International Journal of Science and Research Methodology (IJSRM)
Volume 29, Issue 2, February 2026 ijsrm.humanjournals.com ISSN: 2454-2008

Bhangra: Therapeutic and Pharmacological Actions in *Shayb* (Premature Greying of Hair)

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Received: 19 December 2025 Revised: 30 December 2025 Accepted: 20 January 2026

ABSTRACT:

Background & Objective: *Shayb* (Premature Greying of Hair) is an aesthetic and psychological issue, affecting the younger population worldwide. Hair pigmentation, regulated by melanogenesis within melanosomes, is highly sensitive to oxidative damage mediated by reactive oxygen species (ROS). Persistent oxidative stress compromises melanocyte function, resulting in depletion of melanin and greying of hair. Triggering factors include hereditary, nutritional, environmental, emotional stress, and lifestyle factors. The Unani System of Medicine recommend various herbs and herbal formulations as a potential strategy to address this problem. This review examines the therapeutic potential of *Bhangra* (*Eclipta alba*) in the treatment of *Shayb. Bhangra* contains bioactive compounds such as alkaloids, ecliptine, coumarin, flavonoids and nicotine, which provide strong antioxidant properties. It boosts melanocyte activity, enhances scalp circulation, and slows the greying process through natural mechanisms. **Methods:** A comprehensive literature search was conducted utilising both traditional and modern sources, i.e. Classical Unani manuscripts and reference texts, databases such as PubMed, Google Scholar, Science-Direct, and SCOPUS. **Result:** *Bhangra* is recognised for its melanogenic properties and effectiveness in treating Premature Greying of Hair (PGH). Pharmacological studies indicate its melanin production, antioxidant, hair revitalizing, anti-aging properties, rejuvenating tonic, anti-inflammatory, and antimicrobial, activities. **Conclusion:** Further research focusing on melanogenic action of *Bhangra* and its effectiveness is necessary to substantiate its therapeutic claims with scientific evidence.

Keywords: *Shayb*, Premature Greying of Hair, *Bhangra*, *Eclipta alba*.

INTRODUCTION:

Shayb, also known as Premature Greying of Hair (PGH), is defined as the whitening or greying of hair before the usual age. The actual age of greying is *Sinn-i-Kuhūlat /Sinn-i-Inḥiṭāṭ* (age of decline), when innate heat starts to decline, the body inclines to adopt a cold and dry temperament, loses its stability and starts to deteriorate; it extends from forty to sixty years.[1,2]

Premature greying of hair is considered to have occurred if greying appears before the age of 20 years in Whites, 25 years in Asians and 30 years in Africans.[3] Prevalence of PGH varies between 7.5% and 36.4% worldwide.[4]

Hair colour is determined by melanin incorporated into the hair shaft, the relative proportions of eumelanin (black-brown) and phaeomelanin (yellow-red), and the number and degree of melanisation of melanosomes.[5] The exact aetiology of PGH is still unclear. Intrinsic factors that influence cellular integrity and function include genetic determinants, and extrinsic factors include environmental pollutants, ultraviolet (UV) radiation, tobacco smoke, and poor nutritional status. These factors are associated with reactive oxygen species (ROS) formation, causing oxidative stress that speeds up melanin loss and accelerates hair greying.[6] PGH has an autosomal dominant pattern of inheritance.[7] Major presumed causes of premature greying of hair are Skin disorders involving the scalp, like Vitiligo, Alopecia areata; Genetic disorders like Piebaldism, Rothmund-Thomson syndrome and Werner's syndrome Progeria, Nutritional deficiencies like PEM (Protein energy malnutrition), micronutrient deficiencies like copper, iron, calcium, Vit-B12, Vit-D3, biotin, ferritin, etc. Early greying is also associated with endocrine disturbances like hypo or hyperthyroidism, and autoimmune disorders like pernicious anemia. Oxidative stress and certain drugs like chloroquine, mephenesin, phenylthiourea, triparanol, etc. And certain chemicals are also related to PGH. Smoking, psycho-emotional stress, inflammatory stress, and obesity are also reported to be significantly correlated with hair greying.[8,9]

Conventional management of PGH includes various systemic therapies like Calcium-pantothenate, PABA (p-aminobenzoic acid) or both in combination. Topical therapies include PUVASOL, Synthetic dyes and colourants that result in adverse effects like

irritation and allergic reactions in some individuals. Hair dyes and colourants can be a temporary treatment option. Herbal Medicines are reported as an effective treatment option for PGH.[8,9]

In Classical Unani Literature, it is mentioned that hair remains black till the viscosity of blood remains normal; any deficiency causing a decrease in viscosity turns hair white or grey. In certain morbid conditions, hairs become grey, and whenever the body returns to normal, the hair becomes black once again.[10,11]

Bhangra is used in various hair disorders, like Premature Greying and Hair fall, as it possesses properties like *Musawwid-i-Sha'r* (Blackening of hair), *Muqawwi-i-Sha'r* (Hair tonic). *Bhangra* demonstrate a broad spectrum of therapeutic and pharmacological properties, including Antioxidant, Anti-inflammatory, Anti-carcinogenic, Astringent, promotes hair growth, stimulates production of melanin, Antibacterial, Antifungal, Acrid, Cooling, and refrigerant.[12,13,14] Considering the therapeutic versatility of *Bhangra*, the current review emphasises its potential role in managing and preventing *Shayb* (Premature Greying of Hair).

Methodology:

To ensure the most recent and relevant data, a comprehensive literature search was conducted utilising both traditional and modern sources. Classical Unani manuscripts and reference texts available at the Library of the Government Unani Medical College & Hospital, Bengaluru, were reviewed. Additionally, electronic databases such as Google Scholar, PubMed, and Science Direct were systematically searched. Only papers published in the English language were considered for inclusion. Wherever feasible, original research studies and primary sources were prioritised, and essential data were carefully extracted. The literature search employed a combination of keywords, including *Shayb*, Premature greying of hair, *Bhangra*, *Bhrangraj, Eclipta alba*, Antioxidants, Dye, Pharmacological properties, and Phytochemical constituents. Boolean operators "AND" and "OR" were applied to construct precise and inclusive search strategies.

Brief Overview:

***Mahiyat* (Botanical description):**

Bhangra is a plant-based drug derived from *Eclipta alba* Hassk. Synonym *Eclipta prostrata* of the Asteraceae family, and consists of the whole plant.[14]The plant is herbaceous, annual, 30-50 cm high, erect or prostrate (lying down), much-branched, strigosely hirsute, and often rooting at nodes. Leaves are apposite, sessile to subsessile, 2.2-8.5cm long, 1.2-2.3cm wide, usually oblong, lanceolate. Flowers in capitulum or head, solitary or in pairs on unequal axillary peduncles. Fruit: Cypsella, one-seeded, cuneate, with a narrow wing, covered with warty excrescences, brown. Seeds are 0.2-0.25 cm long, 0.1 cm wide, dark brown, hairy and non-endospermic, resembling *Tukhme Kasni.* The leaves, roots or whole plant are used as medicine.[13,14,15,16]

***Aqsaam* (Types):**

Bhangra is mainly of three types:[13,17,18]

1- *Bhangra Safaid*: flowers are white, also called as *Jal Bhangra*

2- *Bhangra Siyah*: flowers are blackish

3- *Bhangra Zard*: flowers are yellow

Description of *Bhangra*:

Botanical name: *Eclipta alba*[13,14,15,16,17,18]

Table 1- Vernacular names: [13,14,15,16,17,18]

Language	Local Names
Unani	*Bhangra*
Arabic	*Suweid, Ja'da*
Bengali	*Kesooria, Kesuti*
English	Eclipta
Gujrati	*Bhangaro, Bhangro, Markava*
Hindi	*Bhangaraiya, Bhangra, Bhera, Buhura, Bungra, Balbari*

Kannada	*Gurajalu, Gurugada Soppu, Keshvardhana, Kodigaraju, Dodhak*
Marathi	*Bhringaraja, Nhangra, Maka*
Tamil	*Karisalamkanni, Karisalanganni, Karisalai*
Telugu	*Guntakalagara, Guntagalagara, Galagarachettu*
Sanskrit	*Bhringraj, Keshraj, Superna*
Urdu	*Bhangra*

Table 2- Taxonomical classification:[19,20]

Kingdom	Plantae
Sub kingdom	Viridaeplantae
Infra kingdom	Streptophyta
Division	Traceophyta
Sub division	Spermatophytina
Infra division	Angiosperms
Class	Magnoliopsida
Order	Asterales
Family	Asteraceae
Tribe	Heliantheae
Genus	*Eclipta*
Species	*Eclipta alba* (L.) Hassk.

Habitat: *Bhangra* is a very common weed that grows in gardens, fields,[18] abandoned ponds, roadsides, and riversides. It is an Indian origin plant,[13] has a wide distribution in tropical, subtropical, and warm temperate regions and is also found in Central, North, and South America; introduced in Africa, Asia, Australia, Europe, Pacific islands, and East-coastal regions. It prefers wet and moist places, so it typically grows on the banks of pools and lakes, on the edge of rivers, in swamp sand ditches, and in seasonally flooded depressions. It is also perceived as a weed in irrigated agricultural land such as rice fields. It is a common weed of moist places found throughout India ascending to 1700m-2000m on the hills.

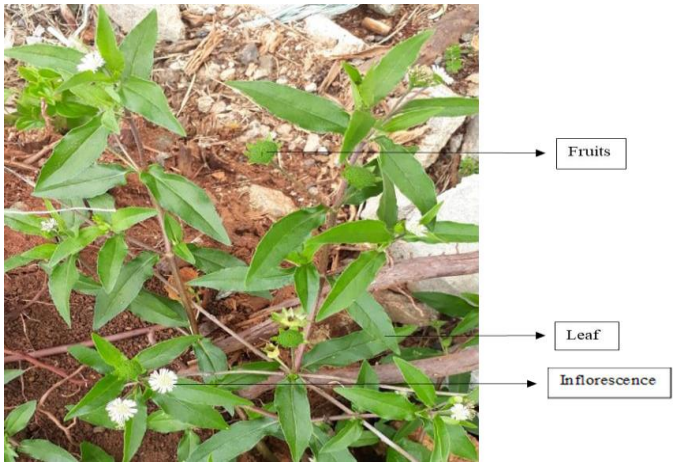

Figure 1: *Bhangra* plant

Pharmacognostic details:

- ***Hissae Musta'mila* (Part used):** Whole Plant, leaves and seeds[13,17,18]
- ***Mazah* (Taste):** Bitter[13,17,18]
- ***Mizāj* (Temperament):** *Ḥārr* [2] *Yābis* [2] [13,15,16,17,18]
- ***Afaal* (Functions):**

❖ *Musawwid-i-Sha'r* (Hair blackening agent), *Muqawwī-i-Shar* (Hair tonic), *Dafe Sala* (Cures Baldness), *Muḥallil* (Resolvent), *Muqawwī-i-Basar* (Eye tonic), *Muqawwī-i-Dimāgh* (Brain tonic), *Muqawwī-i-Bāh* (Aphrodisiac), *Muṣaffī-i-Khoon* (Blood purifier), *Musakkin* (Sedative). *Muṣaffī-i-Sha'r* (Hair cleanser), *Kāsir-i-Riyāḥ* (Carminative).[12,13,]

❖ ***Istemaal* (Therapeutic Uses):**

❖ *Shayb* (premature greying of hair) *Ḍu'f-i-Baṣarat* (poor eyesight), *Ḍu'f-i-Dimāgh* (cerebrasthenia), *Ḍu'f-i-Mi'da* (gastric debility), *Ḍu'f-i-Bāh* (sexual debility), *Ezam-i-Kabid* (hepatomegaly), *Ezam-i-Ṭiḥāl* (splenomegaly), *Amrāḍ-i-Lissa-o-Dandān* (diseases of gums and teeth), *Ramad* (conjunctivitis), *Ṣudā'* (headache), *Ṣala'* (baldness), *Baraṣ* (vitiligo)[12,13,15,16,17,18]

❖ ***Nafa-e Khas* (Main Function):** *Muqawwī-i-Baṣar* (eyetonic), *Muqawwī-i-Bāh* (aphrodisiac)[17]

❖ ***Muḍirr* (Adverse effect):** For hot temperament individuals.[17]

❖ ***Muṣliḥ* (Corrective drug):** Black pepper, Honey, Ginger [15,16,17]

❖ ***Badal* (Substitute):** *Nakchhikni, Binola, Barg-e-Bed-Anjeer* [13,15,17]

❖ ***Miqdar-e-Khurak* (Dose):** [15,16,17]

❖ Leaves: 5-7 gm as *Safūf* (powder).

❖ Seeds: 1-3 gm as whole seeds or as *Safūf* (powder).

❖ ***Murakkabat* (Compound Formulations):**

❖ *Ma'jūn Bhangra, Roghan-e-Amla Sada*[16]

❖ **Phyto- Chemical constituents of *Eclipta alba* in PGH:**

- **Caumarins:**

E. alba is rich in coumarin. Coumarin is widely distributed in different parts of plants and has the highest concentration in fruits, seeds, roots and leaves. Coumestan is an organic compound that is a derivative of coumarin, which forms the central core of variety of natural compounds known collectively as coumestans. The isolated coumestans include wedelolactone, demethyl wedelolactone, isodemethyl wedelolactone, coumestan, and demethyl wedelolactone-glucoside. The character of coumarin is a benzene ring fused with a pyrone ring. Several studies have discovered that coumarins have the ability of melanogenesis, which may be applied to treat premature hair greying. 7, 8-dimethoxycoumarin (DMC, C11H10O4), a natural coumarin existing in several herbal plants, including *Eclipta alba*, could significantly increase the melanin content and Tyrocinase activity in B16 cells.[20,21]

- **Flavonoids:**

Numerous flavonoids have also been identified from E. prostrata in the form of flavonols, flavones, and isoflavones. Quercetin is one of the flavonols obtained from aerial parts of the plant by silica gel column chromatography and HPLC. Certain flavonoids exhibit anti-vitiligo properties, suggesting their potential application in the treatment of hair greying.[21]

Flavonoids restrain the proteins associated with ROS production, protects lipids from per-oxidation and reduces oxidative damage. Flavonoids chelate metal particles and prevent them from forming free radicals thus protecting against oxidative stress. Flavonoids have antioxidant properties and prevent many diseases caused by oxidative stress, like PGH.[22] Flavonoids like quercetin, hesperidin, luteolin, and apigenin have anti-inflammatory properties and reduce inflammation. Flavonoids are produced by plants against microbial diseases and have antibacterial action.[20,21,22]

- **Organic:** Steroids, Alkaloids, Ecliptine, Nicotine, Resin, Proteins, Carbohydrates[14-16,21,22]

- **Inorganic:** Iron, Calcium, Magnesium, Sodium, Potassium[15]

Uses in the Treatment of *Shayb* (PGH):

Bhangra has been used for a long time in traditional medicine. It is known for its potential benefits in hair care, it prevents premature greying, hairfall as mentioned in classical Unani literature.

- 10.5 grams of *Safūf* of Tukhme *Bhangra* with water orally once daily for 7 weeks prevents the greying of hair.
- Juice of *Bhangra* leaves is used for colouring the hair and promoting hair growth.
- Consuming orally as well as applying the juice of *Bhangra Siyah* turns the hair black.[17]
- In children, when the juice of leaves is applied on shaved scalp, it transforms brown hair into black.[18]
- Oral intake of seeds of *Bhangra* with sesame seeds and sugar in equal quantity regularly increases *Badani Quwa* (all body faculties) and longevity, and turns hair black.[13]
- *Bhangra* is also used as a tonic, emetic, purgative, and deobstruent in hepatomegaly and splenomegaly as *Joshanda*.[13]
- Paste of *Bhangra* leaves locally is beneficial in scorpion sting, ulcers and wounds .[18]
- Roots of *Bhangra* in the form of paste applied locally as antiseptic.[18]

Pharmacological activities: Hair blackening agent, hair growth promoter[14] promotes melanin production, antioxidants, antimicrobial, hair conditioner, hair revitalising agent, anti-giardial properties, rejuvenating tonic, cholagogue, tonic, alterative, emetic, purgative, hepatic tonic, deobstruent.[14,15,16,23,24]

The properties and uses of *Bhangra* in the treatment of PGH are summarised as:

❖ **Melanin synthesis**: *Bhangra* stimulates melanin synthesis, promotes melanocyte migration and maintains the natural colour of the hair. The oil prepared with *Bhangra* is used as a hair dye. [19,22,23,24]

❖ **Antioxidant property**: *Bhangra* contains antioxidants that protect hair follicles from oxidative stress, contributing to the reduction of premature greying of hair.[19,20,22,23,24]

❖ **Hair growth promoter**: *Bhangra* have hair growth-initiating and promoting effects. It reduces the time required for hair growth initiation and completion, and increases the number of anagenic hair follicles. Its application as hair oil or hair mask on the scalp regularly strengthens the hair, reduces breakage and hair damage.[13,18,20,23]

❖ **Healthy Scalp**: A healthy scalp is necessary for maintaining hair colour. *Bhangra* has antimicrobial properties and maintains scalp health.[13,18,20,23,24]

❖ **Conditioning of Hair**: *Bhangra* helps condition the hair, making it smoother and more manageable.[13,18,23,24]

❖ **As a Diet**: *Bhangra* leaves are cooked as a vegetable and used in chutneys in India and in some parts of the world, like Nepal, Indonesia and Africa.[13,18,22,23]

Result & Discussion: According to the literature reviewed, *Bhangra* is used for its melanogenic properties and effectiveness in treating *Shayb* (Premature Greying of Hair). Pharmacological studies show its role in melanin production, antioxidant, hair revitalising, anti-ageing properties, rejuvenating tonic, anti-inflammatory, and antimicrobial activities. This review article presents a detailed and comprehensive review of Unani concepts and contemporary scientific evidence regarding the role of *Bhangra (Eclipta alba)* in the management of *Shayb* (premature greying of hair).

Conclusion:

Premature greying of hair (*Shayb*) poses a significant cosmetic and psychological burden, driven by oxidative stress, genetic factors, and lifestyle influences that impair melanogenesis. *Bhangra* (*Eclipta alba*), valued in Unani and traditional medicines, demonstrates substantial potential as a natural intervention for this condition. The potent free radical scavenging ability, melanogenic, antioxidant, antiaging, and antimicrobial properties of *Bhangra* highlight its role in protecting melanocytes, enhancing scalp health, and treating

greying. While their pharmacological benefits are well-documented in traditional and preliminary scientific studies, well-designed clinical trials are needed to confirm efficacy, explore standardised dosages, and establish their standardised therapeutic protocols. By bridging traditional wisdom with evidence-based research, *Eclipta alba* holds promise as a safe and complementary therapy for managing premature greying of hair and hair health improvement.

Ethical approval:

Not applicable.

Funding:

No government, public, private, or non-profit funding organisations have granted funding for this work.

Conflict of interest:

The authors declare no conflicts of interest.

Acknowledgement:

The authors sincerely acknowledge the guidance and valuable insights offered by their academic mentors, principal, medical officers, and librarian during the preparation of this article. They also extend their gratitude to colleagues and junior team members for their support.

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International Journal of Science and Research Methodology (IJSRM)
Volume 29, Issue 2, February 2026 **ijsrm.humanjournals.com** ISSN: 2454-2008

How to cite this article:
Fatma K et al. Ijsrm.Human, 2026; Vol. 29 (2): 29-35.

Conflict of Interest Statement: All authors have nothing else to disclose.

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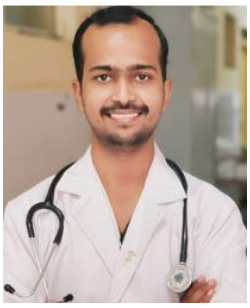	Author Name : Dr. Akshara Shikari Author Affiliation : PG Scholar, Dept. of *Amraze Jild wa Tazeeniyat* (Skin & Cosmetology) Author Address/Institute Address : Government Unani Medical College & Hospital, Bengaluru, India.79
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