



THERAPEUTIC APPROACHES FOR MELASMA (*KALAF*) IN UNANI MEDICINE

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ABSTRACT

Melasma, known as "*Kalaf*" in Unani medicine, is a common acquired pigmentary disorder mostly affecting the face. It is much more common in women during their reproductive years but about 10% of the cases do occur in men. Melasma appears as symmetrically located irregular macules and patches that range from light brown to dark brown in colour. The three predominant facial patterns are centrofacial (forehead, nose, upper lip), malar (malar cheeks), and mandibular. Unani physicians *Ibn Sina*, *Ibn Hubal Baghdadi*, and *Rabban Tabri* have discussed melasma in detail. According to Unani System of Medicine, melasma results from the accumulation of black bile (*Sawda*) within the skin.

Conventional treatments like UV protection, topical medicines, and chemical peels are effective, but short lived and associated with unwanted side effects. Therefore, development of effective and safe products for melasma is becoming emergent. Treatment in Unani medicine typically involves a combination of dietary and lifestyle modifications, herbal remedies, and therapeutic procedures (*Ilaj-bit-Tadbeer*) to restore balance of *Akhlat* (humours) and eliminate the accumulated *Sawda*.

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Introduction:

Melasma is the most common pigmentary disorder among Indians. It is much more common in women during their reproductive years but about 10% of the cases do occur in men. Melasma is an acquired pigmentary condition primarily affecting the face of women (1,2). The word "melasma" originates from the Greek term "*melas*," meaning black. It typically appears as symmetrically located irregular macules and patches ranging from light brown to dark brown in colour (3). These patches predominantly develop on the face, with less frequent

occurrence on the neck and forearms. Conventional treatments for melasma include UV protection, topical medications, oral therapies, chemical peels, LASER sessions, and light-based therapies. Despite its global impact, conventional treatment options often entail potential side effects and limitations, necessitating the search for alternative therapeutic strategies (4–8). For example, repeated applications of hydroquinone, commonly used for the treatment of hyperpigmentation, can cause toxic reactions, depigmentation, vitiligo-like hypochromia, or

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leukoderma(9). Therefore, development of effective and safe products for melasma is becoming emergent. Unani medicine offers valuable insights for managing melasma holistically.

Etiopathogenesis:

The etiopathogenesis of melasma includes genetic influences, chronic exposure to UV radiation, and hormonal stimulation. However, melasma is not the same skin hyperpigmentation as that induced by UV irradiation or inflammation. Nevertheless, there are similarities between the histopathologic presentation of melasma and solar elastosis, a hallmark of photo-aged skin. These overlaps include altered basement membrane, increased vascularization, and increased mast cell count. Previously, increased melanogenesis was thought to be the sole contributing factor to the pathogenesis of melasma but more recently, aberrant vasodilation and angiogenesis have been found to play a role. Nitric oxide, a potent vasodilator, was found to be overexpressed at the dermal-epidermal junction and was hypothesized to contribute to melasma through stimulation of tyrosinase and increasing vascularity(10).

Classification:

Melasma is classified both clinically and histologically. The clinical and histological features of melasma in men are the same as those of melasma in women (11,12). Clinically, melasma occurs in three distributions as:

1. Centro-facial Pattern:

In this pattern, melasma affects the forehead, nose, and upper lip (excluding the philtrum, cheeks, and chin).

2. Malar Pattern:

When appearance of melasma is restricted to the malar cheeks.

3. Mandibular Pattern:

When melasma affects only the jawline, it is called Mandibular Pattern.

Histologically, melasma is divided into four patterns of pigmentation; epidermal, dermal, mixed, and indeterminate. The epidermal type consists of melanin deposition in the basal and suprabasal layers of the epidermis. The epidermal lesions usually appear light brown in colour under normal light, but under Wood's light examination, colour contrast of lesioned skin is enhanced. The dermal type involves the superficial and mid dermis. Colour contrast is not enhanced under Wood's light examination in the dermal type. These lesions are often grey or bluish grey under normal light. Melanin deposition in both the epidermis and dermis constitutes the mixed type. There is enhancement of colour contrast in some areas of lesioned skin, while not in others, in Wood's light examination of the mixed type. The mixed type is usually a deep brown colour under normal light. A fourth type is found in patients of dark skin. Under normal light, lesions may be ashen grey, although they can be difficult to recognize. Lesions are not apparent on Wood's light examination because of the lack of contrast. Histologically, melanin deposition is found primarily in the dermis (13).

Etiopathogenesis in Unani medicine:

Unani medicine, melasma is referred to as "*Kalaf*" and is described as a blackish patch formed by the merger of numerous small black spots known as "*Barash*." In classical Unani medical texts, "*Kalaf*," is often discussed with detailed descriptions of its etiology and pathogenesis. Unani scholars consider *Kalaf* a melancholic (*Sawdawi*) disease, which arises due to the accumulation of black bile (*Sawda*) in the skin, resulting from leakage of microvasculature. This condition is often associated with melancholy disorders of the liver and spleen, leading to a predominance of black bile (*Ghalba-e-Sawda*) in the blood.

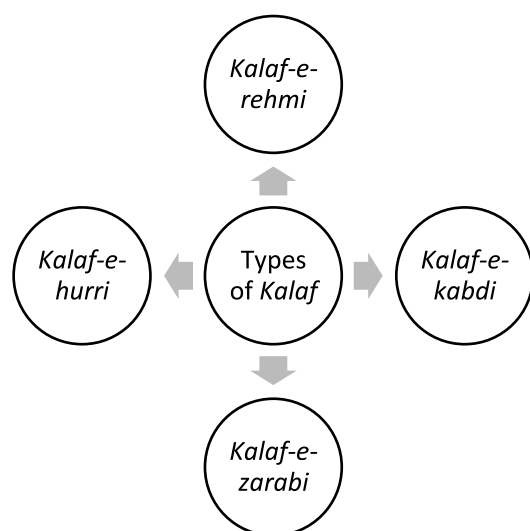
Unani Physicians Ibn Sina, Ibn Hubal Baghdadi, and Rabban Tabri, have discussed melasma in their renowned books. According to them, melasma results from the accumulation of black bile (*Sawda*) within the skin. The classical Unani

text "*Kitab-Al-Mukhtarat-Fil-Tibb*" by Ibn-Hubul-Baghdadi, explains that the macular lesions of Kalaf are formed due to the accumulation of morbid matter in the blood vessels under the skin. The body's defense mechanisms are not capable of dissolving and absorbing these accumulated substances, leading to visible hyperpigmentation(14). The classical text *Ghina Muna* suggests that *Kalaf* is caused by the gases (*Bukharat*) spread out from the stomach and accumulate under the facial skin. It also mentions that *Kalaf* is common in pregnant women due to the cessation of the menstrual cycle, which results in the accumulation of morbid matter within the body.

Types of Kalaf (melasma) in Unani medicine

The classical Unani literature mentions various forms of melasma as under

- *Kalaf-e-rehmi*:
When melasma occurs due to hormonal imbalance brought on by pregnancy
- *Kalaf-e-kabdi*:
This type of melasma is related to liver dysfunction
- *Kalaf-e-zarabi*:
When melasma is caused by any damage or abrasion to the facial skin's microvasculature
- *Kalaf-e-hurri*:
When melasma is caused by excessive sun exposure



Management of Kalaf (melasma) in Unani system of medicine

Unani medicine is a comprehensive system of healing that integrates the principles of natural medicine, emphasizing balance and harmony within the body. It is based on the humoral theory, which proposes that health is maintained by the balance of four humors: blood (*Dam*), phlegm (*Balgham*), yellow bile (*Safra*), and black bile (*Sawda*). Imbalances in these humors lead to a disease, and the goal of Unani treatment is to restore balance through natural remedies, diet, and lifestyle modifications (15).

Unani medicine employs a holistic approach to managing melasma, focusing on both internal and external therapies to restore balance and promote healthy skin.

Treatment approaches in Unani medicine for melasma include *Ilaj b'il Ghiza* (Dietotherapy), *Ilaj bi'l Tadbir* (Regimenal therapy), *Ilaj bi'l Dawa* (Pharmacotherapy), *Ilaj-i Nafsani* (Psychotherapy).

1. *Ilaj b'il Ghiza* (Diet-therapy):
It emphasizes dietary modifications to balance humors and improve skin health.
2. *Ilaj bi'l Tadbir* (Regimenal therapy):
This method focuses on lifestyle adjustments, such as sun protection, stress management, and maintaining a healthy routine.
3. *Ilaj bi'l Dawa* (Pharmacotherapy):
It utilizes single herbal drugs and/or their formulations to address melasma.
4. *Ilaj-i Nafsani* (Psychotherapy):
It recognizes the impact of psychological factors on skin health and aims to address stress and emotional well-being.

Unani System of Medicine emphasizes the importance of maintaining a balanced diet and lifestyle to prevent the accumulation of black bile (*Sawda*), which is believed to cause melasma. Additionally, stress management is advised to maintain overall health and hormonal balance.

These holistic approaches aim to mitigate melasma effectively. Hence, Unani physicians employ a multifaceted approach that encompasses risk factor modifications, '*Ilaj bi'l Ghiza wa Tadbir*' (diet and regimen therapy), '*Ilaj bi'l Dawa*' (pharmacotherapy), and '*Ilaj-i Nafsani*' (psychotherapy).

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1. Risk factor modification:

In Unani medicine, modifying risk factors is essential for managing melasma (*Kalaf*). As UV rays can worsen the condition, the foremost recommendations include reducing excessive sun exposure. Treating underlying stomach issues and addressing irregular menstruation in women are also critical steps.

2. *Ilaj bi'l ghiza* (dietotherapy):

Dietotherapy has a significant role in maintaining the balance of humors within the body. Special attention is given to the choice of foods, their preparation, and the timing of meals to promote overall health and harmony. The best prescribed diet for melasma is *Ma' al-Jubn* (whey) which has immense benefits in treating melasma. Foods that balance *Safra* and *Sawda*, such as fresh fruits, vegetables, and dairy products, should be included in the diet. Drinking plenty of water helps to flush out toxins

and maintain healthy skin. Conversely, certain foods that increase the production of *Safra* and *Sawda*, such as spicy, fried, processed foods, salted and smoked fish, mushrooms, beef, cabbage, and prolonged use of eggs need to be restricted or avoided.

3. *Ilaj bi'l dawa* (pharmacotherapy):

In Unani system of medicine, *Ilaj bil Dawa* (pharmacotherapy) refers to the use of natural herbs and their formulations to treat underlying imbalances and bring the body humours back into balance. *Tanqiya-i-Sawda* (evacuation of black bile) is the first therapeutic method that Unani physicians have advocated for controlling melasma. This involves use of *Munzijat* (purgatives) and *Mushilat* (laxatives) that specifically target *Sawda* (Black bile).

The second one is *Taqwiyat-i Mi'da*, which involves use of medicines to strengthen the stomach, and the third one is *Tasfiya-i-jild*, which is cleansing the skin with those medicines having *Jali* (detergent) properties.

Additionally, , medicines having *Muhalil* (anti-inflammatory) properties are used. The commonly used herbs in the treatment of *Kalaf* (melasma) are delineated in Table 1.

Table 1: Some important Herbs used in the treatment of Melasma.

S.No	Unani Name	Scientific Name	Chemical Constituents	Mode of Action	Reference
1.	<i>Emblica Officinalis</i>	Amla	Emblicanin & Punigluconin Pedunculagin	Antioxidant Tyrosinase inhibition	(18)
2.	<i>Curcuma longa</i>	Haladi	Curcumin, Demethoxycurcumin, Bisdemethoxycurcumin, Diacetyl curcumin	Anti-inflammatory, Antioxidant	(19)
3.	<i>Crocus sativus</i>	Zafran	α β carotenes & Cyanidins Kaempferol	Antioxidant Tyrosinase inhibitor	(20)
4.	<i>Santalum album</i>	Sandal	α santalo	Tyrosinase inhibition	(21)
5.	<i>Aloe barbadensis</i>	Elva	Aleosin	Tyrosinase inhibition, antioxidant	(22)
6.	<i>Saussurea lappa</i>	Qust	Methanolic extract	Tyrosinase inhibition	(23)

7.	<i>Azadirachta indica</i>	Neem	Methanolic extract	Tyrosinase inhibition Antifungal	(24)
8.	Masoor	<i>Lens culinaris</i>	Vit-E, beta carotene, Phytosterol	Anti-inflammatory	(25)
9.	Anjeer	<i>Ficus carica</i>	ABTS [2,2-azinobis-(3-ethylbenzothiazoline-6-sulfonate)] and DPPH (1,1-diphenyl-2-picrylhydrazyl)	Antioxidant	(26–28)
10.	Badam Talkh	<i>Prunus Amygdalus amara</i>	amandine	Inhibit melanogenesis Antioxidant	(29)

4. Ilaj bi'l tadbir (regimenal therapies):

Regimenal therapy involves various techniques to cleanse and detoxify the body, promoting overall health and well-being. The fundamental idea behind Unani therapy for the treatment of chronic illnesses, such as Kalaf (melasma), is Tanqiya-i Mawad (expulsion of unhealthy stuff). A sequence of systemic procedures is used to eliminate harmful humours from the body. Some of these are: Ishal (purgation), Fasd (venesection), Hijama (cupping), Irsal-i 'Alaq (leeching), Huqna (enema), Ta'riq (diaphoresis), Idrar (diuresis), Hammam (Turkish bath), Riyazat (exercise) and Dalk (massage).

5. Ilaj-i nafsani (psychotherapy):

Unani medicine recognizes the impact of mental and emotional health on physical well-being therefore psychotherapy forms an integral part of Unani treatment acknowledging the strong connection between the mind and body. Stress and anxiety can exacerbate melasma, so psychotherapy and stress management techniques are important components of treatment. Stress management techniques, counselling, and relaxation practices are often incorporated to promote emotional well-being and enhance the overall healing process.

CONCLUSION

An invaluable viewpoint on the etiopathogenesis and therapeutic modalities of melasma is provided by Unani system of medicine. Unani system of medicine's customized, holistic approach holds great promise for treating melasma since it emphasizes natural treatments, treating underlying causes, and changing

lifestyle choices. People's focus has already shifted to the Unani medical system due to the negative impacts of contemporary treatment. By proving the Unani medical system's efficacy in treating a range of illnesses, it is imperative to foster public acceptance and understanding of the system and foster faith in it. Appropriate scientific research, data transparency, community involvement, and patient education can all help achieve this. Melasma can be effectively managed with the use of Unani medicine, which employs herbs and medications having black bile evacuation (Tanqiya-i Sawda), anti-inflammatory (Muhallil), and detergent (Jali) properties.

REFERENCES

1. **Passeron T, Picardo M.** Melasma, a photoaging disorder. Vol. 31, Pigment Cell and Melanoma Research. Blackwell Publishing Ltd; 2018. p. 461–5.
2. **Bandyopadhyay D.** Topical treatment of melasma. Vol. 54, *Indian Journal of Dermatology*. 2009. p. 303–9.
3. **Cestari TF, Dantas LP, Boza JC.** Acquired hyperpigmentations. *An Bras Dermatol*. 2014;89(1):11–25.
4. **Bolanča I, Bolanča Ž, Kuna K, Vuković A, Tuckar N, Herman R, et al.** Chloasma – The Mask of Pregnancy. Collegium Antropologicum (croantro@inantro.hr); Vol32 No Supplement 2. 2008 Oct 1;32.
5. **Sarkar R, Bansal S, Garg V.** Chemical peels for melasma in dark-skinned patients. *J Cutan Aesthet Surg*. 2012;5(4):247.

6. **Sarkar R, Chugh S, Garg VK.** Newer and upcoming therapies for melasma. Vol. 78, *Indian Journal of Dermatology, Venereology and Leprology*. 2012. p. 417–28.
7. **Thappa DM.** Melasma (Chloasma): A Review With Current Treatment Options. *Indian J Dermatol*. 2004 Jan 1;49.
8. **Zaleski L, Fabi S, Goldman M.** Treatment of Melasma and the Use of Intense Pulsed Light: A Review. *J Drugs Dermatol*. 2012 Nov 1;11:1316–20.
9. **Zhang Q, Tu Y, Gu H, Sun D, Wu W, Man MQ,** et al. A cream of herbal mixture to improve melasma. *J Cosmet Dermatol*. 2019 Dec 1;18(6):1721–8.
10. **Lee AY.** An updated review of melasma pathogenesis. *Dermatologica Sinica* [Internet]. 2014;32(4):233–9. Available from: <https://www.sciencedirect.com/science/article/pii/S1027811714000548>
11. **Achar A, Rathi SK.** Melasma: A clinico-epidemiological study of 312 cases. *Indian J Dermatol*. 2011 Jul;56(4):380–2.
12. **Cestari TF, Hexsel D, Viegas ML, Azulay L, Hassun K, Almeida ART,** et al. Validation of a melasma quality of life questionnaire for Brazilian Portuguese language: the MelasQoLBP study and improvement of QoL of melasma patients after triple combination therapy. *British Journal of Dermatology* [Internet]. 2006;156(s1):13–20. Available from: <https://doi.org/10.1111/j.1365-2133.2006.07591.x>
13. **Victor FrankC, Gelber J, Rao B.** Melasma: A Review. *Journal of Cutaneous Medicine and Surgery: Incorporating Medical and Surgical Dermatology*. 2004 Apr;8(2).
14. **Bhagdadi IH.** Kitab-al-Mukhtarat-Fil-Tib. fourth. New delhi: CCRUM, Ministry Of Health And Family Welfare; 2010. 118–119 p.
15. **Alam MA, Quamri MohdA, Sofi G.** Understanding hormones in terms of humours (Akhlāt) in Unani system of medicine. 2021;18(3):459–67. Available from: <https://doi.org/10.1515/jcim-2020-0003>
16. **Briganti S, Camera E, Picardo M.** Chemical and instrumental approaches to treat hyperpigmentation. Vol. 16, *Pigment Cell Research*. 2003. p. 101–10.
17. **Kooyers TJ, Westerhof W.** Toxicology and health risks of hydroquinone in skin lightening formulations. Vol. 20, *Journal of the European Academy of Dermatology and Venereology*. 2006. p. 777–80.
18. **Sharma M, Pandey G, Verma K.** Antioxidant, immunomodulatory and anticancer activities of *Embllica officinalis*: An overview. *International Research Journal of Pharmacy*. 2011 Aug 1;2:38–42.
19. **Niranjan A, Prof D.** Chemical constituents and biological activities of turmeric (*Curcuma longa* L.) -A review. *J Food Sci Technol* [Internet]. 2008 Mar 1 [cited 2024 Sep 4];45:109–16. Available from: https://www.researchgate.net/publication/283863862_Chemical_constituents_and_biological_activities_of_turmeric_Curcuma_longa_L_-A_review#:~:text=-A%20review.%20Abhishek
20. **Midaoui A El, Ghzaïel I, Vervandier-Fasseur D, Ksila M, Zarrouk A, Nury T,** et al. Saffron (*Crocus sativus* L.): A Source of Nutrients for Health and for the Treatment of Neuropsychiatric and Age-Related Diseases. *Nutrients*. 2022 Feb 1;14(3).
21. **Aftab A, Sultana S, Rashid A, Akram M, Anwar H.** Santalum album: Medicinal and Pharmacological Properties. 2023 Mar 3;
22. **Añibarro-Ortega M, Pinela J, Barros L, Ciric A, Silva SP, Coelho E,** et al. Compositional features and bioactive properties of aloe vera leaf (Fillet, mucilage, and rind) and flower. *Antioxidants*. 2019 Oct 1;8(10).
23. **Zahara K, Tabassum S, Sabir S, Arshad M, Qureshi R, Amjad MS,** et al. A review of therapeutic potential of *Saussurea lappa*-An endangered plant from Himalaya. *Asian Pac J Trop Med*. 2014 Sep 1;7(S1):S60–9.
24. **Uzzaman S.** Pharmacological activities of neem (*Azadirachta indica*): A review. *International Journal of Pharmacognosy and Life Science*. 2020 Jan 1;1(1):38–41.
25. **Faris MAIE, Takruri HR, Issa AY.** Role of lentils (*Lens culinaris* L.) in human health

- and nutrition: A review. Vol. 6, *Mediterranean Journal of Nutrition and Metabolism*. 2013. p. 3–16.
26. **Shamsi Y, Ansari S, Nikhat S, Professor A.** Ficus Carica L.: A Panacea of Nutritional And Medicinal Benefits. 2020; Available from: <http://dx.doi.org/10.5667/tang.2020.0001>
27. **Ahmad J, khan I.** Evaluation of Antioxidant and Antimicrobial Activity of Ficus Carica Leaves: an In Vitro Approach. *Plant Pathology & Microbiology*. 2013 Jan 20;4.
28. **Murugesu S, Selamat J, Perumal V.** Phytochemistry, pharmacological properties, and recent applications of ficus benghalensis and ficus religiosa. Vol. 10, *Plants*. MDPI; 2021.
29. **Siddiqui M, Begum W. Almond** (*Prunus amygdalus* L.): A source of revitalizing health and its therapeutic application. *Journal of Drug Delivery and Therapeutics*. 2023 Nov 15;13(11):176–82.