



## **The Evaluation of the effects of selected herbal formulation in the management of palitya (gray hair)**

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### **Abstract**

Hair has cosmetological and sociological importance throughout the life in framing the beauty and personality of an individual. Hair graying is recognized as a sign of aging resulting from complex regulation of melanogenesis. Hair graying scientifically termed as canities. According to Ayurvedic view this condition is termed as palitya, premature hair graying termed as *akala palitya*. In present cosmetic diseases are challenging in modern era as there is limitations to current treatments. But in Ayurvedic classics specific treatments had been described thousands of years ago. This study was to evaluate the effect of herbal formulation with reference to Sri Lankan Ayurveda pharmacopoeia in the management of palitya (gray hair). All patients were selected from O.P.D. of Gampaha Wickramarachchi teaching hospital and Gampaha Wickramarachchi Ayurveda institute according to inclusion criteria. The selected patients assigned in to two groups (Group A and B). Consisting of 15 patients for each group. The patients of group A treated with the prepared herbal formulation during the period of four weeks. Patients of group B treated with akaala palita oil during the period of four weeks. After four weeks the patients of Group A and Group B showed significant reduction of number of gray hairs with relevant to specific areas of each lobe of the skull. The efficacy of reduction in Group A was more significantly ( $P < 0.05$ ) greater than that of Group B. The improvement of the therapy assessed according to the number of gray hair 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. Thus, it can be concluded that the selected herbal formulation with reference to SL Ayurveda pharmacopoeia could be recommended for the management of palitya / akala palitya (gray hair).

**Keywords:** Gray hair, palitya, ayurveda, hair colour

### **Introduction**

The face of an individual is a personal identity in which hair plays a significant role. Therefore, a perfect head with hair is an attribute of personality and beauty. Hair colour is determined by what kind of melanin pigment is deposited in each hair shaft as it grows, but this hair-coloring process breaks down with age which is why grey hair is associated with advanced years. Greying of hair is a natural occurrence, which with age at one point of time would happen to everyone. What alarming is the increasing frequency of the phenomenon, becoming more common in young ages, even in teenagers. Although greying of hair starts in the late 20 years of age in the majority of Asians, but it usually goes unobserved at that time of life. Premature Greying of hair for Asians and Africans starts before 30 years of age (Babu, 2004) <sup>[7]</sup>.

According to Ayurveda excess pitta dosha is a common cause of premature grey hair. If hair fall is also associated, then vata is also involved as a main cause. In Ayurveda this condition is called *pālitya* or *akāla palita* (premature greying of hair) (Buddhadasa, 2007) <sup>[8]</sup>.

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 *pālitya* according to the doshic dominancy.

Colouring is the last solution for growing grey hair, Hair colouring or dyeing has been a common thing today. Many women have dyed their hair and there are a small but increasing number of men who also do so. Some use hair dyes to cover up the grey hair, to bring back the lost hair colour due to age, or to simply add colours to liven it up. Most commercial hair dye formulas are complex, with dozens of ingredients, and the formulas differ considerably from manufacturer to manufacturer. (Madehow.com, 2017). 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. These dravyas increases the length of hair and made its colour natural. The recipe of natural hair dye (expect to prepare) which responsible for this research is included in Sri Lankan Ayurveda pharmacopoeia volume III. It also contains wonderful ingredients which described in Ayurvedic compilations, under the category of keshha ranjana guna (Madehow.com, 2017).

### Aims and objectives

The main objective of the research was to assess the local effectiveness of herbal formulation with reference to Ayurveda pharmacopoeia in the management of grey hair.

Specific objectives of the research were to identify the activation time period of the hair dye, to identify the colouring range of the hair dye, to identify the physical damage to the hair during use the dye and study about the importance of natural remedies related to hair care.

### Materials and method

This clinical study was a randomized prospective cohort study. The patients were randomly selected from the O.P.D. of Gampaha Wickramarachchi Ayurveda hospital, Yakkala and students of the Gampaha Wickramarachchi Ayurveda institute by irrespective their sex and religion and according to the inclusion criteria. A detailed research proforma was prepared incorporating all the points from Ayurveda and modern aspect to study the patient. A minimum of 30 individuals coming under inclusion criteria selected for the study and they were grouped randomly in to two as Trial and Control group. (Group A and Group B)

The individuals of group A were treated with the selected herbal formulation and the individuals of group B were treated with akaala palitha oil during the period of one month. Both groups were instructed to follow the instructions according to the information leaflet.

The selected drug was prepared as per guidelines given in Ayurveda pharmacopoeia, at the pharmacy of Gampaha wickramarachchi Ayurveda institute (GWAI).

Patients of both A and B assessed according to subjective and objective parameters before and after the treatments. 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-cm<sup>2</sup> 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 (Singal, Daulatabad and Grover, 2016) [13]. Finally, Analysis of variance followed by T-test (Independent sample t test) were done using the SPSS statistical package.

### Preparation of drug

Raw materials were identified, collected and cleaned under the guidance of department of dravya guna vighnana of Gampaha Wickramarachchi Ayurveda institute. Equal quantity of bhringaraja pushpa (keekirindiya mal) and Japa pushpa (banduwada mal) were collected and ground with cow's milk until it became fine paste. Paste was dissolved in appropriate volume of cow's milk and it was put in to a metallic pot. It was closed with another pot and the margins of two pots were covered by using cloth strips and clay. (Sandhi Bandha) Combined pots were buried for one week of time period without leakage of water. After one week, pots were exhumed by using proper method. The clay pot

was opened and prepared drug was collected by using proper way. Finally, prepared drug was modified as a proper powder which easy to apply in the hair (SL Ayurveda pharmacopoeia, 1976) [6].

### Dosage and drug administration

Patch test was done for each patient (time period 24-48 hours) before administration of the drug.

For Group A Prepared herbal formulation (50g for a month) and 50ml of keekirindiya (brinharaja) juice will be given to each patient. Patients were advised to apply 10g of prepared herbal formula mixed with 10ml of keekirindiya juice, make it as a paste form, and apply to the external hair by using appropriate brush.

The prepared paste should be applying in the evening time and it should wash out next day morning without using chemical shampoo. They advised to apply this once a week for a period of one month.

15 patients of group B were advised to apply 20ml of akaala palitha oil, once a week for a period of one month. Keep oil in hair and scalp for a period of minimum 45 minutes with gentle massage, advised to rinse the hair by not using chemical shampoo. (Using baby soap when bathing). All patients were monitored by clinical changes, adverse effects and proper use of prescribed preparation of selected herbal formulation by twice a week for a time period of one month.

### Total treatment assessment

Complete Remission-100% relief and no recurrence in follow up study. Marked Improvement-More than 80% of relief and consider as Marked Improvement.

Moderately severe Improvement - 60% to 80% of relief and consider as moderately severe Improvement. Moderately Improvement-40% to 59% of relief and consider as Moderately Improvement. Mild Improvement-20% to 39% of relief consider as Mild Improvement Unchanged-Less than 20% of Relief consider as unchanged.

### Observations and results

Parameters of number of grey hairs relevant to frontal, occipital, left temporal and right temporal areas and colour of hair relevant to frontal, occipital, left temporal and right temporal areas were reduced after apply the selected herbal formulation for one month of time period. Group A was given only the selected herbal formulation with reference to Ayurveda pharmacopoeia for external application and Group B was given the akaala palitha oil for external application. Most of the patients selected for this study were belongs to 20-30 age group and percentage of group A-60%, group B-66.67%. Considering of the Total assessment of Number of grey hairs before and after the treatment relevant to Group A, before the treatment total percentage of grey hair presented in 1cm<sup>2</sup> area relevant to Frontal area is 28%, occipital area is 22.5%, left temporal area is 22.5% and right temporal area showed 26.8%. After the treatment total percentage of grey hair presented in 1cm<sup>2</sup> area relevant to Frontal area is 3.7%, occipital area is 1.6%, left temporal area is 1.6% and right temporal area showed 3.4%. Considering of the Total assessment of number of grey hairs before and after the treatment relevant to Group B, before the treatment total percentage of grey hair presented in 1cm<sup>2</sup> area relevant to Frontal area is 28.8%, occipital area is 22.6%, left temporal area is 22.6% and right temporal area showed 26.4%.

After the treatment total percentage of grey hair presented in 1cm<sup>2</sup> area relevant to frontal area is 26.95%, occipital area is 16.7%, left temporal area is 14.82% and right temporal area showed 22.37%. Both A and B groups were showed improvement of parameters. But Group A showed significant improvement in comparison with Group B. Considering about the total assessment of the study, parameters relevant to Group A, considering the frontal lobe 60% of patients reached to Complete Remission and 40% of patients reached to Moderately Severe Improvement. Considering of the Occipital lobe 73.3% of patients reached to Complete Remission, 6.6% of patients reached to Marked Improvement and 13.3% of patients reached to Moderately Severe Improvement. In right temporal lobe 40% of patients reached to Complete Remission, 33.3% of patients reached to Marked Improvement and 26.6% of patients reached to Moderately Severe Improvement. Considering of the left temporal lobe 73.3% of patients reached to Complete Remission, 13.3% of patients reached to Marked Improvement and 13.3% of patients reached to Moderately Severe Improvement. Parameters relevant to Group B, considering of the frontal lobe 100% of patients observed as unchanged. In the occipital lobe 26.6% of patients reached to Marked Improvement, 6.6% of patients reached to Moderately Severe Improvement, 33.3% of patients reached to Mild Improvement and 33.33% of patients were observed as unchanged. Considering of the right temporal lobe 40% of patients reached to Mild Improvement and 60% of patients observed as unchanged. Considering of the left temporal lobe 6.6% of patients reached to Moderately Severe Improvement, 40% of patients reached to Mild Improvement and 40% of patients reached to Moderate Improvement and 13.33% of patients were observed as unchanged. According to the results of Group A; relevant to frontal lobe 60% of patients, relevant to occipital lobe 73.3% of patients, relevant to right temporal lobe 40% of patients and relevant to left temporal lobe 73.3% of patients reached to Complete Remission condition. But in Group B relevant to all four lobes not observed any of patients reached to the Complete Remission condition. After analyzing data by SPSS software P value of Test Group (Group A) considering to each lobe is 0.000 ( $P < 0.05$ ). According to the above results P value = 0.000 which is less than significance level 0.05 ( $0.000 < 0.05$ ). Therefore, null hypothesis ( $H_0$ ) is rejected. Hence it can be concluded that, at 5% level of significance there is enough evidence to conclude that the mean of observations in Group A is higher than Group B.

### Discussion

Palithya according to Susruta Samhita, -The heat of the body produced by anger, grief, or exertion mixing with *pitta* and getting localized in the head. Cause ripening of the hairs and produces palita. (Makes them grey) (Panigrahi, 2000, p.450). Mainly the palitya or akala palitya results from the aggravation of pitta dosha or pitta vata doshas contribute to palitya. Ayurveda considered young age as pitta provacated age. In this study majority of patients belongs to 20-30 age group and percentage of group A-60%, group B-66.67%.

**Table 1:** Distribution according to the Gender

Gender	Frequency		Percentage (%)	
	Group A	Group B	Group A	Group B
Male	10	10	66.60%	66.60%
Female	5	5	33.30%	33.30%

Similarly, vitiated pitta is responsible for discoloration of hair. As tikta, kashaya and madhur rasas are pitta shamaka, snigdha guna and usna virya are vata shamaka and katu vipaka is kapha shamaka. In this study Bhringarāja pushpa (Keekirindiya mal) – Eclipta prostrate Japa pushpa (Banduwada mal) – Hibiscus rosa-sinensis and Cow's milk used to preparation of herbal formulation which administered to test group. Considering the Ayurvedic properties of Bhringarāja -Eclipta prostrate, hringarāja having katu and tikta rasa in nature. Specially tikta rasa contribute to pitta shamana. ushna virya contribute to vata shamana. Also having kaphavata shamaka doshagnata (Murthy, 2004, page 266, 267).

According to modern literature, Eclipta prostrate has Rejuvenating, Detoxifying and Antioxidant properties. These properties also contribute to reduce gray hair condition. Considering of cow's milk Acharya Charaka in Gorasavarga stated ten properties including in cow's milk. These properties were similar to Oja. (Immunological power) in the body. Ojas brings strength, strong immunity, happiness, and contentment (sharma, 2014) [14]. Maintaining of proper Oja condition important to preventing akala palitya like disease conditions. The cow's milk acts as rasayana, tarpaka, jivaniya (life supporting), hridya (beneficial for heart), buddhi prabhodaka (supporting the mental growth) in Ayurveda (sharma, 2014) [14]. Due to rasayana effect, it is important to prevent akala palita condition and maintaining proper colour of skin and hair. Due to buddhi prabhodaka guna its help to reduced raajasika guna in mind. Increasing of raajasika guna result to aggravation of pitta dosha. According to Rasa Panchaka (Ayurvedic Pharmacological Properties) cow's milk having madhura (Sweet), shita (cool), virya (potency) and vipaka (post metabolic taste): Madhura (sweet) prabhava (Characteristic Effect): manaskara (Pleasing to mind). (sharma, 2014) [14]. 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.

These properties mainly affect to reduce of both pitta and vata doshas under the karma specially mentioned about keshya and twacya properties. These are important to maintain proper health related to hair.

### Conclusion

Modern synthetic drugs have been found to show high capacity in promoting hair blackening activity. Various clinical trials and studies have been shown the use of hair colour-promoting activity of modern synthetic drugs. But, the synthetic drugs has become questionable due to their safety or their side effects. But Herbal drugs may provide success and harmless effect for hair coloring activity. Specially for blackening of hair.

This study was done to assess the effect of selected herbal formulation with reference to Ayurveda pharmacopoeia. According to the results of the two groups difference between the before treatment and after treatment of relevant parameters showed significant improvement in test group (Group A) compare to control group (Group B).

Considering the overall results of present study could be concluded that the prepared herbal formulation is more effective than that of akaala palitya oil in the management of palitya (Gray hair).

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