

Effect of Indigenous Topical Application in the Management of *Palithya* (Greying Hair)

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ABSTRACT

Hair plays a significant role to improve the individual identity and body image in physical appearance. Premature greying of hair has become a one of condition which can affect the self-esteem in cosmetic concerns. Thus, Hair dyes have become the main modality of the treatment for after nutritional supplementation. Many people use different types of applications to treat greying of hairs. Many of those applications have been manufactured using various chemical compounds. Due to usage of those chemically synthesized applications, reported complications are much common in the present society including few death incidents. Thus, the using of eco-friendly herbal hair dyes will lead to reduce the health risks and cosmetic solution for the premature greying of hair. Therefore, the study focused on management of the *palithya* through a Sri Lankan indigenous topical application which has not been scientifically proved. *Palithya* (greying hair) is a distinct feature of aging. It is mentioned as *kshudra roga* and *shiro roga* in *Ayurveda samhitas*. Body heat is increased by anger, grief and exertion as a result of that *pitta* located in head is vitiated and caused for *palithya* the application consists of *Nymphaea stellate willd* and fresh cow's milk. Randomly selected 30 cases with *palithya* were comparatively studied with test drug and *akalapalitha* oil in two separate groups in equal amounts for a period of one month under recommended control conditions. The improvement of the therapy assessed according to the number of gray hairs with related to specific areas of the scalp using Graying Severity Score (GSS) and assessed the hair colour by using standard hair colour grading chart before and after the treatment. Data were analyzed using Statistical Package for the Social Sciences (SPSS) and Microsoft Excel. The efficacy of the test drug was found with significant reduction (p value <0.05), number of greying hairs and hair colour changes after the treatment. The test drug has elaborated a significant effect than *akalapalitha* oil in the management of *palithya*.

Keywords: Greying hair, *Palithya*, *Nymphaea stellate*

INTRODUCTION

Palithya (greying hair) is a distinct feature of aging. It is mentioned as *kshudra roga* in *Susruta samhitha*. According to Ayurvedic aspect, greying hair is a pure pitta disorder that occurs due to the vitiation of pitta dosha. This is why people of the pitta constitution tend to start greying earlier than others. Excessive Pitta in the sebaceous glands which reside at the hair roots, called folliculitis can also result in hair loss and

greying prematurely. Pitta-provoking habits such as, anger and physical strain results in greying of hair. Intake of spicy, oily, salty and sour, fermented foods along with meat can aggravate Pitta. But apart from being a primarily Pitta problem, the sage Vagbhata classified *palithya* according to the doshic dominancy. One of the parts of beautification is the hair care described in Ayurveda as "*Keshya Karma*" is beneficial for hair and used for "*Vardhanam*"

(Promotion of hair growth) and “*Ranjanam*” (dyeing of hair). According to the modern science, colour of the hair is due to the presence of pigments “melanin” stored in the cortex of hair. Eumelanin, the dark pigment is responsible for hair shades from black to brown and pheomelanin, lighter pigment is responsible for red and yellowish colors. Hair with no melanin pigments in cortex is completely white & with few pigments provides grey colour. [2] Dissatisfaction with the colour of hair has led to the application of various types of natural & synthetic substances on hair. Synthetic hair dyes which are available in the market, uses combination of peroxide and ammonia which alters the structure of hair and damage it and also causes allergic reactions. People like to natural compound of application. It's always safe and advantageous to use naturally existing compound to colour hair. In Ayurveda system there are some wonderful ingredients that can easily help restricting the growth of black hair or conversion of grey hair in to black hair. In Ayurveda the dravyas which are beneficial for hair are known as keshya dravya. *Nymphaea stellate Willd (Nil Manel)* is the main component of this natural application. It mentioned as a keshya dravya. It has *Madhura, Kashaya rasa, Pichchila, Snigdha guna, Seeta veerya, Madhura vipaka, Keshya, Medhya, Rucya, Rasayana, Dahapausikara, Dradhykara karma* in nature. [12] The current study has focused to evaluate the clinical effect and efficacy of external application in the management of *palithya*. The testing external application has been extracted from Ayurveda pharmacopoeia, main ayurvedic classic in Sri Lanka.

MATERIALS & METHODS

Preparation of the testing drug

3kg of *Nymphaea stellate* and 1.5 l of fresh cow's milk were collected and cleaned *Nymphaea stellate* was ground into fine paste form collectively. 1.5 l of fresh cow's milk was mixed with grounded paste. It was put in to the clay pot and closed with the

other clay pot. Margin was sealed by using clay & cloth strips (*Sandi bandha Yantra*). Referring to the *Sandhi bandha Yantra* mentioned in *Sharangadhara Samhita*, a great ancient classic of Ayurveda medicine. It was kept under the ground to prepared. After one-month *Yantra* was exhumed and opened. Obtained final product was collected & stored paste in 50g cups.

Clinical study

Thirty pre-diagnosed patients with *palithya* were selected from Outpatients Department of Gampaha Wickramarachchi Ayurveda Teaching Hospital referring to the simple random sampling method. Detailed disease history of selected individuals was obtained separately after obtaining the informed written consent from each of patients to attend the study. In the selection process, patients diagnosed with *palithya* in age between 20 to 40 years old were randomly selected irrespective of gender, religion, habitat etc. Individuals beyond the mentioned age range, pregnant and lactating cases, pre diagnosed cases with morbid psychopathologies, or any other hair diseases condition such as dandruff were excluded from the study. The selected patients were divided randomly into two groups in similar portions. The testing group (A) was treated using the prepared research paste and the study group (B) was treated with *Akalapalitha* oil. Both the groups were instructed with a recommended manual of regimens and instructed to continue the external applications (20 mg twice a week) & keep for a period of minimum 45 minutes before bathing to the entire hair & scalp and advised to rinse the hair using Pears Baby soap when bathing without any other treatments for *palithya*. (Dose-100mg for one month). The improvement of the therapy assessed according to the number of grey hair with related to specific areas of the scalp using Greying Severity Score (GSS) and hair colour was assessed by using standard hair colour grading chart. Number of colouring hair was measured according to one square inch area that related to all four

lobes of the skull, before and after the treatment plan. The entire scalp surface was divided in 4 zones, that is, frontal region, right and left temporal regions, and the occipital. In each of these zones, areas showing maximum greying were identified on visual examination. A 1-cm² area was marked with a skin marker and the hair within this square was cropped to approximately 1 mm above the scalp

surface. These five squares were then photographed and projected on the computer screen to count the numbers of white and black hair. Finally, Analysis of variance followed by T-test (Independent sample t test) were done using the SPSS statistical package. The obtained findings were analyzed using Statistical Package for the Social Sciences (SPSS) and Microsoft Excel.

RESULT

Demographic profile

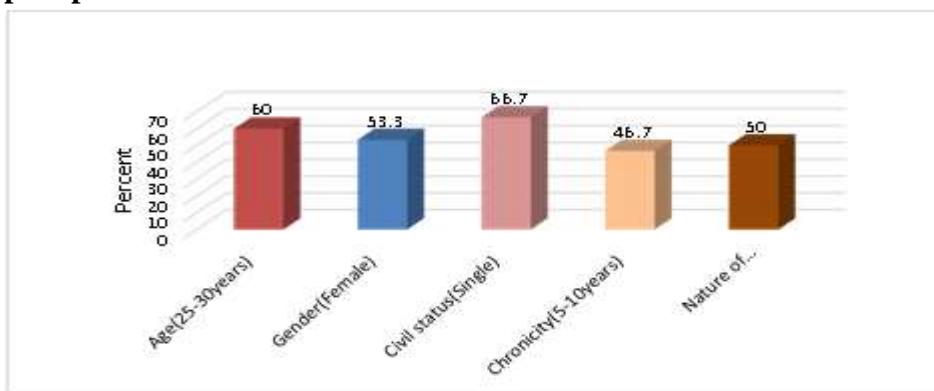


Fig 1: demographic profile

Amongst 30 cases having *palithya*, 53.3% of female cases and 46.7% of female cases were reported. The obtained findings inferred that females are much more vulnerable to infest *palithya*. The age wise distribution among 30 cases of *palithya* reveals that the maximum number of patients between the age group 25-30 years,

60%. The findings revealed that the maximum number of cases (66.7%) belong to single in civil status and maximum number of cases were suffering from the *palithya* for 5-10 years of duration. Furthermore, students are much more vulnerable to infest *palithya*,50%.

Clinical profile

Number of Grey Hairs

Areas	Patient	Frontal Areas			Occipital Areas			Left temporal Areas			Right temporal Areas		
		Before	After	Follow up	Before	After	Follow up	Before	After	Follow up	Before	After	Follow up
Nu.of gray hairs	1	5	0	0	4	0	0	15	0	0	5	0	0
	2	3	0	0	2	0	0	2	0	0	8	0	0
	3	2	0	0	2	0	0	3	0	0	10	0	0
	4	11	0	0	2	0	0	4	0	0	9	0	0
	5	5	0	0	2	0	0	10	0	0	9	0	0
	6	5	0	0	7	0	0	8	0	0	4	0	0
	7	10	0	0	11	0	0	7	0	0	9	0	0
	8	6	0	0	8	0	0	5	0	0	4	0	0
	9	8	0	0	5	0	0	4	0	0	5	0	0
	10	11	0	0	12	0	0	2	0	0	9	0	0
	11	5	0	0	10	0	0	10	0	0	15	0	0
	12	6	0	0	7	0	0	10	0	0	14	0	0
	13	15	0	0	5	0	0	10	0	0	9	0	0
	14	5	0	0	4	0	0	10	0	0	15	0	0
	15	9	0	0	5	0	0	10	0	0	14	0	0

Table 1: Changing number of grey hairs in group A

The obtained findings inferred that all the grey hairs were gradually changed by different hair colours, for the reason that grey hairs were not found in after the treatment period of group A.

Areas	Patient	Frontal Area			Occipital Area			Left temporal Area			Right temporal Area		
		Before	After	Follow up	Before	After	Follow up	Before	After	Follow up	Before	After	Follow up
Nu of gray hairs	1	11	11	11	8	8	8	10	10	10	15	7	5
	2	8	4	2	9	4	3	8	8	8	8	8	8
	3	3	2	2	4	1	1	2	2	2	4	1	1
	4	6	2	1	7	3	2	7	7	7	10	4	3
	5	4	3	3	3	1	1	4	1	1	3	1	1
	6	5	2	1	5	2	1	3	3	3	5	5	5
	7	4	2	1	4	2	1	5	1	1	5	5	5
	8	3	1	1	3	1	1	5	2	1	3	3	3
	9	5	3	2	3	2	1	4	3	2	6	2	1
	10	7	3	2	11	4	1	5	3	1	7	3	2
	11	15	4	2	15	3	2	7	4	2	7	3	1
	12	5	2	1	12	4	3	8	2	1	5	2	1
	13	9	3	1	10	3	1	10	4	2	5	3	2
	14	3	2	1	5	4	2	3	2	1	6	2	1
	15	5	2	1	5	2	1	12	5	4	4	2	2

Table 2: Changing number of grey hairs in group B

These obtained results elaborated that the testing drug effectively reduced the number of grey hairs compared to the group B. These results proved that the research paste has worked well on affected areas of *palithya* than *Akalapalitha oil*.

Hair colour variation of Group A

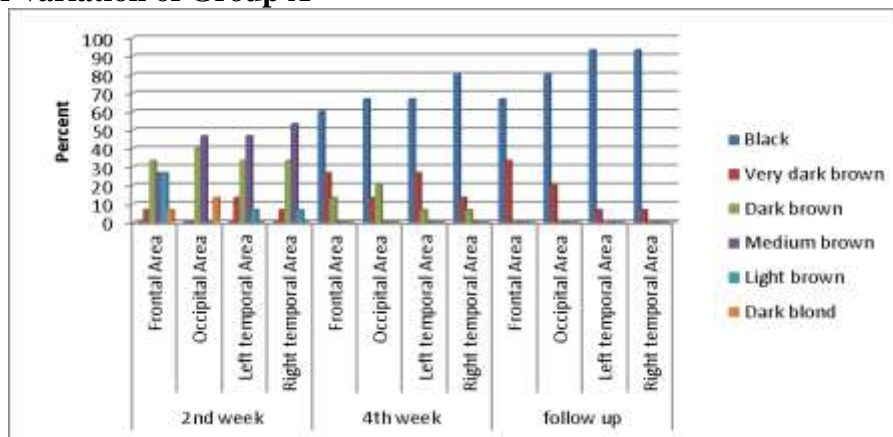


Fig 2: Changing color of affected areas of group A

Hair Colour Variation of Group B

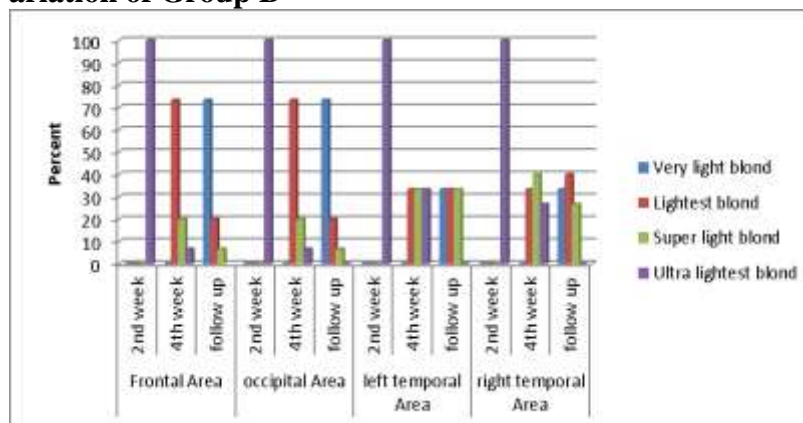


Fig 3: Changing color of affected areas of group B

These results proved that the research paste has worked well on reducing the *palithya* condition of affected areas than *Akalapalitha oil*.

Comparative effect

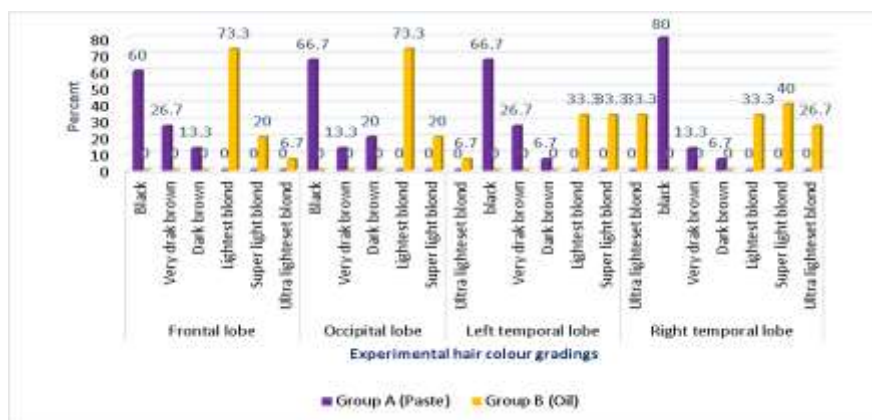


Fig 4: Comparative effect of both groups

These obtained results elaborated that the testing drug effectively reduced the colour variations over the areas compared to the *Akalapalitha oil*.

Statistical analysis of the clinical profile

Criteria	P Value
1 square inch scalp area of grey hair colour variation on Frontal lobe – test group	0.000
1 square inch scalp area of grey hair colour variation on Frontal lobe – control group	0.004
1 square inch scalp area of grey hair colour variation on Occipital lobe – test group	0.000
1 square inch scalp area of grey hair colour variation on Occipital lobe – control group	0.004
1 square inch scalp area of grey hair colour variation on Left temporal lobe – test group	0.000
1 square inch scalp area of grey hair colour variation on Left temporal lobe – control group	0.041
1 square inch scalp area of grey hair colour variation on Right temporal lobe – test group	0.000
1 square inch scalp area of grey hair colour variation on Right temporal lobe – control group	0.082

Table 3: Variation of the clinical profile of both groups after four weeks - p value of paired sample of T-test

Both the testing drug and the *Akalapalitha oil* have elaborated significant ($p < 0.05$) effects on reduction of grey hair colour variation on Frontal lobe, Occipital lobe and left temporal lobe. The testing drug has depicted significant effects on reduction of the colour over the area. Though, the *Akalapalitha oil* has not elaborated a significant effect on changing grey hair colour variation on Right temporal lobe.

DISCUSSION

Palithya (greying hair) is a distinct feature of aging. It is mentioned as *kshudra roga* in *Susruta Samhita*. Body heat is increased by anger, grief and exertion as a result of that *pitta* located in head is vitiated and caused for *palithya* [8] And Kelly RC et al stated that the heat of the body and *pitta* getting greatly increased and localized in the head,

cause ripening of the hairs of the head, leading to *pitta*, whiteness of hairs / grey hairs. [3] Referring to the modern aspect premature graying is defined as the onset of graying before the age of 20 in Caucasians and before the age of 30 in Africans and Asians or, alternatively, when 50 percent or more of scalp hair turns gray before the age of 50. [6] Olabiyi et al. mentioned that lack of care of the hair tendency to wash them with hot water or to dry them with electric dryers which emit a blast of hot air, are some of the precipitation factors. Hair dyes used in the earlier stages (when the hair starts just greying) also accentuate the process of greying. Chronic cold being one of the causative factors must be first dealt with if there is premature greying of hair. Factor made hair oils (they are generally cleaned with acid and some of the acids have a

tendency to remaining the oil) tend to strengthen the tendency of premature greying.^[4] The current study has focused to evaluate the clinical effect and efficacy of external application in the management of *palithya*. The testing external application has been extracted from Ayurveda pharmacopoeia, main ayurvedic classic in Sri Lanka. The study reveals that the incidence of occurrence of *palithya* was much more common among females compared to males. Referring to the previous clinical studies found that similarly. The age wise distribution among 30 cases of *palithya* reveals that the maximum number of patients between the age group 25-30 years. Ayurveda considered young age as pitta prominent age. Similarly, vitiated pitta is responsible for discoloration of hair. The study revealed that in research group, hair colour changes after 2 weeks of treatment period, grey hairs on frontal area, occipital area, left temporal area & right temporal area were suddenly reduced by dark brown & Medium brown. maximum hair colour was 53.3% of medium brown in right temporal area & 40% dark brown in occipital area. After 4 weeks of treatments grey hairs decreased up to 80% black hairs in right temporal area, 66.7% black hairs on left temporal area & occipital area. it gradually increased during follow up period for 93.3% black hairs on left temporal & right temporal area. Grey hairs on frontal, occipital area was gradually decreased up to 73.3% lightest blond after 4 weeks and up to 73.3% very light blond during follow up period in control group, but it was less than expected result. *Nymphaea stellate Willd (Nil Manel)* is the main component of this natural application. It is an aquatic herb; its extract reportedly includes Tannins. And previous researchers proved that Rejuvenating, Detoxifying and Antioxidant properties of *Nymphaea stellate*. It has *Madhura, Kashaya rasa, Pichchila, Snigdha guna, Seeta veerya, Madhura vipaka, Keshya, Medhya, Rucya, Rasayana, Dahapausikara, Dradhykara karma* in nature. As a result of

that *madhura kashaya rasa* are *pitta shamaka, pichchila, snigdha guna* and *Seetha veerya* are cause for reducing pitta dosha.^[9] Considering of other ingredient, cow's milk mentioned as *Gorasavarga* in *Charaka Samhita*. *Gorasavarga* stated ten properties. These properties were similar to *Oja*. (Immunological power) in the body. *Ojas* brings strength, strong immunity, happiness, and contentment.^[13] Maintaining of proper *Oja* condition important to preventing *palithya* disease conditions. The cow's milk acts as *rasayana, tarpaka, jivaniya, hridaya* (beneficial for heart), *buddhi prabhodaka* (supporting the mental growth) in Ayurveda.^[13] Due to *rasayana* effect, it is important to prevent *palithya* condition and maintaining proper colour of skin and hair. Due to *buddhi prabhodaka guna* its help to reduced *raajasika guna* (anger) in mind. Increasing of *raajasika guna* result to aggravation of *pitta dosha*. According to Ayurvedic Pharmacological Properties cow's milk having *madhura rasa, Seetha veerya* and *madhura vipaka, prabhava* (Characteristic Effect) is *manaskara* (Pleasing to mind).^[13] All these properties important for pacifying pitta dosha. Considering the both Ayurvedic and modern properties of each raw material in prepared herbal formulation mainly it contains *pitta shamaka, keshya, kasha ranjaka, rasayana* nutritional and specially antioxidant qualities effectively contribute in the management of *palithya* condition.

CONCLUSION

The current study objectified to study the effect and efficacy of Indigenous topical herbal application in the management of *palithya* condition compared with *Akalapalitha oil*. The randomized clinical study elaborated that the topical herbal paste was highly significant in the management of *palithya* condition, due to the antioxidant effectivity of consisted herbal ingredient and cow's milk. In addition, *pitta shamaka, keshya, kasha ranjana, rasayana* properties of ingredients. The comparative study revealed that the Indigenous topical herbal

application was more effective than Akalpalitha oil in the management of palithya condition.

Declaration by Authors

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