

CLINICAL EVALUATION OF VIDANGADI PRADEHA & ARAGVADHADI UDVARTANA IN EK-KUSHTHA (PSORIASIS)

Dr. Vijay Kumar^{*1}, Dr. Shrimant G. Chavan², Dr. Arvind Gupta³ and Dr. Shashi Prabha⁴

¹MD Final Year Scholar P.G. Dept. of Panchkarma Himalayiya Ayurvedic P.G Medical College and Hospital, Distt. Dehradun, Uttarakhand.

²Associate Prof. Dept. of Panchkarma Himalayiya Ayurvedic P.G Medical College and Hospital, Distt. Dehradun, Uttarakhand.

³Prof. and HOD Dept. of Panchkarma Himalayiya Ayurvedic P.G Medical College and Hospital, Distt. Dehradun, Uttarakhand.

⁴Assistant Prof. Dept. of Shalya Tantra, Swami Kalyan Dev Govt. Ayurvedic Medical College and Hospital, Muzaffarnagar (UP).

Article Received on
10 November 2023,

Revised on 01 Dec. 2023,
Accepted on 22 Dec. 2023

DOI: 10.20959/wjpr20241-30816



***Corresponding Author**

Dr. Vijay Kumar

MD Final Year Scholar P.G.
Dept. of Panchkarma
Himalayiya Ayurvedic P.G
Medical College and
Hospital, Distt. Dehradun,
Uttarakhand.

ABSTRACT

Ek-Kushtha is a kind of *Kshudra Kushtha* that resembles Psoriasis in its clinical presentations and is primarily caused by an imbalance of the *Vata* and *Kapha doshas*. It bears a greater resemblance with Psoriasis, which is a long-lasting autoimmune and chronic inflammatory skin disorder clinically characterized by erythematous, sharply demarcated papules and rounded plaques, covered by silvery micaceous scale predominantly affecting the skin of elbows, knees, gluteal cleft, and scalp. Some people may have severe Psoriasis involving their entire body. The quality of life of patient with Psoriasis is often diminished because of the appearance of skin. The mainstays of psoriasis treatment include immune system suppressing drugs like methotrexate, PUVA, vitamin D3 lotion, and steroid creams. Some contemporary therapeutic methods do have serious drawbacks, particularly when used for an extended period of time. These modern treatment modalities are not devoid from grave complications mainly in long

term use. Hence there is a need of *Ayurvedic* management to cure the *Ek-Kushta*. In the present research “**CLINICAL EVALUATION OF VIDANGADI PRADEHA &**

ARAGVADHADI UDVARTANA IN EK-KUSHTHA (PSORIASIS)” has been evaluated which is free from the above mentioned drawbacks. Total 40 patients were taken and randomly divided into two equal groups.

Group A: Treated group with *Vidangadi Pradeha* for local application

Group B: Treated group with *Aragvadhadi Udvartana* for local application

Out of which the overall effect obtained in Group A (*Vidangadi Pradeha*) shows that out of 20 patients, and all patients were markedly improved in Group B (*Aragvadhadi Udvartana*) shows that out of 20 Patients, and all patients were markedly improved without any complication. Result was observed on the basis of subjective parameters and analysed statistically. Although *Vidangadi pradeha* and *Aragvadhadi udvartana* both are effective in curing patients suffering with *Ek-Kushtha (Psoriasis)*, but on the basis of overall effect of therapy it was found that *Aragvadhadi Udvartana* had better result than *Vidangadi Pradeha*. More over, both therapy were well accepted by all patients and did not produce any side effect during study period. Psoriasis as Ek-kushtha and Ayurvedic management was planned accordingly. Patients were assessed on the basis of clinical symptoms of *Ek-Kushtha* (as mentioned in *Charaka Chikitsa* 7) as well as PASI score.

KEYWORDS: Psoriasis; *Ek-Kushtha*; *Panchkarma*.

INTRODUCTION

Skin serves as a bridge between our internal and external environments and reflects our emotions. It preserves beauty and personality while giving each person a sense of identity in society. It connects the internal and exterior environments and houses the complexion, which upholds personality and beauty. It helps people feel like they belong in society. The largest organ in the body and the one that is closest to the surface are both vulnerable to microorganisms. It causes social and psychological problems by impairing people's beauty. A significant amount of sorrow, suffering, disability, and monetary loss are caused by skin diseases. Today's culture places greater emphasis on physical attractiveness than on inner beauty, and some professions call for attractiveness and charm.

The majority of skin conditions have been discussed in *Ayurveda* under the *Kushtha* category. The pathological disorder known as *Kushtha* despises the skin. According to the various *Dosha* dominances, there are 18 different varieties of *Kushtha* listed in *Ayurvedic* literature, and *Ek-Kushtha* is one of the eleven *Kshudra Kushtha*. The vitiation of the *Saptakodravya Sangraha*, which consists of the three *doshas* (*Vata*, *Pitta*, and *Kapha*) and four *dushyas*

(*Twak, Rakta, Mumsa, Lasika*). *Vata-Kapha* and *Twacha* are the prominent *doshas* in *Ek-Kushtha*, while *Twacha* is the primary *dosha adhishtan*. The clinical characteristics of *Ek-Kushtha* described by *Acharya Charaka*, namely *Aswedanam* (absence of sweating), *Mahavastu* (extensive localisation), and *Matsyashakalopamam* (scaling), are strikingly similar to those of psoriasis.

In *Ayurveda* there are three types of treatment modalities namely- *antah parimarjan* (Internal treatment/Purification), *Bahiparimarjan* (External treatment/Purification) and *shastra pranidhan* (Surgical management). For the management of skin disorders in *Ayurveda* both *antahparimarajan* and *bahiparimarjan* treatments are indicated *Antahparimarajan* includes *Panchkarma chikitsa* and internal medications. *Bahiparimarjan* includes modalities like *abhyang*, *upnah*, *udvaratan*, *pradeh*, *alepa* etc. In the present study we have taken *vidangadi pradeha* and *Aragvadhadi udvartan* to evaluate their efficacy in the management of psoriasis. In *Ayurveda* skin *Ek-Kushtha* is described as a type of *Kshudra Kushtha*. *Acharya Charaka* mentioned *Vata Kapha* dominancy. *Acharya Vagbhatt* has explained similar *Doshik* involment But *Acharya Sushruta* mentioned *Kapha* dominancy. *Ayurvedic* approach in the disease is by pacifying the *doshas*, paying special attention to *Vata-kapha shamana*. So two important *karma Pradeha* (Type of *Lepa*) and *Udvartana* are chosen.

Definition of lepa: The Freshly collected wet drugs are made into a fine paste form and used as an external application. The Freshly dried drugs are taken into *khalwayantra* and pounded to fine powder form and are filtered then these filtered drugs are triturated with a medium base which is used in *lepa* and fine paste is made which is used for external application. *Sharangdhara Samhita* contributes a very significant part in the world of *Ayurveda*. *Sharangdhara samhita* has a separate chapter on *lepa*, it defines importance of beauty and *lepa*.

- **VIDANGADI PRADEHA-** A mixture is prepared by adding and grinding drugs *Vidanga*, Rock salt, *Haritaki*, *Bakuci*, *Sarsapa*, *Karanja* seeds and *Haridra* in equal ratio and *lepa* is prepared by adding cow's urine. *Vidangadi Pradeha* have *katu*, *tikta*, *kashaya*, *panchrasa*, *Amla Pradhan rasa & laghu*, *snigdha*, *rukshan*, *tikshana*, *guru*, *sheet guna & ushana*, *sheeta virya*.
- ❖ **Synonyms of lepa^[1]:** *Alepa*, *Lipta*, *Lepa* and *lepana* are all the synonymous word mentioned in different texts.

Duration for lepa^[2]: *Dosha Sharangdhar* have stated that *Lepa* should not be applied at nights nor it should be allowed to stay on after it dries up.

❖ **Direction of lepa^[3]:** *Lepa* should be applied in *Pratiloma Gati* (against the direction of hair follicle) on the skin to make the action of application quicker and more effective.

❖ **Important factors in lepa Kalpana^[4]:** 1. The lepa material should be very fine. 2. Previous lepa should never be covered with fresh one. If done so, it hampers the local temperature and leads to pain and numbness in the area. 3. Application of in night hours is prohibited because as night-time is naturally cool it helps in transfer of body temperature from hair follicle. When lepa is applied on the skin, transfers of this temperature will be hampered leading to vitiation of resulting in worsening of existing skin condition. 4. If the *Lepa* is prepared with bad odour, some non-irritating, soothing aromatic material of herbal origin should be used to overcome the drawback of bad odour. 5. After applying *Lepa* on face, it should not be scrubbed vigorously, it may result eruption of acne and dark spots.

❖ **Contraindication of Lepa^[5]:** It should not be applied to a person suffering from *Pinasa* (rhinorrhea), *Ajirna* (indigestion), Immediately after *Nasya karma*, *Arochaka*, *Hanugraha* and after *jagrana* (keeping awake the previous night)

ARAGVADHADI UDVARTANA

According to *Sushruta*, *Udvartana* can be classified as two types:

1. *Udgharshana*
2. *Utsadana*

1. *Udgarshana* (Reinforced friction): *Ud + gharshana*

gatradi garshanam Asnehaoushadh churnadibhi gharshanam/(Su .Sa. Chi. 24/52-56)

When dry powders of the herbs with no addition of oil or any liquid are rubbed against body then it is referred as '*Udgharshana*'. It gives benefits of *Vata Shamana*, helps in removing *Kandu- Sphota- Pidika*, *Sira shodhaka*, *Twak gata Agni vardhaka*, and stimulates *Bhrajaka Pitta*. Friction of body with powder excites the heat of skin (*twakasth agni*), destroys itching and rashes etc.

2. *Utsadana* (Rubbing): *Snehakalkena udgharshnam utsadanam/(Su .Sa. Chi. 24/52-56)*

The procedure of rubbing against the body with dry powder mixed with oil, is called 'utsadana' i.e. friction of body with drugs mixed with *sneha* or medicine mixed with oil or other *dravya* in the form of *kalka* is called as *Utsadana*. The benefits of this are: it improves complexion of skin, gives good appearances, cleans, and beautifies. According to *Vaatsyaayana*, in *Vidyasamudyeshiya Prakarana*, rubbing is one of the 64 arts recognized in India. This reference indicates classification *Samvaahanam* – rubbing done to the *Keshmardanam* – rubbing with hands.

- *Utsaadana* – rubbing done with legs.
- Again as follows, parts of body other than head. The treatment advised for *medasvita* in *Bheshaja Yojana Chatushka*, while describing *Ashtaunindita Adhyaya*, *Charaka* describes two variety of *Udvartana* named as

1. *Snigdha udvartana*
2. *Ruksha udvartana*

Beneficial effects of *Udvartana* It has been said in the *Ayurvedic literature* that, *Udvartana* opens the circulatory channels, facilitates the metabolic activity and improves the complexion in the skin. By virtue of these therapeutic effects one can obtain the following benefits from *Udvartana* treatment.

1. Alleviates vitiation of *kapha dosha*.
2. Reduces excess of fat in the body.
3. Corrects imbalance of *Vata dosha*
4. Promotes the excellence of skin.
5. Increases the stability of extremities.
6. Leads to sense of lightness in the body.
7. Eliminates the bad body odour.
8. Reduce excessive sweating.
9. Prevents untimely drowsing.
10. Cures itching sensation

Procedure of *Udvartana*

- The best time for *Udvartana*, as mentioned in daily regimen, is in the early morning i.e. between five and nine and before bathing.
- Bladder and bowel should be emptied.
- Blood pressure, pulse rate, heart rate and respiratory rate should be recorded.

- *Udvardana* should begin from legs, arms, chest, abdomen, and back and gluteal region and should be in upward direction i.e. centripetally.
- Generally the duration is 30 – 45 minutes.
- After *Udvardana*, patient should take rest for 15 minutes, to relax.
- After relaxation, hot water bath is advised.
- *Udvardana* is an external process. Hence, knowledge about the structure and function of the skin, anatomy and *marma* (important vital points of body) is essential.

ARAGVADHADI UDVARTANA: The procedure of massaging the whole body below the neck in a direction opposite to the orientation of hair with some pressure is called *Udvardana*. *Sharira Parimarjana* is another name mentioned by *Charaka*. *Chakrapani* defined it as a procedure done after *Abhyanga* in the context of daily regimen. One of the important procedures in *Panchakarma* is *Abhyanga*. *Udvardana* is slightly different from it. The only difference from *Abhyanga* is the direction of movement and the force applied during the procedure.

Types of *Udvardana*

A. According to *Charaka*: Depending upon the variation in the therapeutic effect, it is of two type.

***Snigdha Udvardana*,**^[6] in the context of treatment of *Krishha* (lean and thin) persons, in which oil is used in the procedure.

***Ruksha Udvardana*:**^[7] in the context of treatment of *Sthula* (obese) persons, in which dry powder of herbs with no addition of oil is used during the procedure.

B. According to *Sushruta*^[8]: Depending upon the nature of drugs used, three different terms are mentioned by *Sushruta*.

- ***Udvardana***
- ***Udgarshana***-in which dry powder of herbs like *Reetha* (*Sapindus Trifolius*) and *Ishtika Churna* (brick powder) is rubbed against the body.
- ***Utsadana***, in which *Sneha Kalka* (paste of herbs moistened with oil), is used during the procedure. It is also described in the context of *Shashthi Upkrama* by *Sushruta 11* and in *Dwivraniye Chikitsa* by *Charaka 12* as a measure to treat a *Vrana* (wound)

C. Indications for *Ruksha Udvardana* in Skin diseases.

D. Indications for *Utsadana*:

- For beautification.
- To increase skin luster.

ARAGVADHADI UDVRTANA- After performing *abhyanga* with *Sarsapa taila*, the paste for *Udvartana* prepared by grinding of *Aragvadha* leaves, *Kakmaci* leaves, and *Karvira* leaves in equal quantity with butter milk.

PROCEDURE

Application of medicated oil as indicated and dusting of herbal powder on the body followed by massage with some pressure in the direction opposite to that of hair is the main method adopted in *Udvartana*. Various steps involved in this procedure are:

A. PREPARATION OF THE PATIENT: Ideal time for *Udvartana* is the morning hour after evacuating the bowel and bladder. It should be performed empty stomach and before bath. Mild exercise may be advised to the patient before the procedure. Therapist should start the procedure after chanting prayer.

B. MAIN PROCEDURE: Position of the Patient, Patient wearing minimum copin is advised to lie down on the *Abhyanga* table. There are four positions in which *Udvartana* is carried out. These include supine, left lateral, prone and right lateral positions. At first, patient is advised to lie down in supine position and *Udvartana* is done on the anterior part of the body. Second position is the left lateral position and *Udvartana* is done on the right lateral aspect of the body. Third position is the prone position in which, posterior part of the body is treated with *Udvartana*. At last, patient is advised to take right lateral position and *Udvartana* is carried out in the left lateral aspect of the body. *Udvartana* is done on each part of the body below the neck by exerting some pressure.

C. DURATION OF UDVRTANA: Each part of the body in their respective positions is massaged for 3-5 minutes. Usually the duration of *Udvartana* is 30-45 minutes.

D. POST PROCEDURAL ACTIVITIES

Patient is advised to take rest for at least 15 minutes. Patient is allowed to take bath. With lukewarm water after an interval of minimum 1 hour.

E. CARE AND PRECAUTIONS

- Before *Udvartana*, bladder and bowel should be emptied.

- It is to be done in the direction opposite to that of the hair.
- Type of massage on different parts of the body and position of the patient during the procedure should be followed strictly.
- Indications and choice of drug to be used should be assessed before *Udvartana*.
- Tender areas should be avoided for *Udvartana*.
- Precaution should be taken while dusting the powder over the body. It is advisable to protect face, nose and eyes to prevent irritation.
- Aseptic measures should be taken if patient is suffering from any contagious disease.

Psoriasis, on the other hand, causes no discomfort. On the other hand, it is referred to as "The disease of the healthy man". *Ek-Kushtha* is made up of the symptoms and indicators, i.e.

अस्वेदनम्महावास्तुयन्मत्स्यशकलोपमम् ||(Ch.Chi.7/21)

महावास्तु-महास्थानम् |

मत्स्यशकल-अत्रशकलशब्देनलक्षणयात्वगुच्यते ||(चक्र.)

तेनचक्राकारंअभकपत्रसदृशंभवति ||(Bh.Ma.54/25)

महास्थानम्-covering a substantial portion of the body.

मत्स्यशकल- Raised, erythematous skin lesion.

चक्राकारंअभकपत्रसदृशं-Since it has a rounded shape and silvery white scales that are comparable to psoriasis, the present research effort has chosen it as an analog of psoriasis. According to clinical observations, *Ek-Kushtha* is an illness that recurs frequently.

पक्षात्पक्षाच्छर्दनान्याभ्युपेयान्मासान्मासात्संसनंचापिदेयम् || (Su.Chi.9-43)

It demonstrates the value of *Panchakarma*. As a result, "*Shodhana*" becomes a crucial instrument for managing the situation.

"*Kushta Dirgharoganam*" it clearly shows the chronic nature of the disease. *Ek-Kushtha* (Psoriasis) is typically unpredictable in its course, may vary in severity from one episode or flare to another, and often recurs throughout an affected person's life. Currently there is no cure for psoriasis and treatment is directed at decreasing signs and symptoms and modifying the natural progression of the disease. A repertoire of topical and systemic therapies is available for the treatment of psoriasis, such as vitamin D3 analogues, corticosteroids, coal tar, dithranol, phototherapy, methotrexate, cyclosporine, systemic retinoids, and biologics.

Psoriasis is a non-infectious, chronic inflammatory disease of the skin, Characterized by well-defined erythematous plaques with silvery scale.^[9] Patches are most often seen on elbows, knee, and middle of body, but can appear anywhere on the body including scalp region. Traumatized area often develop lesions of Psoriasis (Koebner phenomenon). Additionally other external factors may exacerbate psoriasis including infections, stress and medications (Lithium, beta-blockers and Antimalarial.)^[10] The different types of Psoriasis are:-

PLAQUE PSORIASIS- It is the most common variety of Psoriasis individual lesions are well demarcated and range from a few millimeters to several centimeters in diameter. The Lesions are red with dry, silvery-white scaling. The elbows, knees and lower back are commonly involved.^[11]

GUTTATE PSORIASIS- This is most commonly seen in children and adolescents and may follow a streptococcal sore throat. The rash often appears rapidly. Individual lesions are droplet shaped, small and scaly.^[12]

PUSTULAR PSORIASIS- The onset is usually sudden with large number of small sterile pustules erupting on a red base.^[13] The disease may be localized to palm and soles or it may be generalized.

PSORIATIC ARTHRITIS- It may result in inflammatory condition of joints.

ERYTHRODERMIC PSORIASIS- The skin become universally red or scaly or more rarely just red with very little scale present.^[14] Common symptoms of Psoriasis are dry skin itching and burning sensation, signs of pustular Psoriasis, depression, painful swollen joints and genital lesions etc.

Although till now several research works have been done on *Ek-Kushtha* in *Ayurveda*, but many areas still remain untouched and unexplored regarding the impact of *Vidangadi pradeha* and *Aragvadhadi Udvartana* in this particular disease. So, the present study was carried out to find out the efficacy of *Vidangadi Pradeha* and to compare the effect of *Aragvadhadi Udvartana* in *Ek-Kushtha*. The best treatment should be aimed at breaking the pathogenesis of the disease rather than dealing with it symptomatically. A total of 40 patients were screened in this study based on signs and symptoms of *Ek-Kushtha* as mentioned in *Charaka Chikitsa*⁷. 40 patients were registered on the basis of inclusion and exclusion criteria. These 40 patients were randomly divided into 2 groups of 20 patients each on the

basis of inclusion criteria depending on the clinical history, physical examination and other exclusion necessary investigations irrespective of their cast, creed and gender. 20 patients in Group A were administered local application of *Vidangadi Pradeha*. 20 patients in Group B were treated with *local application of Aragvadhadi Udvartana* for 30 days.

Patients were assessed on the basis of clinical symptoms of *Ek-Kushtha* (as mentioned in *Charaka Chikitsa* 7) as well as PASI score.

The first section on conceptual study deals with the detailed study & compilation of available literatures on the topic in classical, *Ayurvedic* & modern texts along with materials collected from various dissertations & articles on web. Literary review was done under the heading so

Ayurvedic disease review: Ek-Kushtha

Modern disease review: Psoriasis

Karma and Drug Review: Vidangadi Pradeha and Aragvadhadi Udvartana

In the second section on clinical study, there is detailed description about the selection of patients, inclusion and exclusion criteria, study design, diagnostic criteria, treatment schedule, criteria for assessment of result and observations based on subjective and objective parameters & statistical interpretation of data.

MATERIALS AND METHODS

Aims and objectives

- To study in detail the aetiopathogenesis and prevalence of *Ek-kushtha* as per diagnostic parameters of *Ayurvedic* & modern medical literature.
- To evaluate the efficacy of *Vidangadi Pradeha* in *Ek-kushtha* (Psoriasis).
- To evaluate the efficacy of *Aragvadhadi Udvartana* in *Ek-Kushtha* (Psoriasis).

Selection of patients

Patients with sign and symptoms of *Ek-kushtha* (Psoriasis) attending the O.P.D of P.G. Department of Panchkarma Himalayiya Ayurvedic (P.G.) Medical College & Hospital, Dehradun, were selected.

Plan of Work

Table No. 1.

Formulation	<i>Vidangadi Pradeha</i>	<i>Aragvadhadi Udvartana</i>
Preparation of Drugs	Lepa	Paste
Mode of Administraion	External Application Over Affected Area.	External Application Over Affected Area.
Dose	1/4 TH Angula (0.5cm) External Application over patches.	<i>Aragvadhadi Udvartana</i> quantity sufficient
Duration of Treatment	7 days with 3 days gap for 3 Sittings (30days)	7 days with 3 days gap for 3 Sittings (30days)

Observation During Treatment

At an interval of 15 days till the Patches heals completely.

Duration of the Treatment

- All the cases were treated till the Patches heals completely. Maximum duration of study was taken Six Months.

Follow up Period

- Follow up was carried out for one month after the completion of treatment.

Dietry restrictions

The patients were strictly advised to follow the pathyapathya of Kushtha roga.

Proforma- An elaborative case taking proforma was specially designed for the purpose of incorporating all aspects of the disease on Ayurvedic and modern parlance. Written informed consent was taken from all the registered patients for the trial.

Criteria for diagnosis of Ek-kushtha - Patients were diagnosed on the basis of clinical features, physical examination and lab investigation findings.

Inclusion criteria

1. Patients between the age group 20-50 years of either sex.
2. Patients with classical features of *Ek-kushtha* explained in classical text.
3. Patients were selected irrespective of sex, occupation, Socio economic status, religion etc
4. Both fresh and treated cases will be selected.
5. Patients fit for *Pradeha and Udvartana* will be taken for the study.

Exclusion criteria

- Age below the 20years and above the 50 years.
- Hypertension and other life threatening and complicated diseases (Ischemic Heart disease, Cancer, Stroke, HIV etc.)
- Known case of malignancy, IHD, CHF and any other vascular disease (Thrombo angitis Obliterans).
- Pregnant and Lactating women.

Pathological investigation

- CBC with ESR
 - T Cell Count
 - AEC
 - Urine-Routine & Microscopic examination
 - Lipid Profile
 - LFT
 - KFT
 - IgE
 - Biopsy
 - Throat Swabbing for Streptococci
 - Blood sugar (Fasting, PP)
- If Needed

Assessment Criteria

The clinical trial was assessed for its efficacy on the basis of following subjective and objective criteria.

Subjective Parameter

Matsyashakalopam (scaling)

Aswedanam (absence of perspiration)

Mahavastum (extensive location)

Kandu (itching)

Rukshata (dryness)

Candle grease sign

Auspitz sign

GRADATIONS FOR ASSESSMENT**1) ASWEDANAM**

Grade	Score
Normal	0
Mild sweating	1
Mild sweating after exercise	2
No sweating after exercise	3
Aswedana	4

2) Maha-vastu

Grade	Score
No lesions	0
Lesion on partial parts of hand, leg, neck, scalp, back	1
Lesion on most parts of hand, leg, neck, scalp, back	2
Lesion on whole parts of hand, leg, neck, scalp, back	3
Whole body	4

3) Scaling: Matsyasakalopam

Grade	Score
No scaling	0
Minimal (occasional fine scale over <5% of lesion)	1
Mild (fine scale predominate)	2
Moderate (coarse scale predominates)	3
Marked (thick, nontenacious scale predominate)	4
Severe (very thick, tenacious scale predominates)	5

5) Itching

Grade	Score
No itching	0
Mild itching (only aware of itching as times when relaxing)	1
Intermediate between 1 to 3	2
Moderate (sometime disturb the sleep and day time activity)	3
Intermediate between 3 to 5	4
Severe (constant itching, frequent sleep disturbance)	5

6) Mandal

Grade	Score
Absent	0
Occasional	1
Frequent Daha	2
After itching started	3
Continuous Daha	4

7) *Rukshata*

Grade	Score
Normal skin	0
Slightly dry skin	1
Excessively dry skin	2
Lichenified skin	3
Bleeding through the skin	4

8) Nail involvement

Grade	Score
Normal nail	0
1 to 3	1
3 to 5 nail involve	2
6 to 10 nail (hands/foot)	3
11 to 20 nail involve	4

9) Scalp Involvement

Grade	Score
Normal	0
1 to 3 patches	1
One forth scalp	2
One half scalp	3
Fully cover	4

10,11: Auspitz and Candle grease sign

Grade	Score
Absent	0
Improving	1
Present	2

12) Criteria for assessment of involvement of body surface area

Scale	Percentage
Posterior surface and anterior surface of head and neck	9
Anterior and posterior surface of forearms	18+18=36
Anterior and posterior and surface of trunk	18
Anterior and posterior and surface of feet, legs and buttocks	18+18=36
Perineum including anus and urogenital	1

Objective Parameter- It will be done on the basis of changes in clinical findings, relevant laboratory parameters and PASI score before during and at the end of trial.

OBSERVATION AND RESULT

AGE: It was found that maximum number of patients i.e. 57.5% belonged to age group of 30-40 years, while 32.5% patients belonged to age group of 41-50 years, 10% patients belonged to age group of 20-30 years.

GENDER: Gender wise observation shows that about 60% of patients were Male and (40%) Female patients were exposed to the disease.

OCCUPATION: On considering the nature of Occupation, it was found that maximum number of patients in present study were in Labourer (47.5%), while 37.5% were in Housewives, 7.5% were service, and Students, 5% and 2.5% were Other.

EDUCATION STATUS: Education status shows that maximum patients were Uneducated (35%) followed by Primary education (35%) and High School(15%), Graduation (15%).

ECONOMIC STATUS: It was observed that maximum number of patients belonged to Lower middle class of Socio-economic status (50%) followed by Lower class (35%).

DIET: It was observed that maximum no. of patients was Vegetarian (27.5%) and mixed diet people were of (47.5%).

ADDICTION: : In this study 50 % patients were addicted to tea & coffee, 12.5% of patients to tobacco while 7.5% patients were addicted to Smoking and 5% patients were addicted to Alcohol.

APPETITE: 60% of patients were having *Vishamagni*, followed by *mandagni* in 22.5 % & *Samagni* in 17.5% of patients.

SLEEP: This observation shows that maximum number of patients that is 32.5% were had sound sleep disturb sleep were found in 67.5% of patients due to nocturnal itching.

BOWEL HABITS: Patients were having regular bowel habit that is 37.5% and 62.5% patients were having irregular bowel habit.

SHARIRIKA PRAKRITI: Patients with *Vata Kapha Prakriti* were 32.5%, *Vata Pitta Prakriti* patient were 47.5%, *Pitta Kapha Prakriti* followed by 20% of patients with *Pitta kapha Prakriti*. There were no patients reported of *Sama Prakriti* in this study.

KOSTHA: Maximum numbers of patients of this study were of *Krura* (45%) & *Madhyama Koshtha* were 27.5%, followed by *Mridu Koshtha* 27.5%.

AGNI: 60% of patients were having *Vishamagni*, followed by *mandagni* in 22.5% & *Samagni* in 17.5% of patients.

SARA: The observation reveals 53.33% of patients with *Madhyam Sarta*, 3.33% were patients of *Pravara Sara* and rest of the remaining 43.33% were of *Avara Sara*.

SAMHANAN: The observation shows patients with *Madhyam Samhanan* (70%) were highest reported followed by *Pravara Samhanan* (6.66%) and *Avar Samhanan* of (23.33%).

PRAMAN: Maximum patients had *Madhyam Pramana* (66.66%), 6.66% of patients had *Pravara Praman* and 26.66 patients were reported with *Avara Praman*.

SATVA: Majority of patients were reported with 46.66% of *Madhyam Satva*, 13.33% of *Pravara Satva* and remaining 40% were of *Avara Satva*.

OBSERVATION

In the present clinical study, total 40 cases were registered from P.G. Department of Himalayiya Ayurvedic (P.G) Medical College & Hospital, *Uttarakhand Ayurved University Dehradun* which were equally divided into two groups.

DEMOGRAPHIC DATA

Table No 2: Distribution of patients based on Registration.

	No. of patients		Total	Percentage (%)
	Group A	Group B		
Registered	20	20	40	100%
Completed	20	20	40	100%
LAMA	00	00	00	00%

In the present clinical study total number of patients registered were 40. Out of which no patient dropped out from study, so all 40 patients (100%) completed the study.

Table no 3: Distribution of patients based on Age.

Age	No. of patients		Total	Percentage (%)
	Group A	Group B		
20- 30 Years	02	02	04	10.0%
31-40 Years	12	11	23	57.5%
41-50 Years	06	07	13	32.5%

It was found that maximum number of patients i.e. 57.5% belonged to age group of 30-40 years, while 32.5% patients belonged to age group of 41-50 years, 10% patients belonged to age group of 20-30 years.

Table No 4: Distribution of patients based on Sex.

Sex	No. of patients		Total	Percentage (%)
	Group A	Group B		
Male	12	12	24	60.00%
Female	08	08	16	40.00%

In this series, the maximum numbers of patients i.e. 60% were Male while rests of the patients i.e. 40.00% were Female.

Table No. 5: Distribution of patients based on Occupation.

Occupation	No. of patients		Total	Percentage (%)
	Group A	Group B		
Student	01	01	02	5%
Housewife	08	07	15	37.5%
Labourer	09	10	19	47.5 %
Service	02	01	03	7.5%
Other	00	01	01	2.5%

On considering the nature of Occupation, it was found that maximum number of patients in present study were in Labourer (47.5%), while 37.5% were in Housewives, 7.5% were service, and Students, 5% and 2.5% were Other.

Table No. 6: Distribution of patients based on Educational qualification.

Educational qualification	No. of Patients		Total	Percentage (%)
	Group A	Group B		
Uneducated	07	07	14	35%
Primary	06	08	14	35 %
High School	03	03	06	15 %
Graduation	04	02	06	15 %

Given table shows that maximum patients were Uneducated (35%) followed by Primary education (35%) and High School(15%), Graduation (15%).

Table No. 7: Distribution of patients based on Socio-economic status.

Socio-economic status	No. of patients		Total	Percentage (%)
	Group A	Group B		
Upper class	01	00	01	2.5 %
Middle class	02	03	05	12.5%
Lower class	05	09	14	35 %
Lower -middle class	12	08	20	50%

Above table shows that maximum patients belonged to Lower middle class of Socio-economic status (50%) followed by Lower class (35%).

Table No. 8: Distribution of patients based on Personal history.

S.N.	Personal History		No. of Patients		Total n=40)	Percentage (%)
			Group A	Group B		
1.	Apetite	Poor	02	10	12	40%
		Moderate	12	04	16	53.33%
		Good	06	06	12	30%
2.	Diet	Vegetarian	06	05	11	27.5%
		Mixed	14	15	19	47.5%
3.	Bowel Habit	Regular	08	07	15	37.5%
		Irregular	12	13	25	62.5%
4.	Sleep Pattern	Sound	07	06	13	32.5%
		Disturbed	13	14	27	67.5 %
		Insomnia	00	00	00	00%
S.N.	Personal History		No. of Patients		Total (n=40)	Percentage (%)
			Group A	Group B		
5.	Psychological Status	Good	11	11	22	73.33%
		Irritative	01	02	03	10%
		Depressed	03	02	05	16.67%
6.	Micturition	Scanty	02	04	13.33 %	
		Normal	13	25	83.33%	
		Excessive	00	01	3.33%	
9.	Addiction	Tea/ coffee	02	06	15%	
		Smoking/ / tobacco	10	18	45%	
		Alcohol	04	06	15 %	
		No Addiction	04	10	25 %	
		None	00	00	00 %	

Above table shows that

- ✓ Majority of patients in the present study were having moderate Appetite (53.33%).
- ✓ Diet of maximum patients was of mixed type (66.7%).
- ✓ Bowel habit and Sleep pattern of maximum patients was irregular (56.7%) and Disturbed sleep (56.66%) and sound sleep (43.33%) respectively.
- ✓ Majority of patients were in good Psychological status (73.34%).
- ✓ Maximum patients of the present study were moderate Physical worker (50%).
- ✓ Micturition in maximum patients were Normal (83.33%).
- ✓ Most of the patients (63.33%) in this study were having Smoking and Tobacco Addiction

Table No. 9: Distribution of the patients based on *DashavidhaPariksha*.

S. No	<i>DashavidhaPariksha</i>		No.of patients		Total	Percentage
			Group A	Group B		
1.	Prakriti	<i>Vaata pitta</i>	09	10	19	47.5%
		<i>Vaatakapha</i>	06	07	13	32.5%
		<i>Pitta kapha</i>	05	03	08	20%
2.	Vikriti	<i>Pravara</i>	03	01	04	13.34%
		<i>Madhyama</i>	10	12	22	73.33%
		<i>Avara</i>	02	02	04	13.34%
3.	Sara	<i>Pravara</i>	00	01	01	3.33%
		<i>Madhyama</i>	07	09	16	53.33%
		<i>Avara</i>	08	05	13	43.33%
4.	Samhanana	<i>Pravara</i>	01	01	02	6.66%
		<i>Madhyama</i>	12	09	21	70%
		<i>Avara</i>	02	05	07	23.33%
5.	Pramana	<i>Pravara</i>	01	01	02	6.66%
		<i>Madhyama</i>	11	09	20	66.66%
		<i>Avara</i>	03	05	08	26.66%
6.	Satmya	<i>Pravara</i>	01	02	03	10%
		<i>Madhyama</i>	10	08	18	60%
		<i>Avara</i>	04	05	09	30%
7.	Satva	<i>Pravara</i>	01	03	04	13.33%
		<i>Madhyama</i>	10	04	14	46.66%
		<i>Avara</i>	04	08	12	40%
8.	Aahara Shakti	<i>Pravara</i>	01	01	02	6.66%
		<i>Madhyama</i>	12	04	16	53.33%
		<i>Avara</i>	02	10	12	40%
9.	Vyayama Shakti	<i>Pravara</i>	01	01	02	6.66%
		<i>Madhyama</i>	07	08	15	50%
		<i>Avara</i>	07	06	13	43.33%
10.	Vaya	<i>Bala</i>	00	00	00	00%
		<i>Madhyama</i>	10	12	22	73.33%
		<i>Vridha</i>	05	03	08	26.66%

Above table reveals that

- ✓ Majority of patients in the present study were of *Vata Pitta prakriti* (50%).
- ✓ Maximum number of patients were having *Madhyamavikriti* (73.4%).
- ✓ Maximum number of patient were having *Madhyamasara* (53.33%) and *Madhyamasamhanana*(70%).
- ✓ Mostly patients were having *Madhyamapramana* (66.66%) and *Madhyamasatmya* (60%).
- ✓ *Madhyamasatva* was present in maximum patients (46.66%).
- ✓ Mostly patients were having *Madhyamaaaharashakti* (53.33%) and *Madhyamavyayama Shakti* (46.66%).
- ✓ *Madhyamavaya* were present in maximum patients (73.33%).

Table No. 10: Koshtha wise distribution of 40 patients of Eka-kushtha (psoriasis)

Koshtha	Grp A	Grp B	Total	%
Krura	8	10	18	45%
Madhyama	5	6	11	27.5%
Mridu	7	4	11	27.5%

Koshtha: Koshtha: Maximum numbers of patients of this study were of *Krura* (45%) & *Madhyama Koshtha* were 27.5%, followed by *Mridu Koshtha* 27.5%.

Table No. 11: Agni (Appetite) wise distribution of 40 patients of Eka-kushtha (psoriasis).

Appetite	Grp A	Grp B	Total	%
<i>Samagni</i>	3	4	7	17.5%
<i>Vishamagni</i>	13	11	24	60%
<i>Tikshnagni</i>	0	0	0	0.0%
<i>Mandagni</i>	4	5	9	22.5%

Agni: 60% of patients were having *Vishamagni*, followed by *mandagni* in 22.5% & *Samagni* in 17.5% of patients.

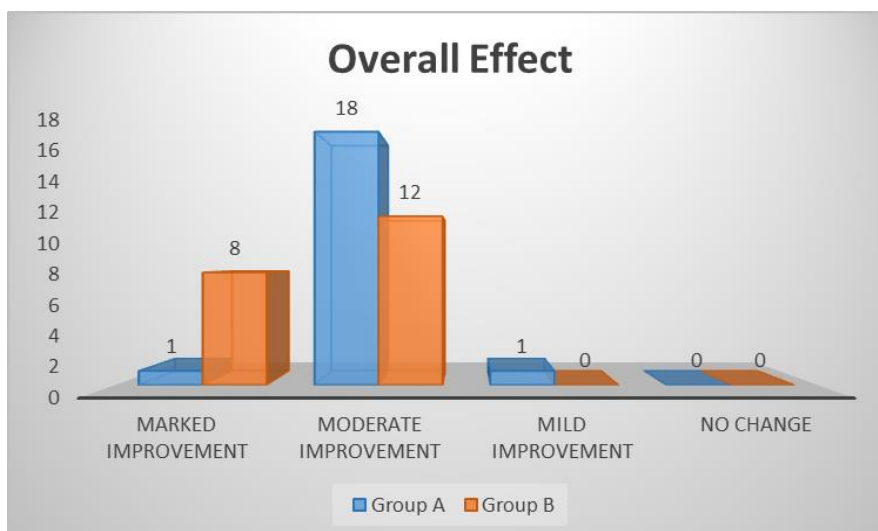
INTERPRETATION OF EFFECT OF THERAPY

None of patient showed complete remission or had worsened.

- Marked improvement was found in 8(40%) patients in group B, 1(5%) patients in group A
- Moderate improvement was found in 12(60%) patients in group B, 18(90%) patients in group A
- Mild improvement was found in 1(5%) patient in group A, patient in Group B remained Unchanged.

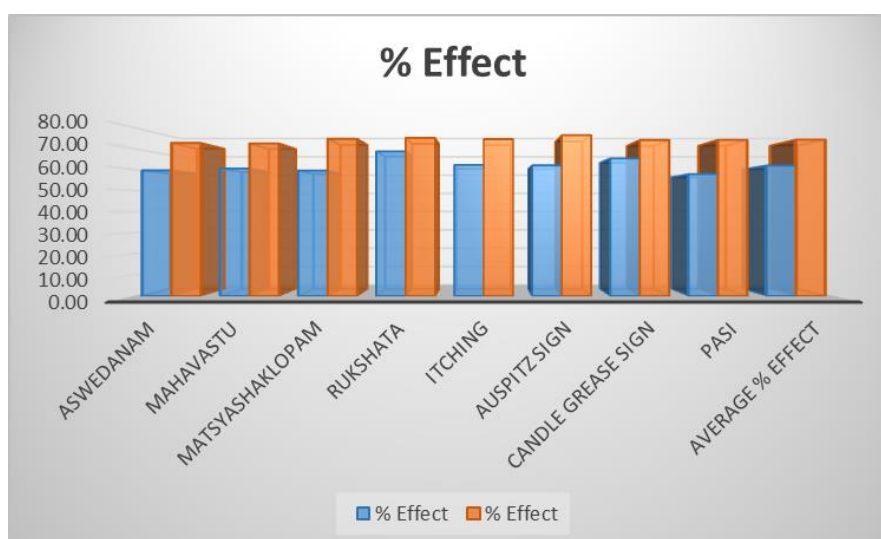
Comparative effect of the therapies: Mann Whitney U Test is carried out for comparison between Group A and Group B. P-Value for almost parameters is less than 0.05. Hence, we can conclude that, there is significant difference between Group A and Group B.

Further, we can observe that, mean rank for Group B is greater than Group A. Hence, we can conclude that, effect observed in Group B is better than Group A.



Parameter of Group A and Group B % effect

Parameters	% Effect	
	Group A	Group B
<i>Aswedanam</i>	59.52	72.50
<i>Mahavastu</i>	60.47	72.34
<i>Matsyashaklopam</i>	59.46	74.47
<i>Rukshata</i>	68.57	75.00
<i>Itching</i>	62.16	74.36
<i>Auspitz Sign</i>	61.90	76.19
<i>Candle Grease Sign</i>	65.22	73.91
<i>PASI</i>	57.75	74.03
<i>Average % Effect</i>	61.88	74.10



DISCUSSION

This part of thesis entails the statement of results, comparison of the results, result explanation, description of strength and weakness of the study, explanation of the evidence

and guidance for future aspect of this topic. According to ancient research methodology, there are some steps which should be subjected before any theory could be established.

Psoriasis is the most common and chronic skin disease of current days. Though it is not a communicable disease. It happens in all age groups and about similarly in men and women. It is a constant, intermittent inflammatory illness of the skin. many encouraging causes like hereditary, natural, immunological and mental have been found to be compelling in the declaration of the disease. Psoriasis has been considered as psychosomatic disorder, here the impact of mind has been focused on in both *Ayurveda* and modern Science. In *Ayurveda*, all skin illnesses can be taken under term *Kushtha*.

AETIOLOGY

Genetic factors- Identical twins have a concordance rate of 50% to 70% due to heritability Of psoriasis disease. A family history of psoriasis is most common in patients who develop the disease before the age of 40 years.

Environmental Factors- Strike of psoriasis can be alleviated or aggravated by stress, some infections like streptococcal, HIV, trauma, pregnancy, medicine like chloroquine, anti-malarial medicine, smoking, alcohol, tobacco, sunburn etc.

DISCUSSION ON DISEASE

Ek-Kushtha is taken as psoriasis because the clinical feature of *Ek-kushta* like *Aswedanam*, *Mahavastum*, *Matsyashakalopam*, can be corelated with the symptoms of psoriasis than any other type of *Kushtha*. In *Kitibha* the lesions are blackish, brown colour, small and exudatory in nature but in psoriasis lesions are larger and dry.

DISCUSSION ON VIDANGADI PRADEHA

Lepas should be applied against the hair follicular direction, this facilitates the quicker absorption of the drugs through Romakupa (Hair roots), *Swedavahini* (sweat glands) and *Siramukha* (blood capillaries).^[51]



In the chapter *Dhamani vyakaranasadhyaya* *Sushruta* explains *Dhamanis* which are *Urdhwagata*, *Adhogata* and *Tiryakgata*. Here he explains four *Tiryakgan-isiras*.



Out of these four, each divides gradually hundred and thousand times and thus become innumerable; by these the body is covered like network, bound and pervaded their openings are attached to hair follicles which carry sweat and replenish rasa inside and outside through them only the *Veerya of Abhyanga, Snana and Lepa Dravyas* enter the body after being transformed in skin; the same also carry the sensation of touch pleasant.^[52]



The function of *Bhrajaka Pitta* is said to metabolize the substance of drugs applied to the skin whereas one of its main functions is to manifest the colour and complexion of the *Twak* (skin).



In function of metabolism the activities of *Samanvayu* supported by *Vyana Vayu* is of great importance. *Ayurveda* also propagates the theory of '*Strotomaya Purush*' indicating that the whole human body is porous.



When the medication is applied in the form of *Lepa* or *Pradeha*, the minute particles of the substance penetrate into the *Twaka* owing to the gravitational pull and the weight of the drug.



The *Upashoshana* property of *Vayu* (*Vyana* and *Samana* especially) would play a major role in the penetration, and absorption of the medicaments applied over the *Twak*. After being absorbed in the *Twak*, the drugs would act upon the body, pertaining to its *virya* (active principle) and in some cases according to its *Prabhava*.^[53]

The *Laghu, Ushna, Ruksha, Vishad and Tikshna Guna, Ushna Virya and Katu Vipaka* of *Pradeha* helps to pacifies *Kapha* and *Vata*. *Sukshma and Tikshna* properties facilitate penetration of active principles of *Pradeha* to the site of application. *Ushna, Tikshna, Vishad and Sukshma* properties helps to clear obstruction of *Swedavahi Srotas* and allows removal of local toxins through *Sweda*. The *Ushna virya of Pradeha* and *Snigdha Guna* causes pacification of *Doshas* and break *samprapti* of skin diseases. *Kandughna* Property of drug relives *Kandu*, Soothing effect provides symptomatic relief and active principle cure diseases from its root causes. The general beneficial effects of *Pradeha karma in Kushtha* are:

1. *Pradeha* relives burning sensation.
2. *Pradeha* causes Soothing and calming effects.
3. *Pradeha* reduces itching and irritation.

4. Cure inflammatory Skin ailments.
5. *Pradeha* reduces patches in Skin diseases.

DISCUSSION ON *Aragvadhadi Udvartana*

Rubbing helps in the absorption of effusions, relief of blood stasis and carrying away the morbid products in the system. Deep pressure massage helps the interchange of tissue fluids by increasing the circulation in the superficial vein and lymphatic. The pressure helps the contents of the vessels move towards the heart, if applied strongly and quickly, it has a stimulating effect. It increases nutrition in all tissues. It removes fatigue, carrying away the increased products of combustion. Also it assists the absorption of serous fluid. Important qualities of rubbing are –

It has got great influence on the muscles. It gives them a mechanical It increases circulation mainly in the stimulation causing them to contract veins. The alternate pressure and It improves the nutrition of the relaxation brings fresh blood to the part particular area It raises temperature locally. It increases elimination of waste products. It increases secretion and absorption. It improves the condition of the nervous system by stimulating the cutaneous nerve endings. When rubbing is done lightly on the nerves for a short time it stimulates them. If applied down on each side of the spinal column stimulates the spinal nerves and in a reflex way strengthens the heart. It affects the vasomotor nerves and there by widens the blood vessels also influences the secretory nerves for increasing their function.

Udvartana drug apply



pratilomagati the form of touch, pressure and vibration sensations



tactile receptors in the skin get stimulated



activated heat gain center stimulated posterior hypothalamus nucleus



activates the sympathetic center and normalizes the secretion of adrenalin and nor adrenalin
increases in the peripheral vasodilation



cutaneous and subcutaneous blood flow increases



sweat pores in the skin get opened causes profuse sweating

Intervention

Total 40 patient of *Ek-Kushtha* (Psoriasis) Registered for the present study and randomly divided in to 2 groups.

- GROUP A- Local application of *Vidangadi Pradeha* -20 Patients
- GROUP B- *Aragvadhadi Udvartan* for local application-20patients.

CONCLUSION

- A critical review of literature shows that *Ek-kushtha* can be correlated with psoriasis on the basis of sign and symptoms.
- Psoriasis is an oldest recorded skin disease etiology of psoriasis is unknown, but it trends to run in families and is precipitated by climate, dietary habits, some infection like Streptococcal etc.
- It is a common genetically determined inflammatory skin disease of unknown cause.
- In *Ayurveda* all skin disease has been described under the term *Kushta*. *Kushtha* further divided in to *Mahakushta* and *Kshudrakushtha*. All *Kushta* have *Tridoshik* involvement but the type of *Kushtha* depends on the predominance of particular *Doshas*. According to *Acharya Charak* in *Ekkushta Vata Kapha* is involved.
- *Viruddha Ahaar- Vihar* and *Mansika Nidana* are the causative factors for *Ek Kushtha*.
- *Vidangadi Pradeha* and *Aragvadhadi Udvartana* is the process by it helps in improving the intellectual clarity, strengthens all sense organs, provide stability to *Dhatu, Bala, Agni Deepti*, delays ageing process.
- Statistical data shows highly significant results in subjective parameters of *Matsyashakalopaman, Aswedana, Mahavastum, Itching, Rukshata, , Candle Grease Sign, Auspitz Sign* and *Pasi Score* in both groups.

From the study, it can be concluded that

- *Vidangadi Pradeha* and *Aragvadhadi Udvartan* both are effective in curing patients suffering with *Ek-Kushtha*.
- But on the basis of overall effect of therapy it was found that *Aragvadhadi Udvartana* had better result than *Vidangadi Pradeha*.

- So, here it can be concluded that *Vidangadi Pradeha* and *Aragvadhadi Udvartana* possesses the high efficacy in *Shodhana* and *Shamana* with fine scaring without producing any adverse effect and relief in signs and symptoms of *Ek-Kushtha*. So it can be recommended as a cost effective, and used as an alternative approach for management of *Ek-Kushtha*.
- There is no adverse drug reaction and other toxic effect were observed during and after treatment.

REFERENCES

1. Shrivastava S, Sharangdharsamhita, Jeevanprada Hindi Commentary, (Uttarkhanda -11), 4th edition, Va-ranasi, Chaukhamba Orientalia Publication, 2005; 424-428.
2. Shrivastava S., Sharangdharasamhita, Jeevanprada Hindi Commentary, (Uttarkhanda11), 4th Edition, Va-ranasi, Chaukhamba Orientalia Publication, 2005; 424-428.
3. Narayan R., Acharya K., Sushrutasamhita, Nibandha- sangraha commentary of Dalhana (Sutrasthan 18), Va-ranasi Chaukhambha Surbharti Prakashan, 85.
4. Narayan R., Acharya K., Sushrutasamhita, Nibandha-sangraha Commentary of Dalhana, (Sutrasthan 18) Varanasi Chaukhamba Surbharti Prakashan, 2002; 85.
5. Tripathi B., Ashtanghridya, Nirmala Hindi Commen-tary, (Sutrasthana 22) Delhi, Chaukhamba Sanskrit Pratisthan, 2007; 259,260.
6. Charaka Samhita, Sutrasthana, Chapter 21/32, Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
7. Charaka Samhita, Sutrasthana, Chapter 21/21, Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
8. Sushruta Samhita, Chikitsasthana, Chapter 24/52-56, Dr Kewal Krishan Thakral, Chaukhambha Orientalia, Varanasi.
9. Davidson's, Principles and Practice of Medicine, 19th edition, Edited by Christopher Haslett, Edwin R. Chilvers, Nicholas A. Boon, Nicki R. Colledge, Chapter 21, 1077.
10. Harrison Principle of Internal medicine 15th edition year by Fauci, Braunwald, Kasper Hauser, longo, jameson, 312.
11. Davidson's, Principles and Practice of Medicine, 19th edition, Edited by Christopher Haslett, Edwin R. Chilvers, Nicholas A. Boon, Nicki R. Colledge, Chapter 21, 1077.
12. Davidson's, Principles and Practice of Medicine, 19th edition, Edited by Christopher Haslett, Edwin R. Chilvers, Nicholas A. Boon, Nicki R. Colledge, Chapter 21, 1077.

13. Davidson's, Principles and Practice of Medicine, 19th edition, Edited by Christopher Haslett, Edwin R.Chilvers, Nicholas A. Boon, Nicki R. Colledge, Chapter 21, 1077.
14. Davidson's, Principles and Practice of Medicine, 19th edition, Edited by Christopher Haslett, Edwin R.Chilvers, NicholasA. Boo.
15. Charaka Samhita, Sutrasthana, Chapter 23/5-6, Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
16. Charaka Samhita, Nidan Sthan, Chapter 5/4, Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
17. Charaka Samhita, Indriya Sthan, Chapter 10/8, Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
18. Charaka Samhita, Sutrasthana, Chapter 22/24:23/5-6, Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
19. Charaka Samhita, Sutrasthana, Chapter 24/16;28/11-12 Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
20. Charaka Samhita, chikitsa sthana, Chapter 4/27;14/179;19/16- Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
21. Charaka Samhita, chikitsa sthana, Chapter 25/106 Vd. Harish Chandra Singh Kushwaha, Chaukhambha Orientalia, Varanasi.
22. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Haritikyadi Verga, 2010; 50.
23. Dravyaguna Vijnana Volume II by Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 319.
24. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition 2010,Chaukhambha Bharti Academy Varanasi, Haritikyadi Verga, 148.
25. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Haritikyadi Verga, 2010; 7.
26. Dravyaguna Vijnana Volume II by Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 209.
27. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Haritikyadi Verga, 2010; 119.
28. Dravyaguna Vijnana Volume II by Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 184.
29. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Dhanya Verga, 2010; 642.

30. DravyagunaVijnanaVolume II by Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 594.
31. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Guduchyadi Verga, 2010; 335.
32. DravyagunaVijnana Volume IIby Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 169.
33. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Haritikiyadi Verga, 2010; 110.
34. DravyagunaVijnana VolumeII by Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 514.
35. Charaka samhita of Agnivesha, Sutra sthana Dirghjivitiy adhyaya. Reprint ed.ch.1.ver.102. varanasi; Chaukhamba surbharati prakashan, 2008; 45.
36. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Haritikiyadi Verga, 2010; 66.
37. DravyagunaVijnana by Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; II: 202.
38. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition, Chaukhambha Bharti Academy Varanasi, Guduchyadi Verga, 2010; 423.
39. DravyagunaVijnana Volume II by Dr. J.L.NShastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 865.
40. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition 2010, Chaukhambha Bharti Academy Varanasi, Guduchyadi Verga, 300.
41. Dravyaguna Vijnana VolumeII by Dr. J.L.N. Shastri, Chaukhambha Orientalia Varanasi, revised edition, 2014; 339.
42. Bhav Prakash Nighatu by Prof. Krishna Chandra Chunekar, edition 2010,Chaukhambha Bharti Academy Varanasi, Takra Verga, 754.
43. According to British Association of Dermatologists Psoriasis area and severity index (Pasi) worksheet (2012) <http://www.bad.org.uk/shared/get>.
44. Sushruta Samhita by Sri Dalhan Acharya evum Sri Gyadas Virachita, Translated by Dr. Keval Krishna Thakral, Edition 2014, Chaukhabha Orientalia Varanasi, chapter 24, Chikitsa S. than, Shlok 30, 422.
45. Mishra et al, Rol of Udavartana on Psychophysical Parameters of Healthy Volunteers. A Randomized Controlled Trial, WJPPS, 2016; 5(03).

46. Gupta k, Mamidi P, Some efficacious Ayurvedic panchkarma procedures in children with cerebral palsy, *Int J. Complement Alt Med.*, 2018; 11(1): 37-42.
47. G. Kalyan Kumar, R. Dhamotharan, Nagaraj M. Kulkarni, Mahamad Yunnus A. Mahat, J. Gunasekaran, Mohammad Ashfaque, Embelin reduces cutaneous TNF- α level and ameliorates skin edema in acute and chronic model of skin inflammation in mice, *European Journal of Pharmacology*, 2011; 662(1–3): 63-69, ISSN 0014-2999, <https://doi.org/10.1016/j.ejphar.2011.04.037>.
(<https://www.sciencedirect.com/science/article/pii/S0014299911004468>)
48. An J, Li T, Dong Y, Li Z, Huo J. Terminalia Chebulanin Attenuates Psoriatic Skin Lesion via Regulation of Heme Oxygenase-1. *Cell Physiol Biochem*, 2016; 39(2): 531-43. doi: 10.1159/000445645. Epub 2016 Jul 7. PMID: 27383847.
49. Wang, T.-X., Yin, Z.-H., Zhang, W., Peng, T., & Kang, W.-Y. Chemical constituents from *Psoralea corylifolia* and their antioxidant alpha-glucosidase inhibitory and antimicrobial activities. *Zhongguo Zhong Yao Za Zhi*, 2013a; 38(14): 2328–2333. [PubMed] [Google Scholar]
50. Alalaiwe A, Hung CF, Leu YL, Tahara K, Chen HH, Hu KY, Fang JY. The active compounds derived from *Psoralea corylifolia* for photochemotherapy against psoriasis-like lesions: The relationship between structure and percutaneous absorption. *Eur J Pharm Sci.*, Nov. 1, 2018; 124: 114-126. doi: 10.1016/j.ejps.2018.08.031. Epub 2018 Aug 25. PMID: 30153523.
51. Narayan R., Acharya K., *Sushrutasamhita, Nibandha-sangraha commentary of Dalhana (Sutrasthan 18)*, Va-ranasi Chaukambha Surbharti Prakashan, 85.
52. Kasture J., A literary review of lepakalpana w.s.r to Chaturvinshati Upakrama, *IJAAR*, May-June, 2016; 2(7).
53. Chaudhari T, Role of lepakalpana for improving beau-ty of skin w.s.r. to Mukhlepa, *International journal of Ayurveda and Pharma Research (IJAPR)*, May, 2017; 5(5).
54. Carak samhita pt.kashinath pandey & dr.Gorakhnath chaturvedi sutraisthan chapter- 1/44.
55. Su. Chi. 24/51-56.