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# Effect of *Haritaki* (*Terminalia chebula* Retz.) with *Takra* in Dandruff

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## ABSTRACT

Dandruff is a common scalp disorder affecting almost half of the population. According to Ayurveda, Dandruff may be correlated to *Darunaka*. Ayurveda classics dealt different procedures and medications to treat the disease *Darunaka* (dandruff). The present study is based on the reference from *Cikitsamanjary* by *Sreeman Nambootiri*, an authentic Ayurveda book. *Haritaki* mixed with *Takra* (buttermilk) as *Sirolepa* (application of paste over the scalp region) is used to reduce *Darunaka*. *Darunaka* is a *Kapha Vata* predominant disease having the symptoms like *Kandu* (Itching), *Kesha Chyuthi* (Hair fall), *Twak sphutana* (Scaling) and *Rukshata* (Dryness). *Haritaki* is having *Lavanavarjitha Pancha Rasa*, *Laghu Ruksha Guna*, *Ushna Virya*, *Madhura Vipaka* and *Tridosahara* property (Pharmacological properties). *Takra* is having *Laghu Ruksha Guna*, *Kasaya*, *Amla rasa*; *Ushna Virya* and *Madhura Vipaka* with *Kapha Vatahara* property. In the clinical study, 30 patients of *Darunaka* were selected as per inclusion and exclusion criteria. The study was effective in reducing the symptoms of *Darunaka*.

**Key words:** *Darunaka*, *Haritaki*, *Takra*, *Dandruff*.

## INTRODUCTION

Dandruff is a common scalp disorder affecting almost half of the population at the post pubertal age and of any gender and ethnicity and it often causes itching.<sup>[1]</sup> Though dandruff is not a life threatening disease it has high cosmetic importance. It causes social disturbance with untidy look, irritation, itching, shedding of scales and hair fall. Now a day, a lot of pharmaceutical companies are producing various

kinds of anti-dandruff cosmetics and preparations which are of high cost and less effect. Even after treated by present available treatment procedures it reoccurs again due to heredity or unhygienic habits or by other reasons. According to *Ayurveda*, Dandruff may be correlated to *Darunaka*. Ayurveda classics dealt different procedures and medications to treat the disease *Darunaka*. One such treatment is mentioned in *Chikitsa Manjari*, *Shiroroga Chikitsa*<sup>[2]</sup> (treatment of disease related to head); external application of *Haritaki* with *Takra*, a simple and easy method which does not have complications.

## MATERIALS AND METHODS

The present study was carried out in four headings:

1. Collection and preservation of the drugs.
2. Preparation of medicine
3. Pharmacognostical and Phytochemical studies.
4. Clinical Study.

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**Place of study**

The analytical study was carried out in Quality Control Lab of Amrita School of Ayurveda and CARE Kerala, Koratty, and the clinical study in the Out Patient Department of Dravyaguna, Amrita School of Ayurveda.

**1. Collection and Preservation of the drugs**

Study drugs were collected from authentic sources and were taxonomically identified.

**2. Preparation of Medicine**

The collected raw drugs were washed thoroughly, removed all earthy and foreign materials, chopped into small pieces and then dried properly. The drugs were then subjected to pulverization and made into fine powder form. The powdered drug was packed separately in airtight packets of 30 g and such 7 packets were dispensed to each patient for 7 days.

**3. Pharmacognostical and Phytochemical studies**

This was done under the following headings:

- a) Macroscopic study
- b) Microscopic study
- c) Phyto chemical study
  - Physico-chemical parameters
  - Qualitative parameters

**4. Clinical study**

30 patients of *Darunaka* were selected from the OPD of Amrita school of Ayurveda as per the inclusion and exclusion criteria. The study contains only one group of patients who were assessed before and after the study. Among them, all 30 patients participated successfully, till the completion of study period.

**Materials:** *Haritaki Choorna* (powder), *Takra*.

**Duration of the Study:** 2 months

**Method:** The patients were asked to prepare paste out of the given drug (30 g) by adding 30 ml of *Takra*, to make *Lepa*, to be applied over the entire scalp. Slight massage has to be done for 5 minutes after application of the *Lepa* over the scalp and is to be

kept for 15 minutes and then washed off with normal water. During the course of treatment, patient was advised not to use any hair oil. The procedure were done once daily for seven consecutive days.

**Criteria for Inclusion**

1. Patient between the age group of 18 - 45 years.
2. Both male and female patient are included.
3. Patients suffering from dandruff.
4. Patients having classical signs and symptoms of *Darunaka*.

**Criteria for Exclusion**

1. Hypersensitive skin
2. Patient with concomitant severe scalp infections
3. Psoriasis of scalp

**Criteria for Assessment**

Assessment was done based on the signs and symptoms of *Darunaka* like *Kandu*, *Kesha Chyuthi*, *Twak Sphutana*, *Rukshata* by self formulated scoring pattern, Adherent Scalp Flaking Score Grading Method<sup>[3]</sup> and Photographs of the affected area taken before and after the treatment as per the need of the study. Follow-up was done twice with a gap of two weeks. Assessment was done, before treatment, after completion of the treatment (after 7 days) and during follow up period (21<sup>st</sup> and 35<sup>th</sup> day). The findings were recorded in the specific case proforma and the efficacy was statistically analysed. Pre and post evaluation of signs and symptoms were done.

**Gradation index for assessment criteria<sup>[4]</sup>*****Kandu* (itching)**

- 0 - No itching
- 1 - Mild; Tolerable (1 to 2 times in a day)
- 2 - Moderate; Intolerable (3 to 4 times in a day)
- 3 - Severe; Intolerable (5 to 8 times in a day)

***Keshachyuti* (falling of hair)**

- 0-1 to 5 hairs fall on combing/washing

- 1 - Mild (less than 20 hair falls on combing/washing)
- 2 - Moderate (more than 20 hair falls on combing/washing)
- 3 - Severe (more than 20 hair falls on simple hand strength)

**Twak sputana (scaling/cracking of skin)**

- 0 - No scaling
- 1 - Mild; scaling <1/4th part usually on vertex
- 2 - Moderate; scaling is more than 1/2 part
- 3 - Severe; complete scaling

**Rukshata (dryness)**

- 0 - No dryness
- 1 - Mild; Dryness with rough skin
- 2 - Moderate; Dryness with scaling
- 3 - Severe; Dryness with cracking skin

**RESULTS**

Statistical Analysis was done using SPSS VER. 20. Data of 30 patients were taken for Statistical Analysis. Wilcoxon signed rank test is done for post Hoc with Bonferroni correction on subjective parameters, to interpret the time of significant change. (Tables 1, 2, 3, 4, 5) and (Figure 1)

**Table 1: Effectiveness of treatment on *Kandu***

<i>Kandu</i>		N	Mean Rank	z	p
<i>Kandu</i> AT - <i>Kandu</i> BT	Negative Ranks	30 <sup>a</sup>	15.50		
	Positive Ranks	0 <sup>b</sup>	0.00	-4.995 <sup>b</sup>	0.0001
	Ties	0 <sup>c</sup>			
	Total	30			
<i>Kandu</i> AF1 - <i>Kandu</i> BT	Negative Ranks	26 <sup>d</sup>	13.50		
	Positive Ranks	0 <sup>e</sup>	0.00		

	Ties	4 <sup>f</sup>		-4.579 <sup>b</sup>	0.0001
	Total	30			
<i>Kandu</i> AF2 - <i>Kandu</i> BT	Negative Ranks	21 <sup>g</sup>	13.38		
	Positive Ranks	4 <sup>h</sup>	11.00		
	Ties	5 <sup>i</sup>		-3.439 <sup>b</sup>	0.001
	Total	30			

AT - After Treatment; BT - Before Treatment; AF1 - After Follow Up 1; AF2 - After Follow Up 2

**Table 2: Effectiveness of Treatment on *Kesha Chyuthi***

<i>Kesha Chyuthi</i>		N	Mean Rank	z	p
<i>Kesha Chyuthi</i> AT - <i>Kesha Chyuthi</i> BT	Negative Ranks	30 <sup>a</sup>	15.50	-4.873	0.0001
	Positive Ranks	0 <sup>b</sup>	0.00		
	Ties	0 <sup>c</sup>			
	Total	30			
<i>Kesha Chyuthi</i> AF1 - <i>Kesha Chyuthi</i> BT	Negative Ranks	22 <sup>d</sup>	11.50	-4.253	0.0001
	Positive Ranks	0 <sup>e</sup>	0.00		
	Ties	8 <sup>f</sup>			
	Total	30			
<i>Kesha Chyuthi</i> AF2 - <i>Kesha Chyuthi</i> BT	Negative Ranks	15 <sup>g</sup>	11.00		
	Positive Ranks	5 <sup>h</sup>	9.00	-2.327	0.020
	Ties	10 <sup>i</sup>			
	Total	30			

**Table 3: Effectiveness of Treatment on Rukshata**

Rukshata		N	Mean Rank	z	p
Rukshata AT - Rukshata BT	Negative Ranks	30 <sup>a</sup>	15.50	-4.995 <sup>b</sup>	0.0001
	Positive Ranks	0 <sup>b</sup>	0.00		
	Ties	0 <sup>c</sup>			
	Total	30			
Rukshata AF1 - Rukshata BT	Negative Ranks	22 <sup>d</sup>	13.00	-3.995 <sup>b</sup>	0.0001
	Positive Ranks	2 <sup>e</sup>	7.00		
	Ties	6 <sup>f</sup>			
	Total	30			
Rukshata AF2 - Rukshata BT	Negative Ranks	15 <sup>g</sup>	10.03	-2.349 <sup>b</sup>	0.019
	Positive Ranks	4 <sup>h</sup>	9.88		
	Ties	11 <sup>i</sup>			
	Total	30			

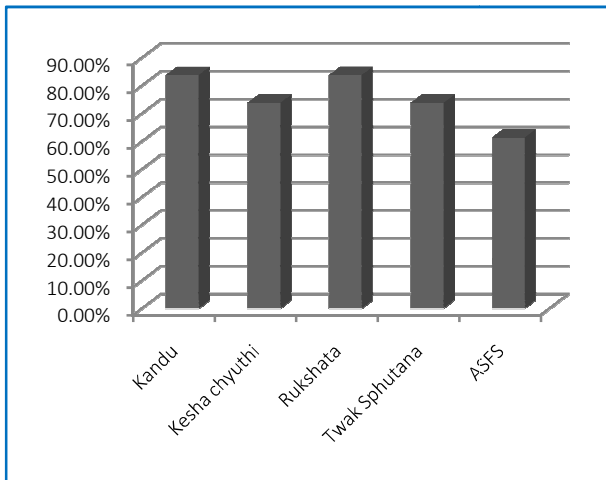
**Table 4: Effectiveness of Treatment on Twak Sphutana**

Twak Sphutana		N	Mean Rank	Z-value	P-value
Twak Sphutana AT - Twak Sphutana BT	Negative Ranks	30 <sup>a</sup>	15.50		
	Positive Ranks	0 <sup>b</sup>	0.00	-4.873 <sup>b</sup>	
	Ties	0 <sup>c</sup>			0.0001
	Total	30			
Twak Sphutana AF1 - Twak Sphutana	Negative Ranks	23 <sup>d</sup>	12.00	-4.460 <sup>b</sup>	
	Positive	0 <sup>e</sup>	0.00		

BT	Ranks				
	Ties	7 <sup>f</sup>			0.0001
	Total	30			
Twak Sphutana AF2 - Twak Sphutana BT	Negative Ranks	13 <sup>g</sup>	9.88		
	Positive Ranks	5 <sup>h</sup>	8.50	2.045 <sup>b</sup>	0.041
	Ties	12 <sup>i</sup>			
	Total	30			

**Table 5: Effectiveness of Treatment on ASFS**

ASFS		N	Mean Rank	Z value	P value
ASFS AT - ASFS BT	Negative Ranks	30 <sup>a</sup>	15.50		
	Positive Ranks	0 <sup>b</sup>	0.00	-4.856 <sup>b</sup>	0.0001
	Ties	0 <sup>c</sup>			
	Total	30			
ASFS AF1 - ASFS BT	Negative Ranks	24 <sup>d</sup>	12.50		
	Positive Ranks	0 <sup>e</sup>	0.00		
	Ties	6 <sup>f</sup>		-4.388 <sup>b</sup>	0.0001
	Total	30			
ASFS AF2 - ASFS BT	Negative Ranks	23 <sup>g</sup>	12.70		
	Positive Ranks	1 <sup>h</sup>	8.00	-4.206 <sup>b</sup>	0.0001
	Ties	6 <sup>i</sup>			
	Total	30			

**Figure 1: Percentage of relief after treatment**

## DISCUSSION

The aim of the study was evaluating the efficacy of *Haritaki* (*Terminalia chebula* Retz.) with *Takra* in *Darunaka*, assessed by the reduction in the symptoms like *Kandu*, *Kesha Chyuthi*, *Twak Sphutana*, *Rukshata*. These are the cardinal symptoms of *Darunaka* mentioned in *Samhitas*.

In the study 83.3% of cases were found to be females even though no sex determination was discriminated. In the present study, maximum patients 17 (56.7%) were from urban area. This may be due to the use of chlorinated water for hair shower causing skin of scalp to become dry and flake, ultimately leading to dandruff and hair fall. On the point of occupational status, it is noted that students were more affected; they constitute about 50% of the total sample. From the study it was found that *Darunaka* was found more in middle class and upper class people. Majority of the patients had non-vegetarian diet. This can cause *Agnimandya* and *Amadosha*, which in turn produce *Kapha* vitiation. In this study 40% patients had constipated bowel. This may be due to their *Ahara* (food) which cause *Vata* vitiation. This implies a state of impaired digestion and absorption leading to minimal availability of nutrients for a healthy scalp. Sleep and emotional disturbance alter the normal homeostasis of the body, giving away the functioning of all systems including the integumentary system of the body. This was depicted in the present study as 12

(40%) had disturbed sleep. From the study 18-25 age groups were more affected.

The statistical analysis showed that the drug *Haritaki Choorna* with *Takra* is effective in reducing the symptoms of Dandruff. Wilcoxon signed rank test was used to interpret the time of significant change. Overall assessment in reduction of *Kandu* was found to be significant with  $p < 0.05$ . Assessment in reduction of *Kesha Chyuthi* was found to be significant with  $p < 0.05$ . Assessment in *Twak Sphutana* frequency also found to be significant with  $p < 0.05$ . Assessment in *Rukshata* was found to be significant with  $p < 0.05$ . Although there was slight elevation in percentage during the follow up study, the change is not statistically significant. (Figure 2.1 & 2.2)

**Figure 2.1: Before treatment****Figure 2.2: After treatment**

**Probable mode of action:** Since the disease is confirmed to the *Siras* (Head), *Sirolepa* have a great importance in curative and preventive aspects of *Darunaka*. *Siro Lepa* a type of *Bahya Parimarjana Karma* has a localized action on the scalp. *Twak Ashrita Bhrajaka Pitta* helps in digestion and absorption of *Lepa* which is applied over the skin. *Haritaki* is having *Lavana Varjitha Pancharasa, Laghu, Ruksha Guna, Ushna Virya, Madhura Vipaka* and *Tridosahara* property, specially *Vatahara*. Due to this, it helps to reduce *Twak Sphutana* and *Rukshata*. *Takra* is having *Madhura Amla Rasa, Laghu Ruksha Guna, Ushna Virya, Madhura Vipaka* and *Kapha Vatahara* action and reduces Itching. These properties along with *Ushna Virya* of *Haritaki* removes *Srothorodha* caused by *Kapha Dosha*. The slight *Amla Rasa* of *Haritaki* and *Takra* also has *Kshalana* property i.e. it causes *Shodhana* of *Srotas*. When *Haritaki* is mixed with *Takra* it maintains the pH and restores the normal physiological acidity of the scalp (pH 4.5-5.5). Lower pH helps to minimize damage to the hair. Mild acidity helps to prevent excessive oiliness and gives the scalp a chance to prevent as well as get rid itself of infection. Thus this *Lepa* is a non-irritant substance that will remove dirt and soothe the skin. It can also hydrate the scalp, resulting in less flaking and thus control of dandruff. So *Haritaki* with *Takra* as *Lepa* is a highly effective treatment for the elimination and total control of dandruff.

## CONCLUSION

Conclusion was drawn from the clinical trial conducted under Study 'Effect of *Haritaki* with *Takra*

in Dandruff' and it is found to be effective in reducing the symptoms of *Darunaka* like *Kandu* (Itching), *Kesha Chyuthi* (Hair fall), *Twak Sphutana* (Scaling) and *Rukshata* (Dryness).

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