravyaguna, MAM'S Sumatibhai Shah Ayurved Mahavidyalay, Hadpsar, Pune, Maharashtra, India.

Article Received on
21 August 2022,

Revised on 11 Sept. 2022,
Accepted on 01 October 2022

DOI: 10.20959/wjpr202213-25893

***Corresponding Author**
Dr. Komal Gangadhar Bele
Post Graduate Scholar, Department of Dravyaguna, MAM'S Sumatibhai Shah Ayurved Mahavidyalay, Hadpsar, Pune, Maharashtra, India.

ABSTRACT

The Ayurvedic delineation of *Dadru Kushtha* possesses remarkable congruency with the description of dermatophytosis in modern medicine. Superficial dermatophytosis or tinea affects 20-25% of the world population and is a common infective dermatophytosis in clinical practice.[1] All *Kushthas* including *Dadru Kushtha* are seven vitiated elements involved in pathogenesis *(Saptako Dushya Sangraha) i.e., Vata, Pitta, Kapha* (three principal constituents of body), skin *(Twak),* first element of body *(Rasa),* muscle *(Mansa),* lymph *(Lasika);*[2] So effective treatment needs both internal as well as and external treatments. It should be given to avoid recurrence *(Apurnabhava chikitsa*) for internal balance of *Tridosha* and gratifying *(Prasadan)* of all *Dushyas*. *Saptaparna* leaves (*Alstonia scholaris* Roxb) decoction internally and powder externally was used in superficial dermatophytosis (*Dadru).* The present study was performed over 30 patients having classical signs and symptoms of *Dadru kushtha* for 21 days. Significant reduction in subjective and objective criteria like itching *(Kandu*), redness (*Raga*), dryness (*Rukshata*), size of lesion, colour of lesion was found however there was no significant change in numbers of lesion.

INTRODUCTION

Skin disease has been classified as very difficult to treat, where recurrence is common takes longer duration for treatment and others are simple. *Dadru* has been classified by few in

Ashtaumahagada and some of Samhita in *Kshudra Kushtha*. but seen the chronicity and the recurrence it can be considered in the major diseases as per classified in ayurveda.

Signs and symptoms of *Dadru Kushtha* are very closely related to tinea or superficial fungal infections (ringworm infections/dermatophytosis/dermatomycosis), According to modern science it is caused by various species of Trichophyton Microsporum, Epidermophyton[3], In spite of use of antifungal treatment and use of steroids in some cases recurrence is very common and gives symptomatic relief temporarily. The cure is not very sure. In this study few patients were taking treatment for more than six months with no complete relief and recurrence. If steroids are used in such cases for longer period, it can produce adverse effects like atrophy, poor healing, purpura, hyper pigmentation along with generalized adverse effect like immunosuppression, osteoporosis etc.[3]

Symptomology or Disease manifestation according to Ayurveda

According to Brihatrayee[4,5,6] the symptoms of *Dadru* are small eruptions making round shape (*Utsaana Parimandal Pidaka)* which are having itching (*Kandu)* and redness (*Raga),* blackish or bluish discolouration of lesion like flower of linum usitatissimum *(Atasipushpavata Shyav),* reddish coloured small eruptions *(Tamra Pidaka).* The nature of lesion is it spreads by infectious oozes into different sites. This is correlated like spreading of *Cynodon dactylon* (*Durva* grass).

It has been mentioned that in early stage the colour is lighter and as the disease becomes chronic darker shades are seen in the lesion.[7]

This classification is important to understand the nature of disease.

Predominance of *Doshas*: Acharya Charaka and described as *Pitta Kapha* predominant disease.[8] Acharya Sushruta include it in *Kapha* predominant disease.[9]

Disease prognosis or *Sadhyasadhyatva*[10]: *Dadru* is *Pitta Kapha Pradhan Vyadhi* so it is difficult to treat (*Kashtasadhya).*

Acharya Charak mentioned ***Saptaparna*** is one of the drugs in ***Dashemani Kushthaghna Gana*** [11] which are most effective ten drugs for the treatment of skin diseases. Acharya Sushruta mentioned *Saptaparna* in ***Aragvadhadi Gana***[12] and ***Lakshadi Gana***[13] which is known to possess *Kushthaghna*, *Kandughna* (relieves itching) and *Krimihara* (antimicrobial)

property. It is also one of the ingredients of ***Siddharthaka Snana***, Charakacharya has recommended drugs from *Siddharthaka Snan* in various dosage form for internal and external use i.e., *Kashaya, Taila, Snan, Lepa, Abhyang, Avagah*[14] etc. it is also mentioned in specific **Six decoctions (*Kashaya Yogas)*** useful in treatment of skin disease *(Kushtha Chikitsa)*.

It has bitter *(Tikta)* sour *(Kashaya)* taste, producing acid humors in digestion *pungent (Katu Vipaka),* hot in potency *(Ushana Virya),* ignites digestive powder *(Deepan),* unctuous *(Snigdha),* provocate the expulsion of local toxins *(mala)* and vitiated *Doshas* by its *Sara Guna,* purifies *Rakta* (blood), antimicrobial effect *(Krimighna)* removes vitiated three humors, treats all skin diseases (*Kushthaghna),*[15,16,17]

Leaf is an easily available source of evergreen tree. Sustainable harvesting and abundance of drug can be achieved by using leaf instead of bark. Bark needs much longer period for development as compared to leaves.

AIMS AND OBJECTIVES

To evaluate the efficacy of *Saptaparna* leave's decoction as internal medication and powder as external application together in management of *Dadru Kushtha.*

MATERIALS AND METHODS

Study population: Patients with superficial fungal infection.

Sample size: 30 patients.

Place of work: OPD with affiliated hospital.

IEC approval: Approval obtained from Institutional Ethical Committee**.**

Registration: This clinical trial was registered in the Clinical Trials Registry of India (CTRI).

Registration No. CTRI/2021/08/035558.

Data has been entered after successful completion of trial.

Inclusion criteria

1. Patients having classical signs & symptoms of *Dadru Kushtha.*
2. Patients of age 6 to 30 years and either sex.

Exclusion criteria

1. Patients taking modern medicines (Antifungal or Corticosteroids or other therapy).
2. Pregnant women and lactating mother.

3. Individuals with systemic illness like CA, AIDS, TB etc.
4. Individuals unwilling to give written informed consent/assent for participation in study.

Withdrawal Criteria

1. Aggravation of symptoms.
2. Any side effects if noted.
3. Patient wants to withdraw from clinical trial.
4. Those who missed two follow up.
5. If there is any adverse event during the course of trial which urgently requires intervention.

Diagnostic Criteria

1. Small eruptions making round shape (*Utsanna Parimandal Pidaka*).

i) No. of lesion.
ii) Size of lesion.
iii) Location of lesion.
iv) Photographs.

2. Redness *(Raga).*

3. Itching *(Kandu)*

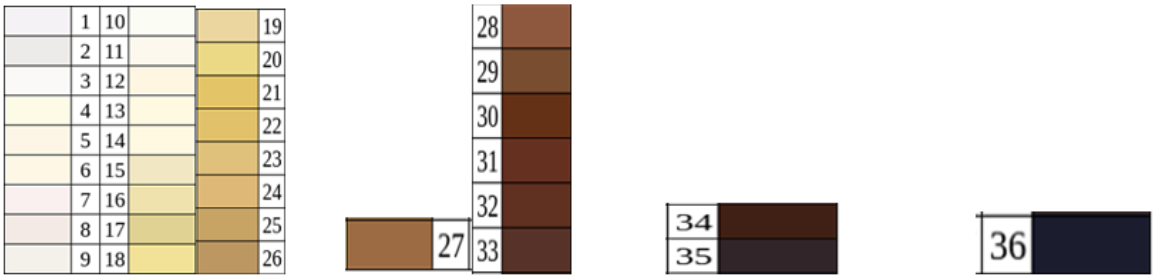
a. Grade 0- no itching.
b. Grade 1- mild (no disturbance while doing work).
c. Grade 2- moderate (disturb to work).
d. Grade 3- severe (disturb to sleep).

4. Dryness *(Rukshata)*

a. Grade 0- Normal skin Lesion.
b. Grade 1- Loss in normal unctuousness of skin Lesion.
c. Grade 2- Moderately dry skin Lesion.
d. Grade 3- Excessive dry Skin lesion.

5. Colour of Lesion (*Varna* of *mandalas)*: Assessment was made with the help of 'Felix von Luschan' skin colour chart. It consists of 36 shades of human skin colour. Different shades of colour were tried to divided into grades which are as follows:

a) White or near, b) Reddish *(Tamra)* c) Near to black (*Shyav)* d) Black (*Asita)* to skin colour *(Sita)*



6. Size of lesion

Dimension of affected area were measured in sq. cm with the help of transparent paper (trace paper) and graph paper sheet. The size was recorded during each follow ups.

Approximately area of lesion was calculated as follows:

Total area: Completely covered squares taken as 1 sq.cm + Squares covered more than 50%, taken as 1 sq.cm + 50% covered Squares taken as ½ sq.cm (Squares which covers less than 50% were excluded).

MATERIALS

1. Patients: 30 patients were selected according to inclusion, exclusion and diagnostic criteria.

2. Drugs: A) Method of decoction preparation

1. Collection: The fresh, mature leaves of *Saptaparna* were collected from Aditi Garden of Magarpatta City, Pune.
2. Cleaned up with potable water and dried under shade in inhouse pharmacy.
3. Course powder was prepared in pulverizer machine and sieved through mesh no. 44.
4. Powdered drug added in water (1:16).
5. Temperature was maintained i.e., up to 400 ^{0}C and reduced up to ¼ th one fourth of its original quantity, decoction obtained by filtering the mixture.
6. The 0.1% of sodium benzoate was added as preservative to decoction.
7. It was standardized from certified laboratory.
8. Packing: 400 ml of decoction was given in sealed plastic bottles.

B) Method of powder preparation

1. Dried leaves of *Saptaparna* were ground to make fine powder.
2. It was passed through sieve number 80.

3. Packing: 250 gm of powder was packed and given in sealed packets.
4. It was standardized from certified laboratory.
5. It was tried to store in normal moisture free place.

METHODS

1. **Informed consent:** Written informed consent in their local language was taken from prior to the enrolment of patient and all procedures were thoroughly explained to volunteer and information sheet was provided in patient's local language.
2. **Case record form:** A case record form was completed with information sought from patient.
3. **Follow up:** Follow up of every patient was taken on 5^{th}, 13^{th}, 21^{th} days.

4. **Treatment plan**

1. Decoction	
Time	**Twice a day at empty stomach.**
Dose	40ml
Route	Oral
Duration	21 days

2. Application of powder	
Time of application	**twice a day.**
Thickness	4-5 mm.
Duration	21 Days

S.O.P of external application

1. Preparation - Take adequate amount of powder with required quantity of potable water to make thick paste.
2. Method of application - Apply paste in upward direction of hairs.
3. Duration - should be remove after semi dry condition. (15-20 mins)
4. Removal - It should be washed with luke warm water.

Data Analysis

The data collected and processed further by subjection to various statistical methods.

Demographic data

Occupation: Numbers of patients were house wives (33.33%). then were self- employed (20.00%), students' group (16.67%), labourer (6.67%).

Diet: Out of total, 73.33% patients had mixed diet and 26.67% had vegetarian diet.

Clinical data

Physical constitution *(Prakruti):* Majority of patients were having *Pitta Pradhan* (predominant) *Kapha Prakruti* & *Kapha Pradhan Pitta Prakruti*.

Digestive power *(Agni):* Maximum i.e., 63.33% of patients were having low digestive power (*Mandagni*). 33.33 % of patients were of regular (*Sama Agni*) and 3.33% of patient were having irregular digestive power (*Vishamagni).*

Predominant tastes *(Pradhan Rasa)*: The predominant tastes in diet were pungent (*Katu)* was 40.65%, sour (*Amla)* was 33.66% followed by sweet (*Madhur)* was 33.66% and salty *(Lavan)* was 20.65%.

Predominant properties *(Pradhan Guna)*: The dominance of specific properties in the diet of patients of the series were heavy to digest (*Guru) was* 33.33%, incompatible (*Viruddha)* was 30%, unctuous (*Snigdha)* was 26.67%, hot (*Ushna)* was 23.33%, which are slimy and heavy in nature (*Abhishyandi)* was 20%, which produces burning sensation (*Vidahi)* was 20%, having fluidity (*Drava)* was 13.33%, alkaline (*Kshariya)* was 13.33%, cold (*Sheeta)* was 10%, having generalised or local cleansing effect (*Tikshna)* was 10% and stale (*Paryushita Ahara).*

Predominant activities *(Viharaj Hetu):* Predominant activities were found are as follows: day time sleeping *(Diwaswap)* was 23.33%, wearing of wet cloths *(Ardra Vastra Dharan)* was 16.67%, keeping awake at night *(Ratraujagaran)* was 13.33%, close contact with infected person *(Sansarga)* was 13.33%, and some conditions like exposures to cold wind (*Sheeta vayu sevan)* was 23.33%, to sun (*Atapa Sevan)* was 10%, to fire (*Anal sevan)* was 3.33%, to hot and cold conditions alternately or simultaneously (*Ushna Sheeta Vyatyasat Sevan)* was 3.33%, for longer duration.

Site of Lesion: Majority of patients had tinea cruris, tinea corporis and spreading of lesion was founds on thighs, groin region, abdomen in these patients. In few patients' axillary region was involved.

Assessment of parameters

Itching *(Kandu)*

Itching	Mean	Median	SD	SE	Wilcoxon W	P-value	Effect	Result
BT	1.60	1.00	0.72	0.13	-4.838^{6}	0.0000013	56.25%	Sig
AT	0.70	1.00	0.75	0.14				

Since observations are on ordinal scale (gradations), here wilcoxon signed rank test was used to test efficacy. From above table, P-value is < 0.05. Hence, effect observed is significant.

Dryness *(Rukshata)*: Shows 33.33% reduction in *Rukshata* before and after treatment.

Dryness	Mean	Median	SD	SE	Wilcoxon W	P-Value	Effect	Result
BT	1.20	1.00	0.71	0.13	-3.638^{6}	0.0002747	41.67 %	Sig
AT	0.70	1.00	0.70	0.13				

Since observations are on ordinal scale (gradations), here wilcoxon signed rank test was used to test efficacy. Here, P-value < 0.05. Hence, effect observed is significant.

Redness *(Raga):* shows 41.67 % reduction in *Raga* before and after treatment.

Raga	Mean	Median	SD	SE	Wilcoxon W	P-Value	Effect	Result
BT	0.67	1.00	0.48	0.09	-2.111^{6}	0.0348085	35 %	Sig
AT	0.43	0.00	0.50	0.09				

Since observations are on ordinal scale (gradations), here wilcoxon signed rank test was used to test efficacy. Here, P-value < 0.05. Hence, effect observed is significant.

Number of lesions

Numbers of Lesion	Mean	N	SD	SE	t-Value	P-Value	Effect	Result
BT	1.43	30	1.01	0.18	1.439	0.1608	4.65 %	NS
AT	1.37	30	0.85	0.16				

Since observations are quantitative, paired t- test was used to test efficacy. Here, P-value > 0.05. Hence, effect observed is nonsignificant.

Colour of lesions (*Varna of Mandala)*

Colour of Lesions	Mean	Median	SD	SE	Wilcoxon W	P-value	Effect	Result
BT	1.26	1.00	0.49	0.08	-3.281^{6}	0.0017998	35.19 %	Sig
AT	0.81	1.00	0.79	0.12				

Since observations are on ordinal scale (gradations), here wilcoxon signed rank test was used to test efficacy. Here, P-value < 0.05, Effect is 35.19 %. Hence, effect observed is significant.

Size of lesion

Size of lesion	Mean	N	SD	SE	t-Value	P-Value	Effect	Result
BT	22.30	43	25.79	3.93	3.559	0.0009	16.27 %	Sig
AT	18.67	43	23.71	3.62				

Since observations are quantitative, paired t- test was used to test efficacy. Here, P-value < 0.05. Hence, effect observed is significant.

DISCUSSION

Age: The disease *Dadru Kushtha* can be manifests in all the age groups. Exposures to hot humid climatic conditions, stressful life, working age population, changes in lifestyle, dietary

disturbance with junk foods, increase in workload. These factors increase incidence of *Dadru Kushtha* found majorly in age group of 25-30 years.

Occupation: patients were had more sedentary lifestyle; irregular eating habits which resulted into vitiation of *Kapha Dosha*, some employees working in Air- conditioner environment exposed to hot and cold conditions alternately which is *Viruddha Vihara*. Some other factors were exposure to sun, work in hot & humid conditions, keeping awake at night leads to vitiation in *Rakta*. *Rakta* and *Pitta Dosha* have inseparable relationship of 'adobe and resident' i.e., *Ashraya-Ashrayi* & both are important causative factors in pathogenesis of *Dadru Kushtha.*

Patients who are staying away from home was followed improper food habits without taking meals with to *Viruddha Aahara* too. Diet had predominance of *Ushna, Tikshna, Vidahi, Abhishyandi* properties. This type of diet is the mainly causes vitiation in *Pitta* and *Kapha dosha*. Major population was found were house wives, they had more tendency of taking meal on meal (*Adhyashana),* irregularity in quantity and time of meal *(Vishamashana),* provocation or suppression the natural urge *(Vegadiran-dharan)* and day time sleeping which decreases the digestive power (*Agnimandya)* i.e., ability to procreates indigestion lead to accumulation of undigested food (*Ama)* which are responsible for aggravation of vitiated *Kapha (Prokop)* and habitually of intake of stale food *(Paryushitashan),* working near fire for professional cook in hotels causes aggravation of vitiated *Pitta* and *Rakta* also. Vitiated *Pitta* & *Kapha* are mainly responsible for pathogenesis of *Dadru*.

Diet: Majority Population was had mixed diet. Taking meal prior to previous meal (*Adhyashana),* which are slimy and heavy in nature *(Abhishyandi ahara),* eating incompatible food *(Viruddhashana)* like fish recipes with curd. Consumption of milk, lassi and various milk products along with non-veg food, milk with fruits, these are incompatible in their potency (*Virya Viruddha Ahara)* that resulted into aggravation in all three humors of body (*Tridosha Prokop)* and vitiation in *Rakta*.

Physical constitution *(Prakruti):* Patients were having *Pitta Pradhan Kapha Prakruti* and *Kapha Pradhan Pitta Prakruti* were more prone to cause *Dadru Kushtha*.

Digestive power *(Agni):* Maximum patients were having *Mandagni (Jatharagni, Dhatwagni)* resulted into formation of *Aama*, and thus the pathogenesis of *Dadru Kushtha.*

"Roga sarve api mandagnau" as mentioned in Ashtanga Hrudya, low/decreased digestive power *(Mandagni)* is main cause of all diseases. Increase in digestive power *(Agnideepana)* is one of the major parts of treatment of any disease *(Vyadhi)*. The *Saptaparna* has property which stimulate *(Deepan)* and increases the digestive power (*Agni-Sandhukshan)*. The increase in gastric digestive power *(Jatharagni)*, ultimately increases the metabolism at tissue level *(Dhatwagni)* led to breakdown in pathogenesis of *Dadru Kushtha.*

Predominant taste *(Pradhan Rasa):* The Dominance of main *Rasa* in the diet of patients of the series was pungent *(Katu),* sour *(Amla),* salty *(Lavan)* which aggrevates vitiated *Pitta* and sweet *(Madhur),* sour *(Amla),* salty *(Lavan)* aggrevates vitiated *Kaph Dosha,* which is responsible for *Pitta-Kapha* predominance in *Dadru Kushtha.*

Predominant properties *(Pradhan Guna):* The dominance of *Guna* in the diet of patients of the series was *Guru*, *Viruddha Ahara*, *Snigdha*, *Ushna*, *Abhishyandi*, *Drava*, *Kshariya*, *Sheeta*, *Tikshna*, *Paryushita Ahara*. all these *Aharaj Guna* lead to aggravation in vitiated *Rakta and Pitta (Prakopa). Saptaparna* has *Tikta* and *Kashaya Rasa* properties which purifies *(Shodhaka) Rakta*, removes vitiated three humors *(Tridoshaghna)* and breaks the pathogenesis of *Dadru*.

Predominant activities *(Viharaj Hetu):* Predominant causes are as follows: *Diwaswap,* wearing of wet cloths, *Ratraujagaran, Sheeta vayu sevan, Atapa Sevan, Anal sevan, Ushna Sheeta Vyatyasat Sevan* for longer duration. All this causes *Tridosha Prokopa* which is responsible for *Dadru*.

In Ayurveda *Kushtha* is mentioned as communicable disease (*Sansargaj Vyadhi).* It spreads by close contact with infected person, contacts with contaminated cloths, ornaments, utensils etc. In many patients were found that wearing of wet cloths as major cause. It provides hot & humid condition which favours fungal growth. Now days, there is westernization of culture, fashion changes, many peoples are like to wearing tight clothing's like jeans which has been adopted from western culture which are not suitable for tropical and subtropical climate has also been causative factor for this clinical condition.

Mental cause *(Manas Hetu):* As mentioned, *"Chintyanam ch ati chintanat*" i.e., stress, is the predominant factor causing *Rasa Dhatu Dushti*, which is very common cause in day-to-day

life. Also, other factors such as an anger *(Krodha),* fear (*Bhaya),* weariness *(klama)* etc. causes vitiation in all *Doshas* led pathogenesis of *Dadru.*

Recurrence: Superficial dermatophytosis shows recurrence, it may be due to the dermatophytes have immune-inhibitory mannans in their cell walls. This allows the fungus to remain on the skin rather than being sloughed off the causative fungus produces proteases, serine-subtilisin and keratinases all of which allow the fungus to invade the horny layer of the skin and spread outward.

Site of lesion: Majorly of patients having tinea cruris, tinea corporis. it is observed that most of lesion was founds on thighs, groin region, Abdomen, Axillary area. These body parts remain always covered with cloths and due to wearing of tight cloths (jeans), area produces more sweats due to which it remains always wet or humid.

Itching *(Kandu):* It is mainly associated with aggravation in vitiated *Kapha Dosha* and also due to dryness in skin *(Twak Rukshata)* by abstinence *(Abhav)* of *Snigdha Guna*. By the external application of drug on lesion it gets absorbed and spreads rapidly by its *Sara Guna*, which is *"Sarastesham Pravrtaka"* as mentioned in Bhavaprakasha, this action helps to provocate the expulsion of local and generalised *mala* and vitiated *Doshas.* It has *Kandughna* property, which helps to reduces itching. The drug has bitter (*Tikta),* sour tastes *(Kashaya rasa), Snigdha,* hot in potency *(Ushna),* purifies *(Shodhaka) Rakta,* removes vitiated three humors *(Tridoshaghna), Kandughna* which relieves itching by both routes.

Dryness *(Rukshata):* It is due to dominance of *Vata dosha* or lack of unctuous property (*Snigdha)* of *Kapha*. As mentioned in Samhita, "*Swedasya kleda vidruti*", *Sweda* (sweats) gives lustrous appearance to skin. In *Dadru* there is *Swedavaha Strotas Dushti* which leads to obstruction in production of sweat, creates dryness of skin. drug breaks the pathogenesis; it reopens the channel's *(Strotovishodhan)* which helps to normalises the sweat channels and gives lustrous appearance to skin ultimately helps to reduce the dryness.

Redness *(Raga):* It is presented by the dominance of *Pitta Dosha* as drug have *Pitta Shamaka, Raktashodhaka* property thus reduces redness/inflammation.

Colour of Lesions (*Varna of Mandala):* Majority of patients were presented with *Tamra* coloured lesions; it is due to predominance of vitiated *Pitta Dosha*. Some with *Shyav varna,*

it is due to aggravation vitiated *Vata Doshas*. Very few patients were presented with *Sita varna* lesions. It may be due to less involvement of *Doshas*.

As mentioned in Samhita, it is observed that mostly peoples with *Kapha* and *Pitta* dominant *Prakruti* are fair in complexion such patients are presented with *Tamra varna mandala*. Patients with *Vata* dominant *Prakruti* are presented with blackish coloured lesions *(Shyava varna mandala).*

As mentioned by Dalhanacharya on Sushruta commentary, black coloured lesions *(Asita varna)* indicate chronicity of disease due to involvement of vitiated *Vata Dosha*. When *Tridoshas* are involved in *Kushtha*, it lands into incurable diseases *(Asadhyatva).*

CONCLUSION

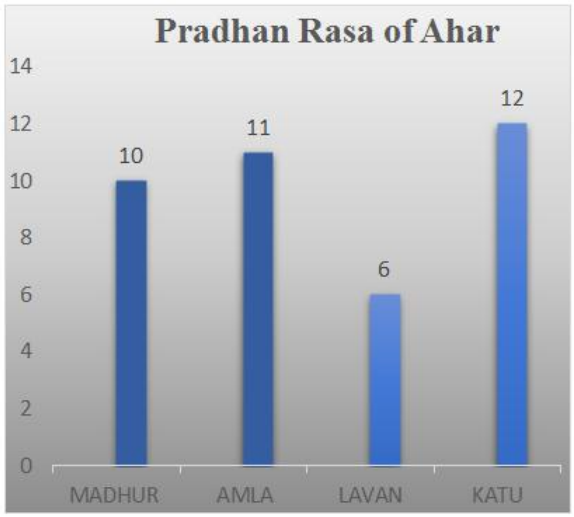
From the present study, following conclusions are drown on the basis of the observations obtained and discussion done.

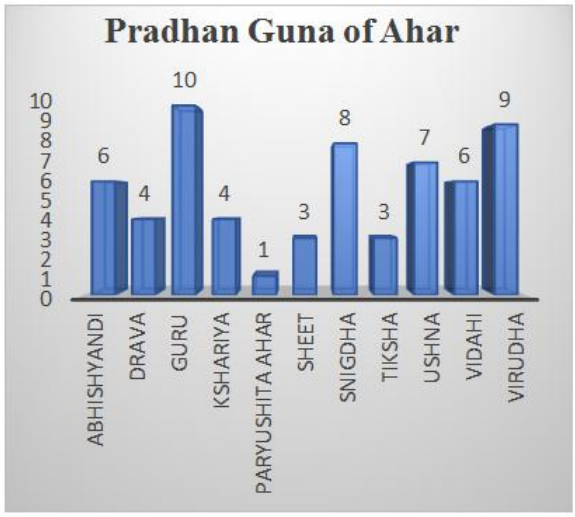
From the statistical analysis, it has been proved that *Saptaparna* decoction internally and powder as external application is effective in *Dadru*. Decoction internally and powder as external application together had significant effect on subjective and objective criteria. However complete cure requires longer duration of treatment. 4 patients who were newly diagnosed got complete relief form the lesion except change in colour which seems to be slowly changing in all observed cases.

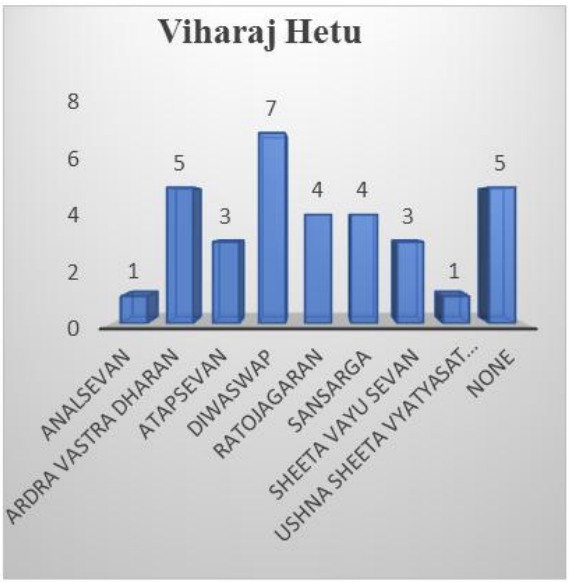
From this clinical study it is concluded that patients with newly developed lesions were able to get significant results, the more the chronic lesion slower is the progress. The role of proper maintenance of hygiene and diet is re-established and seems to be valuable for permanent cure.

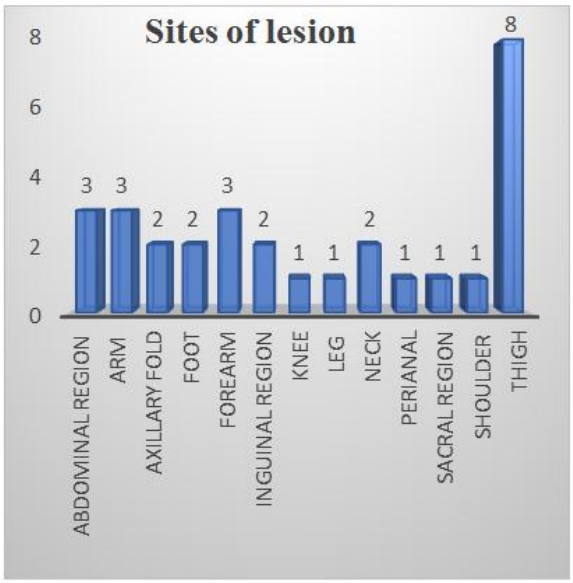
Graphical presentation of Data

Distribution data according to Frequency

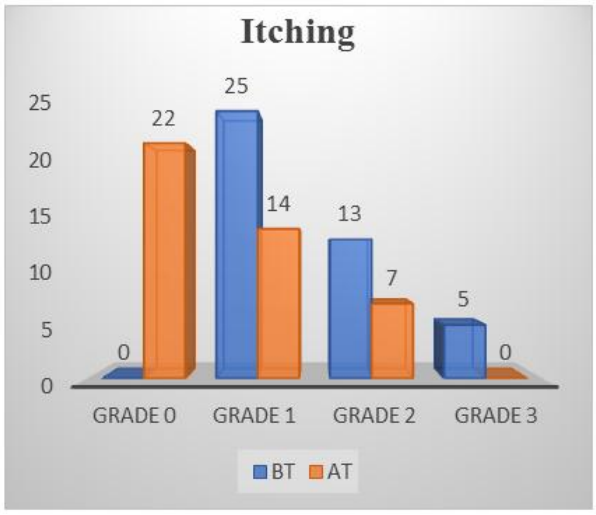


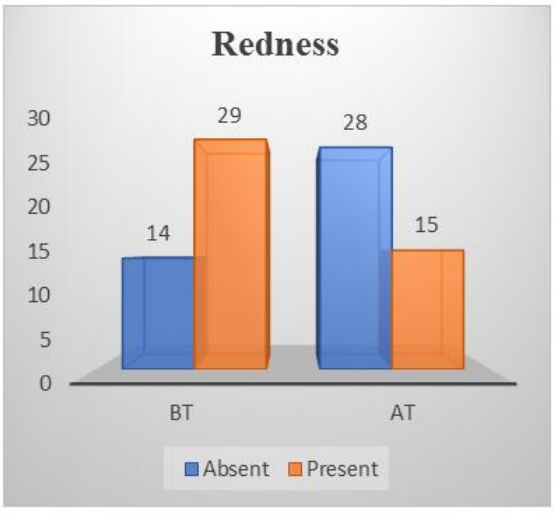


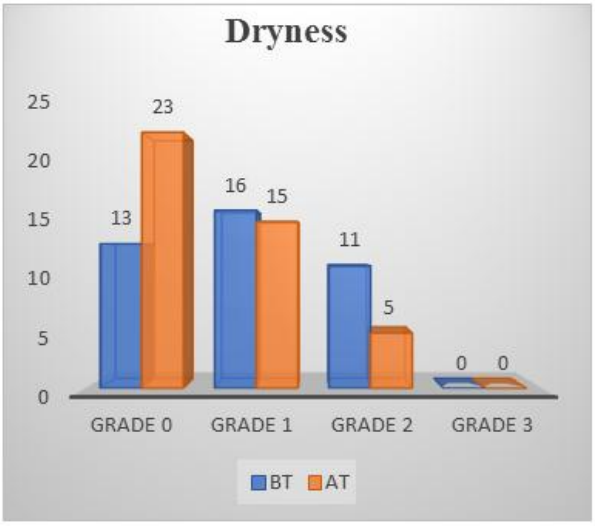




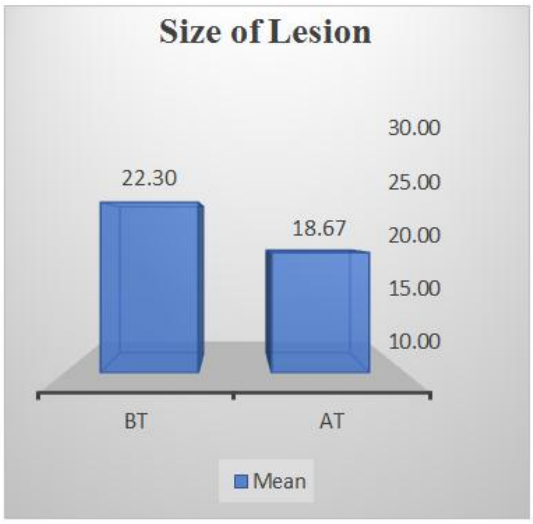
Frequency of symptoms before and after treatment

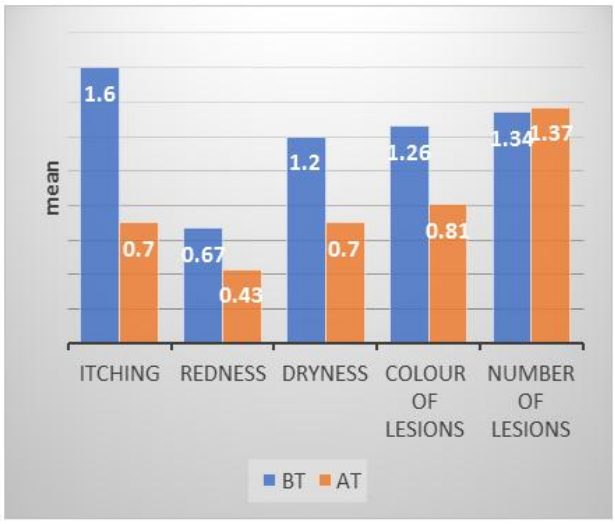


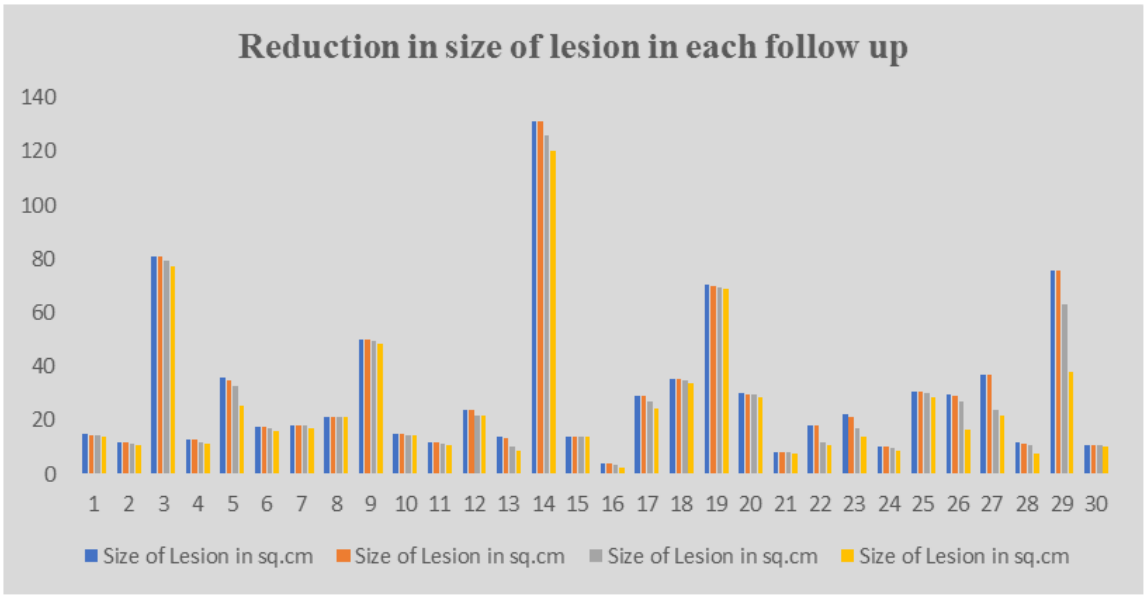




Means of symptoms before and after treatment







In above graph: L1- 1st follow up, L2- 2nd follow up, L3- 3rd follow up, L4- 4th follow up

Significant reduction in size of lesion was found in 20 patients. Mild reduction was found in 8 patients who had fungal infection over thigh, groin, abdomen, axillary region. these body parts remain always covered by cloths, produces more sweats and remains always wet and humid. It favours the growth of fungus.

No any change in size of lesion was found in 8th and 15th number of patient. In 8th number patient lesion was on abdominal region and he was cook by occupation. Because of occupation patient was exposed to fire for longer period of time, which causes excessive sweating as well as *Rakta* and *Pitta Dushti* due to excess *Ushna Guna*.

15th number patient had lesion on thigh region. Patient was college going student and having history of eating fast foods, junk foods more frequently in diet. But still there was significant reduction in other subjective and objective parameters of both patients. But size of lesion was same.

As mentioned in Ayurveda *Aharaj, Viharaj Hetu, Manas Hetu* has prime importance. It should be avoided. Also, maintenance of proper hygiene of lesion is needed to be followed to cure Dermatophytes.

The first part of graphical representations was related to calculation of over all response and 2nd part deals with response to individual patient.

Skin disease needs treatment for longer duration. Thus, is study period even if response noted is 15 to 25 percent than better outcome can be expected by giving treatment for still longer duration 3 to 6 months also in some chronic cases.

REFERENCES

1. Leung A, Lam J, Leong K, Hon K. Tinea corporis: an updated review. Drugs in Context, 2020; 9: 2020-5-6.
2. Tripathi B, Charak Samhita (vol-2) chikitsa Sthana, ed 4th, Varanasi Chaukhamba Sanskrit Prakashan, Reprint 2017, chapter no.7, shloka no. 40, pg.no.182.
3. Munjal Y, API Textbook of MEDICINE, Part II Dermatology, 10th edition, Mumbai, 2015; 665.

4. Tripathi R, Shukla V, Charak Samhita of Agnivesa, Vaidya Manorama Hindi Commentary, vol-2, chikitsa Sthana, Reprint-2017, Delhi, Chaukhamba Sanskrit Pratishthan, Chapter no.7, pg. no.184.
5. Shastri A, Sushrut Samhita by Sushruta Acharya, Nidansthana, Reprint 2016, Varanasi, Chaukhamba Sanskrit Sansthan, chapter no.5, pg.no.321.
6. Garde G, Sartha Vagbhata, Nidansthana, chapter no.14, Reprint-2009, Varanasi, Chaukhamba Surabharti Prakashan, page no.206.
7. Vidya J.T. Acharya, Sushruta Samhita of Sushruta with Nibandhasangraha commentary on Shree Dalhanacharya on Nidansthana, Reprint 2012, Varanasi, Chaukhamba Sanskrit Sansthan, chapter no.5, pg.no.284.
8. Shastri A, Sushrut Samhita, Nidansthana, Reprint 2016, Varanasi, Chaukhamba Sanskrit Sansthan, chapter no.5, pg.no.320.
9. Tripathi B, Charak Samhita (vol-2), chikitsa Sthana, ed 4th, Varanasi, Chaukhamba Subharati Prakashan, chapter no.7 pg. no-306.
10. Tripathi B, Charak Samhita (vol-2) chikitsa Sthana, ed 4th, Varanasi, Chaukhamba Subharati Prakashan, chapter no.7 pg. no-311.
11. Tripathi B, Charak Samhita, vol-1, Sutra Sthana, edition 4th, Varanasi, Chaukhamba Subharati Prakashan, chapter no.4, pg. no.73.
12. Shastri A, Sushrut Samhita by Sushruta Acharya, Sutrasthana, Varanasi, Chaukhamba Sanskrit Sansthan, Reprint 2016, chapter no.38, pg.no. 183.
13. Shastri A, Sushrut Samhita by Sushruta Acharya, Sutrasthana, Varanasi, Chaukhamba Sanskrit Sansthan, Reprint 2016, chapter no.38, pg.no.188.
14. Tripathi B, Charak Samhita (vol-2) chikitsa Sthana, edition 4th, Varanasi, Chaukhamba Subharati Prakashan, chapter no.7, pg. no-293.
15. Chunekar K, Bhavaprakasha Nighantu, 10th edition, Varanasi, Chaukhamba Bharati Academy, Vatadi varga, Shloka no.74-75, page no. 546-547.
16. Sharma P, Kaiyadev Nighantu, Aushadhi Varga, First Edition, Chaukhamba Orientalia, 1979, Shloka no. 853-856, page no.176.
17. Sharma P, Dhanvantari Nighantu, Adhyaya 3, 1st Edition, Chaukhamba Orientalia Publication, 1982, Shloka no.86-87, page no.87.