

# A Randomised Clinical Trial to Evaluate the Therapeutic Effect of Tankana Bhasma and Yashtimadhu Churna with Narikela Taila in Darunaka W.S.R. to Seborrheic Dermatitis

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**Abstract:** Darunaka is a clinical condition which is very common in all age group people. With no significant relation to sex, religion and geographical distribution its signs and symptoms correlate with Seborrheic Dermatitis in contemporary medicines. Poor scalp and hair hygiene, improper food habit like more intakes of Kaphaja Ahara Vihara & exposure to cold are the chief predisposing factors of the disease in adults with Kapha-Vata predominance Shareerika Prakriti are more prone to develop Darunaka. Both the drug Tankana Bhasma with Narikela Taila and Yashtimadhu Churna with Narikela Taila application in Darunaka has significant results. However, there is significant effect of Tankana Bhasma application than Yashtimadhu Churna application in Darunaka as from the Ayurvedic perspective, it controls the imbalance of Doshas and thus effectively reduces the signs and symptoms of Darunaka. Acharya Sushruta, Bhavaprakasha and Madhava Mentioned Darunaka as a Kshudraroga having Signs and Symptoms like Kesha Chyuti, Kandu etc. while Acharya Vagbhata and Sharangadhara had opined Darunaka is a Kapalagata Roga the prevalence of clinically significant Seborrheic Dermatitis is approximately 3% with peak prevalence in the 3rd and 4th decades. It affects approximately 11.6% of the general population. Among adults the peak incidence is in the 3rd and 4th decade of life The anti-dandruff shampoos /anti-fungal scalp cleansers only show temporary relief from the scalp symptoms and have their own disadvantages like roughening of the hair and hair loss Ayurveda emphasizes on scalp hygiene, nutritious diet, and mental calmness, etc. Both Tankana Bhasma and Yashtimadhu Churna are endowed with Keshya, Vranahara, and Kandughna Vata Kapha Hara Krimihara properties.

**Keywords:** Darunaka, Seborrheic Dermatitis, Yashtimadhu, Tankana Bhasma, Narikela Taila, Keshya, Kandughna, Vranahara, Krimighna, Kledanashaka.

## 1. Introduction

Ancient Acharyas have stated that 'Shira' is one among the 'Dashpranayatana' and it is very much important to protect the 'Shira' from any external and internal trauma as all sensory organs or Indriyas are located here. Darunaka is a condition affecting the Shirotwak and hair and it is commonly encountered in a clinical practice. It affects almost everyone mostly in the adult life. Dryness, itching, scaling of the scalp along with hair-

fall are the cardinal symptoms of this disease involving mainly vitiated Vata and Kapha Doshas. In modern dermatological practice, there is no any satisfactory remedy for this irritating disorder. Hence, many patients are looking with a hope towards Ayurveda.

Everyone is passionate about good hair texture but in our modern era, due to varying factor of faulty dietary habits, stress, competitive lifestyle, lack of time, fashion trends and all kinds of pollution etc. can contribute to hair and scalp damage.

Acharya Vagbhata [1] and Sharangadhara [2] have opined Darunaka as a Kapalagata Roga while Acharya Sushruta, [3] Bhavaprakasha [4] and Madhava h [5] have mentioned as a Kshudra Roga having signs and symptoms of Darunaka (cracked scalp), Kandura (itching of the scalp) and Ruksha (dryness of the scalp) etc. due to the vitiation of Vata and Kapha Doshas.

Seborrheic dermatitis is a chronic inflammation of skin which produces a red scaling, occasionally weepy, oozy eruption. Seborrheic dermatitis can affect the scalp as well as other seborrheic areas, and involves itchy and flaking or scaling of skin, inflammation and pruritus [6]. Commonly, patients experience mild redness, scaly skin lesions and in some cases hair loss. Other symptoms include patchy scaling or thick crusts on the scalp, red, greasy skin covered with flaky white or yellow scales, itching, soreness and yellow or white scales that may attach to the hair shaft. As per Ayurveda classics, non-application of Keshha Taila (oiling of head), improper cleaning, sleeping during day time, night vigil, exposure to dust, hot weather etc. are causative factors for Darunaka. Genetic, environmental, hormonal, and immune-system factors and environmental factors, lack of normal hygiene such as sebaceous secretions, skin surface fungal colonization, individual susceptibility contributes to the pathogenesis of Seborrheic dermatitis. The prevalence of clinically significant seborrheic dermatitis is approximately 3% with peak prevalence in the third and fourth decades [7]. Estimates of the prevalence of seborrheic dermatitis are limited by the absence of validated diagnostic criteria as well as a grading scale of

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Table 1  
Properties of Tankana Bhasma and Yashtimadhuchurna

S.No.	Name of the drug	Latin name	Family	Chemical composition	Rasa	Vipaka	Virya	Doshagnata
1	Tankana	Sodium pyro borate	-	Boric acid and soda	Katu	Amla	Ushna	Kapha Vata hara
2	Yashtimadhu	Glycyrrhiza glabra	Fabaceae	Glycrazinaysolikkiritin, estrogen, glucocorticoid, Manait	Madhura	Madhura	Sheeta	Tridoshashamaka

severity; however, as one of the most common skin disorders [8]. It affects approximately 11.6% of the general population and up to 70% of infants in the first three months of life may have the condition. Among adults, the peak incidence is in the third and fourth decades of life [9].

*Darunakac* can be correlated to dandruff/ Pityriasis capitis/ seborrheic dermatitis and is a common condition encountered in clinical practice. It is an irritating disease of the scalp, affecting almost half of the population at the pre-pubertal age and of any gender and ethnicity. It occurs in both sexes and persons of all races. It is characterized by flakes, itching, dryness and hair fall. The response to treatment is commonly swift, but transient. So, there is a need to find a safe and effective remedy in the management of *Darunaka*. *Shiroabhyanga* with *Taila* is said to be effective due to its properties such as *Snigdha Guna*, which acts through its *Vatahara*, *Kaphakara* and *Vrishya* properties. It performs the actions like *Snehana*, *Kledana* and *Vishyandana* at cellular level of the body. *Yashtimadhu Churna* [10] along with coconut oil [11] having property of *Madhura Rasa*, *Guru*, *Snigdha Guna*, *Sheeta Virya*, *Madhura Vipaka*, *Keshya*, *Kandughna*, *Daha Prashamana*, *Vrana* (ulcer healing property), *Daha*, *Rakta-pitta Shamaka*, *Vranasotha* properties pacifies the aggravated *Dosha* and helps in the nourishment of hair and scalp.

*Tankana* with *Katurasa*, *Ruksha Teekshna Guna*, *Ushna Virya*, *Katu Vipaka*, *Vranashamaka*, *Vishahara*, *Kandughna*, *Krimighna*, *Kledanashaka*, *Vatashamaka* [12] properties helps to clean off the debris and prevent the scalp from secondary invasion of microbial growth.

## 2. Objectives of the Study

### A. Primary Objectives

- 1) To study the therapeutic effect of external use of *Tankana Bhasma* with *Narikela Taila* as *Shiroabhyanga* and *Yashtimadhu Choorna* with *Narikela Taila Shiroabhyanga* in *Darunaka*.

### B. Secondary Objectives

- 1) To study in details about *Darunaka/Seborrheic dermatitis* from the classical and contemporary texts.
- 2) To evaluate the therapeutic effects of *Tankana Bhasma* and *Yashtimadhu Choorna* with *Narikela Taila* as *Abhyanga* in *Darunaka*.
- 3) To compare the therapeutic effects of both applications in *Darunaka*.

## 3. Drug Review

### A. Yashtimadhu

'*Bhavaprakasha Nighantu* describes *Yashtimadhu* and enlists its much pharmacological benefit. This *Keshya* herb promotes hair growth and prevents greying and ageing of the hair. By its *Pitta* pacifying action, it relieves *Dandruff*.

*Yashtimadhu* has various anti-inflammatory and anti-bacterial properties that help in soothing an irritated scalp that hosts infections. Even if you are exposed to dust particles and harmful free radicals, *Yashtimadhu* negates their harmful effects and prevents any itchiness, scalp irritation and *dandruff*. This herb helps open pores on your scalp and is great for hair shaft so it prevents and cures *Dandruff*. The *Demulcent* properties of *Yashtimadhu* make it an elixir for scalp. *Yashtimadhu* is rich in flavonoids and phytoestrogens, both of which are responsible for a healthy scalp.

### B. Tankana Bhasma

Scientific research has shown promising results regarding the anti-inflammatory, antimicrobial, wound healing, and gastroprotective effects of *Tankana Bhasma*. However, more comprehensive research is needed to establish its efficacy and safety with conclusive evidence. *Tankana* (*Suhaga*) *Bhasma* presents potential benefits in *Ayurvedic* medicine. Further research and clinical trials can provide more conclusive evidence on its effectiveness and expand its applications. Exploring the rich wisdom of *Ayurveda* and consulting with a qualified practitioner will help individuals make informed decisions regarding the usage of *Tankana Bhasma* for their health and well-being.

## 4. Material and Methods

### A. Source of Data

#### 1) Patient Source

patient suffering from "*Darunaka/Seborrheic dermatitis* was selected from O-P-D of *DGMAMC* and *H, GADAG* and from various special medical camp conducted after fulfilling the inclusion and exclusion criteria.

#### 2) Literary Source

literary aspects of the study pertaining to *Darunaka* and *Seborrheic dermatitis* was collected from both *ayurvedic* as well as modern text books and updated with recent medical journals and relevant websites.

### B. Method of Collection of Data

#### 1) Study Design

A Randomized Comparative Clinical Trial.

#### 2) Sample Size

Minimum of 20 patients within the age group of 14 to 70

Table 2

	Drug	Dose	Dosage form	Site of Application
Group A	Tankana Bhasma	Quantity sufficient for application on the scalp	Narikela Taila	(local application) Scalp For 30 minutes
Group B	Yashtimadhu Churna	Quantity sufficient for application on the scalp	Narikela Taila	(local application) Scalp For 30 minutes

years were taken and divided in 2 groups, Group- A and Group- B for the studies.

### 3) Patient Consent

Before beginning the trial, each patient willing to participate was provided with written consent.

### 4) Inclusion Criteria

Cases with classical sign and symptoms of *Darunaka* was considered i.e.

- 1) *Kandu* (itching),
- 2) *Twaka Sputana* (scaling of skin),
- 3) *Rukshata* (dryness of scalp),
- 4) *Keshchyuti* (hair fall)
- 5) Irrespective of gender, occupation, Religion, economical barrier.
- 6) *Darunaka* manifesting only scalp.
- 7) Both fresh and treated cases of *Darunaka* who were not under any medications currently.
- 8) Patient who will fulfill criteria and take regular medicines with regular follow up.

### 5) Exclusion Criteria

Patients with severe dermatitis involving face neck and extremities.

- 1) Psoriasis, allergic contact dermatitis.
- 2) *Indralupta* (alopecia areata)
- 3) Patient with *Dushta Vrana* over scalp
- 4) Patients on oral antibiotics and antimycotics.
- 5) Patient with hypersensitivity, immunodeficiency and known drug allergies.
- 6) Pregnant women, lactating mother, children. Age group from 14 to 70 years old.

### C. Withdrawal from the Study

- 1) Patients do not follow up regularly.
- 2) Patients unwilling to continue.
- 3) Allergic to the trial medicine.

### D. Diagnostic Criteria

The diagnosis was made based on following *Lakshanasof Darunaka*. [14]

- 1) Itching (*Kandu*)
- 2) Hair fall (*Keshachyuti*)
- 3) Dryness of scalp (*KeshabhumiRukshata*)
- 4) Scaling (*KeshabhumiSphutana*)

### E. Posology

*Study duration:*

Intervention: 45 days.

Follow up: 15 days.

Total study duration: 60 days.

Patients were assessed clinically on 0th, 15th, 30th, 45th, 60th days

### F. Study Drugs

#### 1) Tankana Bhasma

Raw Tankana was procured from local market after scrutiny

from Rasa Shastra personnel

*Preparation of Tankana Bhasma procedure:*

*Tankana Shodhana*

Tankana was subjected for Shodhana by Bharjana Vidhi.

According to Ayurveda Prakasha, Rasa Tarangini, Rasa Jalanidhi

- 1) Raw Tankana first made into powder form then take hot iron pot and stirred till it becomes light and puffed.
- 2) Finally, Tankana was obtained as a white colored puffy light substance and Sphatika was obtained as an off-white-colored light substance. This white substance then made as fine powder like the character of Bhasma by Khalva Yantra.



Fig. 1.

#### 2) Yashtimadhu Choorna

Roots were procured from authenticated vendor after thorough scrutiny from Dravya Guna personnel

*Preparation of Yashtimadhu Churna procedure*

- 1) The roots were cleansed and subjected for fine powder from the pulverizer.
- 2) Both Tankana Bhasma and Yashtimadhu Choorna fine powder were packed and sealed in air tight containers for the clinical trial.



Fig. 2.

*Intervention:* Out of 26 patients, 20 patients were participated till the end of the study design. A suitable sampling technique was adopted with 10 patients each in study Group A & Group B. Patients of Group A treated with Tankana Bhasma along with Narikela Taila on alternative days for 45 days. Patients of Group B treated with Yashtimadhu Choorna along with Narikela Taila on alternative days for 45 days. From 46th day to 60th day patients were undertaken for follow-up without medicines in both the Groups.

**Trial Method:** Tankana Bhasma with Narikela Taila and Yashtimadhu Churna with Narikela Taila were mixed in sufficient quantity and applied in dose which sufficiently covers the whole surface of the scalp. The duration of application was 3 hours on every alternate day.

**Probable Mode of Action of Tankana Bhasma:**

Tankana is corrosive as well as Mridu (soft) in nature having the properties like Katu rasa, Ushna virya, Ruksha & Tikshna guna. Kshara has been used as Prakriti Vighatana treatment for all types of Krimi Chikitsa as Krimi cannot exist in Kshariya state [15], [16].

Tankana carries properties like Kapha-Visleshaka and Vatahara due to Katu rasa, Ushna virya & Tikshna guna. Katu rasa & Tikshna guna helps the drug to penetrate the deeper parts of the scalp which removes the vitiated Kapha Dosha and mucoid debris, so that symptoms like Kandu, is reduced. Pain is reduced due to pacification of Vata Dosha due to Srotavarodha (blockage of channels). Because of Vitiated Kapha under goes Vishleshana due to Kshariyaswabhava of Tankana, this further helps to open the obstructed channels of the Kesha Bhoomi. Katu rasa along with Ruksha, Tikshna Guna acts as Lekhana and Marga Vishodhana, which helps in reduction of Ragata and Shotha.

**Probable Mode of Action of Yashtimadhu:**

Having property of *Madhura Rasa, Guru, Snigdha Guna, and SheetaVirya, Madhura Vipaka, Keshya, Kandughna, Daha Prashamana, Vranahara* (ulcer healing property), *Daha, Rakta-pitta Shamaka, Vranashotha* properties pacifies the aggravated *Dosha* and helps in nourishment of hair and scalp.

**Phytoconstituents:** Antimicrobial, Antibacterial, Antioxidant, Demulcent, Antiulcer, Anti-inflammatory Hepatoprotective.

**Choice of Base and probable mode of action of Narikela Taila**

Base is a vehicle or carrier in to which active ingredients may convey active ingredients more rapidly into the skin than the solution or cream base.

- Narikela Taila is Vata Pitta hara, Tarpaka, Pachaka and Balya. Coconut oil is major source of Lauric acid, a fatty acid, which is claimed to benefit in dealing with viruses and bacteria causing diseases such as herpes, influenza, and cytomegalovirus.
- Though coconut oil is rich in saturated fatty acids, there is structural difference. It is rich in medium sized triglycerides.
- It is a natural coolant.
- Improves hair quality and strength promotes hair growth.
- Quickens and helps in filling up of skin depression in

wounds.

**Action of Lepa:**

Lepa is usually applied against the hair follicular direction (pratilomagati). This facilitates the quicker absorption of the “drug potency” through Romakoopa(hair roots), Sweda-Vahini (sweat glands) and Siramukha (blood capillaries).

**Assessment Criteria:**

Assessment was made on 0th, 15th and 30th day using gradation index, based on

- 1) *Kandu* - Itching
- 2) *Kesha-Chyuthi* - Hair fall
- 3) *Keshabhumi-Sphutana* - scaling
- 4) *Keshabhumi-Rukshata* - dryness of scale

**Objective Parameters:** Were assessed through photo copies before during and after the completion of the trial. With 50 mega pixel camera.

**Criteria for Assessment of Results:**

The subjective and objectives parameters of baseline data pre and post application of Lepa will be compared with gradation for assessment of results. All the results will be analyzed statistically for significance using unpaired “t” test.

## 5. Data Analysis

The observations of characters were presented in tabulated form & statistically analyzed individually & inferences drawn. For each independent sample, unpaired t-test and Mann-Whitney U test (for between-subjects designs) and paired samples t-test and the Wilcoxon test (for within subject’s designs) were done.

## 6. Observation and Result

Out of 26 registered patients, 20 patients were completed the study. In accordance to socio demographic profile, participants were female as compared to male in gender basis, 90 % Hindu 75% Muslim 25% on religion basis. Socio economic status divulged those 0 % lower classes, 100 % middle classes, 0 % Higher and 0 % higher classes. In dietic regimen equal 30 % of vegetarian and 70% mixed vegetarian participants were traced. Prakriti shows participants having majority in Vata kapha prakriti (50%), Vata Pitta prakriti (30%), and Pitta Kapha prakriti (20%) Trail drug effected on the score of Shira Kandu, Kesha Chyuti, Kesha Bhumi Sphutana and Kesha Bhumi Rookshata was 96%, 96%, 96%, and 94% respectively

Improvement in Group A and 94%, 96%, 98% and 96% respectively improvement in Group B. Within both the groups (Wilcoxon signed ranks test) statistical significance ( $p < 0.05$ ) on signs and symptoms of Darunaka was found.

Table 2  
Gradation index showing subjective parameters of clinical study

S.No.	Symptoms	0	1	2	3
1	Kandu	Absent	Occasionally present	Constantly present without hampering routine activities	Constantly present hampering routine activities
2	Kesha Chyuthi	Normal	Mild loss	Moderate loss	Maximum loss
3	Kesha Bhumi Sphutana	Absent	Visible inside the hair	Visible over the hair	Spread over
4	Kesha Bhumi Rukshatha	Absent	Occasionally present	Without discomfort on the scalp	With discomfort on the scalp



(a) 1<sup>st</sup> Day(b) 15<sup>th</sup> Day(c) 30<sup>th</sup> Day(d) 45<sup>th</sup> Day

(e) After follow-up

Fig. 3. Objective parameter showing photographs of group A (Tankana Bhasma) [Bt-At] Photographs

(a) 1<sup>st</sup> Day(b) 15<sup>th</sup> Day(c) 30<sup>th</sup> Day(d) 45<sup>th</sup> Day

(e) After follow-up

Fig. 4. Objective parameter showing photographs of group B (Bt-At)

#### A. Objectives Achieved

1. Both Tankana Bhasma and Yashtimadhu Churna were cost effective and result oriented in this trial.
2. Both medicines were easily available.
3. Patient compliance was good.
4. In The present clinical trial Keshya effect of Yashtimadhu Choorna in Darunaka was achieved.

5. All the subjective parameters were reduced as per the gradations.
6. Satisfactory relief was found during and after the completion of the trial.

### 7. Discussion

*Darunaka* can be correlated with seborrheic dermatitis based on the signs, symptoms and pathophysiology. Ayurvedic classics have dealt with various procedures and medications including *Shamshaman Chikitsa* to manage the disease *Darunaka*. *Shiroabhyanga* with Taila is said to be effective due to its properties such as *Snigdha Guna*, which acts through its *Vatahara*, *Kaphakara* and *Vrishya* properties. It performs the actions like *Snehana*, *Kledana* and *Vishyandana* at cellular level of the body

With the chief complain of Kesh Chyuti, Kesh Bhoomi Sphutan, Khalitya etc. patients were diagnosed as the disease *Darunaka*. Fungal infection of the scalp and unhygienic conditions were the most common cause. The statistical analysis (Mann Whitney 'U' test) on subjective criteria showed that p-value on all parameters is less than 0.05 but mean rank for Group A in all clinical features is greater than Group B, which imply that there is significant difference between Group A and Group B. Observations on subjective criteria reveal that, the effect of drugs in both groups is significant as p value < 0.05. But In Group A, patient shows reduction in 98% while in Group B 96%. This observation was statistically analyzed by using paired t-test as data are quantitative & sample size is less than 30. Inter group comparison by using Un-paired t-test, shows that p < 0.05 and mean difference for Group A is greater than Group B. Therefore, the drug prescribed in Group A is more effective than drug prescribed in Group B

**Results:** Tankana Bhasma with Narikela Taila and Yastimadhu Churna with Narikela Taila application in *Darunaka* has significant results. However, there is significant effect of Tankana Bhasma application than Yashtimadhu Churna application in *Darunaka*.

**Complications:** No complications were observed during the time of application and after follow up.

### 8. Conclusion

*Darunaka* is a clinical condition which is very common in all age group people. With no significant relation to sex, religion & geographical distribution its signs and symptoms correlate with Seborrheic Dermatitis in contemporary medicines. Poor scalp and hair hygiene, improper food habit like more intakes of Kaphaja Aharavihara & exposure to cold are the chief predisposing factors of the disease in adults with Kapha-Vata predominance Shareerika prakriti are more prone to develop *Darunaka*. Both the drug Tankana Bhasma with Narikela Taila and Yastimadhu Choorna with Narikela Taila application in

*Darunaka* has significant results. However, there is significant effect of Tankana Bhasma application than Yashtimadhu Churna application in *Darunaka* as from the Ayurvedic perspective, it controls the imbalance of Doshas and thus effectively reduces the signs and symptoms of *Darunaka*.

*Both Tankana Bhasma and Yashtimadhu Churna* with coconut oil were found safe and effective in treatment of *Darunaka* and improve patient's quality of life. This clinical trial titled A randomized clinical trial to evaluate the therapeutic effect of Tankana Bhasma and Yashtimadhu Churna with Narikela Taila in *Darunaka* with special reference to Seborrheic Dermatitis has a strong possibility to breakdown the pathogenesis of this disease. The results in the present clinical trial were promising and worth documenting.

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