IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

UNANI PERSPECTIVE ON UNDERSTANDING AND MANAGING MELASMA (*KALF*)- A REVIEW

[1]Rifat Ara, [2]Shameem Ahmad Rather , [3]Waseem Qadir Bhat

[1]PG Scholar, [2]Professor, [3]Medical Officer

[1]Department of Moalajat (Medicine),

[1]Regional Research Institute of Unani Medicine, Srinagar, Jammu & Kashmir, India

Abstract: Melasma (*Kalaf*) is a common skin disorder characterized by hyperpigmented patches on the face and much less often on the neck and forearms. Melasma has been discussed by various Unani Physicians like Ibn Sina, Ibn Hubal Baghdadi, Allama Rabban Tabri , Zakarya Razi , Hakim A.H. Quamri etc in their classical literature. According to Unani medicine, Melasma is a disease that occurs due to accumulation of black bile (*Sauda*) within the skin. This review aims to illuminate the valuable insights offered by Unani medicine in understanding and managing melasma, paving the way for further exploration and potential integration into comprehensive approaches to this complex skin condition and also acknowledging the limitations like need for further scientific validation through robust research methodologies.

Keywords: *Kalaf*, Unani medicine, *Sauda*, Holistic approach, Review.

INTRODUCTION

Melasma, formerly known as chloasma, is an acquired pigmentary condition which mostly occurs on the face. The word melasma has been derived from the Greek word "melas" which means black. Melasma is basically a disorder of pigment metabolism which usually appears as symmetrically located irregular macules and patches that are light brown to dark brown in colour. These patches develop mainly on the face, and much less often on the neck and forearms.[1] Melasma is generally a clinical diagnosis consisting of symmetric reticulated hypermelanosis in three predominant facial patterns: centrofacial, malar, and mandibular[2]. The major clinical pattern in 50-80% of cases is the centrofacial pattern, which affects the forehead, nose and upper lip, excluding the philtrum, cheeks and chin.[3] The malar pattern is mostly restricted to the malar cheeks, while as mandibular melasma is present on the jawline and the chin.[4]

In Unani system of medicine, melasma has been extensively explored under the designation of '*Kalaf* and it has been defined as 'a blackish patch formed by the integration of many black spots called *Barsh*'. *Kalf* has been discussed by various Unani Physicians and is addressed in almost all the classical literature[5]. Ibn sina has described *kalf* as *murdah khun* (dead blood) which comes either from the rupture or trauma of the capillaries and accumulates under the skin. If this dead blood is red in colour, it is called *Namash* and if it is black in colour, it is called *Burah* and if it resembles coagulated blood, it is called *Kalf*[6]. Rabban Tabri (770-850 AD) presented the earliest comprehensive description of melasma in his book *Firdausul Hikmat.* According to Ibn Hubal Baghdadi (1122-1213 AD), *Kalaf* refers to the presence of black and pustule-like spots on the skin[7].

Although melasma can occur in individuals of any skin type, it exhibits a notably higher prevalence in those with darker skin phototypes (Fitzpatrick Skin Phototypes IV to VI) who are exposed to significant levels of ultraviolet light[9,22]. Melasma is a very common cutaneous disorder, accounting for 0.25 to 4% of the patients seen in Dermatology Clinics in South East Asia, and is the most common pigment disorder among Indians[8]. It is commonly observed in individuals aged between 30 and 40 years[9]. Studies have shown that melasma has a female predominance and the general accepted female to male ratio is 9:1[15].

ETIOPATHOGENESIS

The actual cause of melasma remains unknown. However, multiple factors including, genetics, UV exposure, pregnancy, oestrogen and progesterone therapy, thyroid dysfunction, cosmetics, phototoxic agents and anti-seizure medications are implicated in its etiopathogenesis. Exacerbation of melasma is almost inevitably seen after uncontrolled sun exposure and conversely melasma gradually fades during a period of sun avoidance[10].

In *Unani* medicine, *Kalf* is considered a melancholic (*Saudāwī*) disease that occurs due to the accumulation of black bile (*Saudā*) within the skin as a result of leakage from microvasculature (Kabiruddin, 1969; Khan, 2006). It is also associated with melancholic (Saudāwī) disorders of the liver and spleen which lead to the predominance of black bile (*ghalba-e- Saudā*) in the blood (Kabiruddin, 1969). During pregnancy and at the age of menopause, the process of menstruation ceases, causing accumulation of blood in the body. This accumulated waste blood causes *Saudā* (black bile) steams to flow towards the skin; therefore, dark spots start to appear. Some other causes include *Dam-e-Muharraq* (charred blood), *Saudā -e-Muharraq* (charred melancholic blood), *Ghiza-e-Kaseef* (indigestible food), Pregnancy, Liver diseases etc[11].

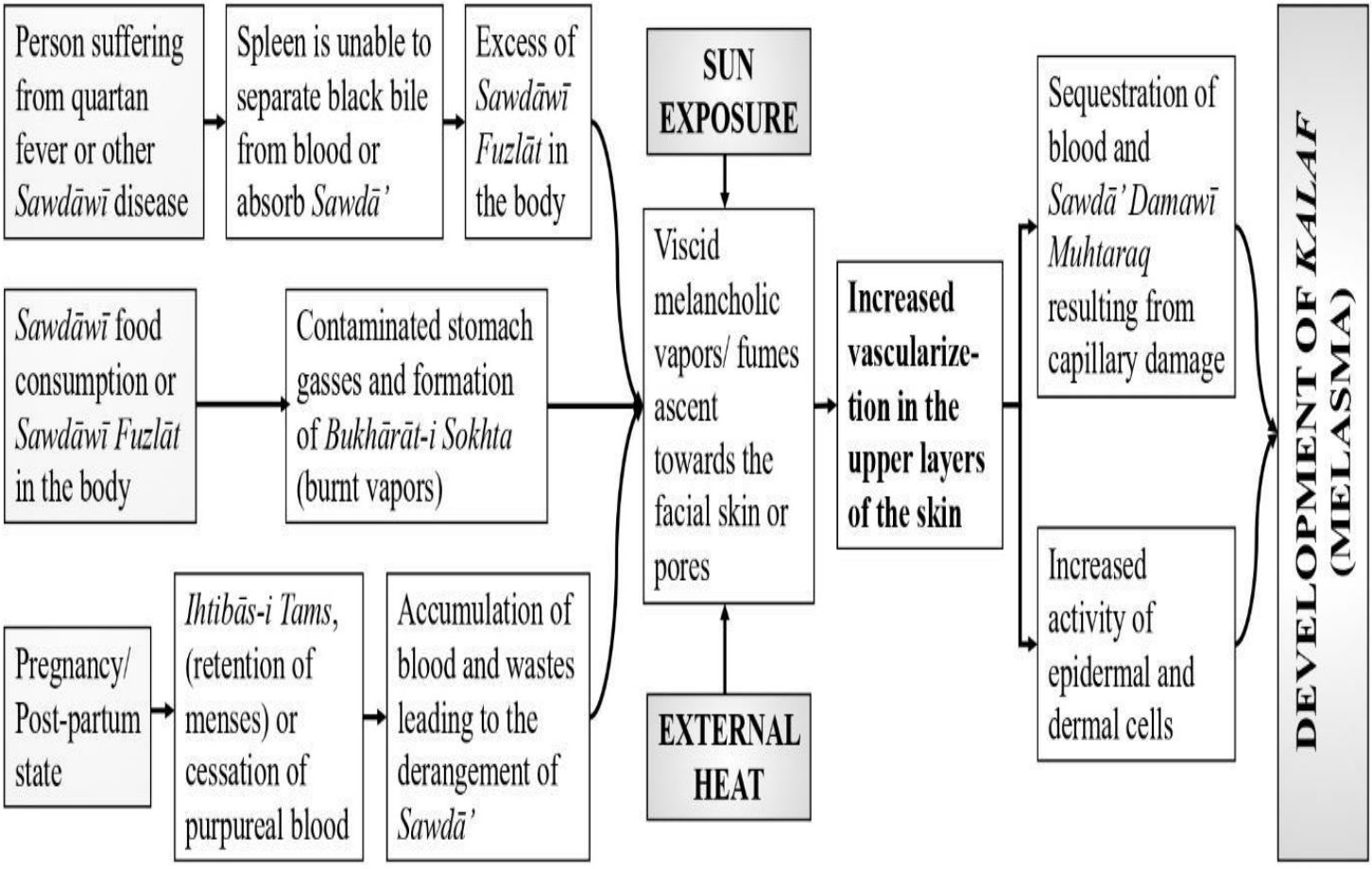


Fig. (1). Schematic representation of the etiopathogenesis of melasma according to Unani scholars.

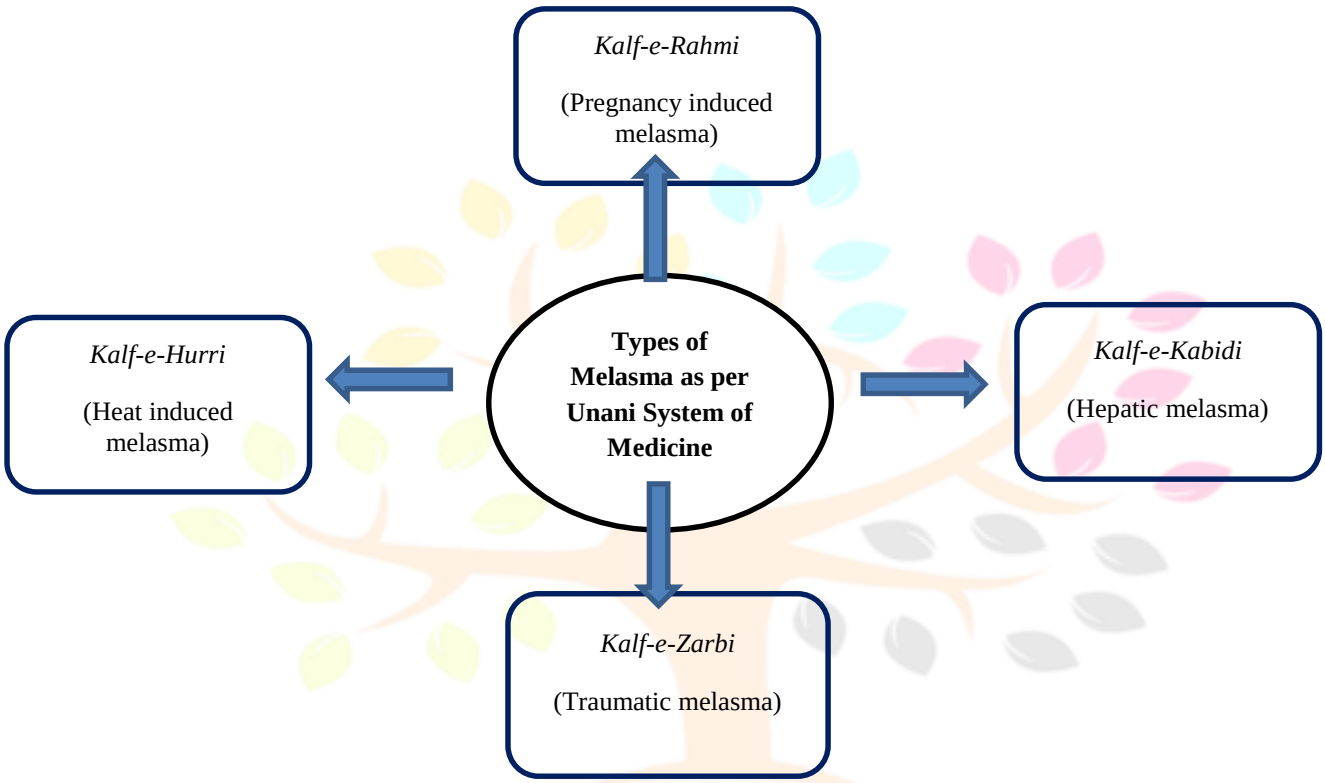
CLASSIFICATION

Melasma can be categorised into four categories, i.e epidermal, dermal, mixed and intermediate[12].

In Unani system of medicine, different types of Melasma have been mentioned attributed to their causative factors[13]. These include:

a) ***Kalf –e- Rahmi***: Seen in pregnant women and the common sites of the lesions are forehead, face and checks.
b) ***Kalaf-i Zarabī***: It results due to constant pressure over any part of the body leaving hyper pigmented lesions.

c) ***Kalaf-i Kabidī***: It results as a manifestation of liver diseases and the common distributions are face, forehead, and hands.
d) ***Kalaf-i Hurrī***: It results due to prolonged exposure to sun rays, and the lesions are distributed on the exposed body parts.



Types of Melasma as per Unani System of Medicine

DIFFERENTIAL DIAGNOSIS

Several types of skin diseases need to be differentiated from *kalf*. The Unani scholars have provided detailed descriptions of the clinical features of these differential diagnoses, facilitating their identification and differentiation. These are as:

1. ***Barash***: These are small black spots that are primarily seen on the face. These spots may be red or blue in hue.
2. ***Namash***: These patches blackish/reddish in colour and mostly located on the face. They can spread and grow into large patches and are often round in shape.
3. ***Khīlān/Til***: These are permanent spots red, black or blue in colour, round in shape and elevated from the skin.
4. ***Bahaq-e-Aswad***: The lesion is black in hue and primarily affects the back, chest, abdomen and forelimbs. These lesions are rough and scaly which cause itching.
5. ***Athar-al-Quruti***: These are hyperpigmentous areas of the skin which occur after healing of wounds.

MANAGEMENT OF *KALF* (MELASMA)

In allopathic medicine, treatments for melasma include topical, oral, laser treatments and chemical peels. Topical treatments, including Hydroquinone, Corticosteroids, Retinoids and photoprotection, are typically the first-line therapies for melasma. Oral therapies are emerging as additional treatment options for this disorder. Tranexamic acid (TA), an anti-plasmin agent, decreases the generation of arachidonic acid, which leads to a reduction in melanocyte-stimulating hormone (MSH) and a decrease in pigmentary production[16]. Conventional treatment options for melasma can pose adverse reactions. Hydroquinone, a commonly used agent, may lead to dose and time-related effects, including erythema, stinging, and paradoxical post-inflammatory hypermelanosis. Topical corticosteroids, used to reduce irritation, may cause skin

lightening and, with prolonged use, lead to skin atrophy[23]. In view of these potential side-effects and limitations, the exploration and development of alternative therapeutic options have become increasingly crucial.

In Unani system of medicine, various approaches to treat melasma have been mentioned. These include**,** risk factor modification, *Ilāj b'il Ghiza* (dietotherapy), *Ilāj bi'l Tadbīr* (regimenal therapy), *Ilāj bi'l Dawa* (pharmacotherapy) and *Ilāj-i Nafsānī* (psychotherapy)[17,18].

1.RISK FACTOR MODIFICATION:

Reducing excessive sun exposure, treating stomach issues, and addressing irregular menstruation in women are all critical steps in modifying risk factors that might lead to the development or worsening of *kalf*[17].

***2. ILĀJ B'IL 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 as given by Renowned Unani scholars is *Mā' al-Jubn* (whey) which has immense benefits in treating melasma. Conversely certain foods like salted and smoked fish, mushrooms, beef, cabbage, prolonged use of eggs, which promote the production of black bile need to be restricted.

***3. ILĀJ BI'L DAWA* (PHARMACOTHERAPY):**

In Unani system of medicine, *Ilaj bil Dawa* **(**pharmacotherapy) refers to the use of minerals, herbal remedies, and compounds derived from animals to treat underlying imbalances and bring the body back into balance. *Tanqiya –i-sauda* (evacuation of black bile) is the first therapeutic method that Unani physicians have advocated for controlling melasma. This involves use of purgatives (*Munzij*at) and laxatives (*Mushilat*) that specifically target *sauda* (Black bile)[19]. The second one is *Taqwiyat-i Mi'da*,, which involves use of medicines to strengthen the stomach[20,21], and the third one is *Tasfiya –i- jild*, which is cleansing the skin with those medicines having detergent (*Jali*) properties[18] . Additionally, in the cases of chronic melasma, medicines having anti-inflammatory (*Muhalil*) 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.

Unani Name	Scientific Name	Chemical Constituents	Mode of Action	Reference
Amla	Emblica officcinalis	Emblicanin α & β Punigluconin	Antioxidant Tyrosinase inhibition	24, 25
Amaltas	Casia fistula		Tyrosinase inhibition	25,
Ailwa	Aloe barbadensis	Aleosin	Tyrosinase inhibition	24,
Haleela	Terminalia chebula	Methanolicaqeous extract	Inhibit melanogenesis Antioxidant	24, 26
Neem	Azadirachta indica	Methanolic extract of bark	Antioxidant	24,
Sandal	Santalum album	α santalol	Tyrosinase inhibition	24,
Fuwwah	Rubia cordifolia	Manjishthin, Purpurine Phenylcoumarins	Tyrosinase inhibition	24,
Papita	Carica papaya	Papain	Tyrosinase inhibition	27
Haldi	Curcuma longa	Curcumin Demethylcurcumin Bisdemethyl curcumin	Tyrosinase inhibition Depigmentary acativity	24,
Zaffran	Crocus sativa	α β carotens Cyanidins Kaempferol	Tyrosinase inhibition	24,
Maweez	Vitis vinifera	Proanthocynidin	Antioxidant	14

***4. ILĀJ BI'L TADBĪR* (REGIMENAL THERAPIES):**

The fundamental idea behind Unani therapy for the treatment of chronic illnesses, such as *kalf* (melasma), is the *Tanqiya-i Mawād* (expulsion of unhealthy stuff). A sequence of systemic procedures are used to eliminate harmful humours from the body. Some of these are

as; Ishāl (purgation), *Fasd* (venesection), Hijāma (cupping), *Irsāl-i 'Alaq* (leeching), *Qay* (emesis), *Huqna* (enema), Ta'rīq (diaphoresis), *Idrar* (diuresis), Hammām (Turkish bath), Riyāzat (exercise) and *Dalk* (massage)[17].

5. ILĀJ-I NAFSĀNĪ (PSYCHOTHERAPY):

Psychotherapy forms an integral part of Unani treatment, acknowledging the strong connection between the mind and body. While treating the disease, it forms an integral part of Unani treatment, acknowledging the strong connection between the mind and body. Stress management techniques, counselling, and relaxation practices are often incorporated to promote emotional well-being and enhance the overall healing process[18].

RESEARCH WORK DONE IN UNANI SYSTEM OF MEDICINE ON MELASMA:

A lot of research work has been done on melasma using various Unani formulations. Table 2 delineates the essential particulars of the clinical trials that have been reported.

Table 2: Summary of clinical trials conducted on melasma using various Unani formulations.

S.NO	Unani Formulations	Study ID, Year, Trial Design	Sample Size and Duration	Comparater	Outcome
01	*Zimad* consisting of *Tukhm-e-Turb* (Seeds of Raphanus sativus), *Tukhm-e-Karafs* (Seeds of Apium graveolens) and Sirka (Sugarcane vinegar).	Munawwar Gauri, Tanzeel Ahmed, Mohammad Shahid Khan, S Javed Ali. Single Blind Randomized Controlled Study	Test Group= 20 Control Group= 20 Duration=45 Days	Azelaic acid 10% cream	Unani formulation Zimad and the control drug were equally effective in the treatment for melasma.
02	*Tila-e-Kalaf* prepared by combining equal proportions of finely powdered *Lens culinaris* and *Prunus amygdalus var. amara.* and then combined with sufficient amount of *Ficus carica* decoction to create a homogenous paste.	Salma, Yasmeen Shamsi, Sadia Nikhat, Mukesh Manjhi, Md. Wasi Akhtar, Sayeed Ahmad. Randomized controlled clinical trial	Test Group= 32 Control Group= 32 Duration=8 weeks	Hydroquinone 4% cream	*Tila-e-Kalaf* and the control drug were found almost equally effective in the treatment for melasma.
03	Cuttlefish bone (*Os sepiae*) powder mixed and made paste with lemon juice and *Afteemoon* (*Cuscuta reflexa*) - powder of dried water extract filled in capsules.	Asia Sultana, Md Rizwan Ahmad Siddiquee, Neena Khanna, Tanveer Ahmad. Randomized, parallel group, comparative clinical trial.	Test Group= 20 Control Group= 20 Duration=56 Days	Pacebo in same form	The test drug and placebo were seen equally effective in the treatment of melasma, but role of oral drug over topical drug cannot be identified statistically.
04	Unani formulation consisting of *Haleela Siyah Tukhme Turb* and *Tukhme Jarjir*	Zulfar TH. Randomized com-parative study .	Test Group=44 Control Group = 44 Duration = 28 days	Haleela Siyah Ard Baqla and Tukhme Kharpazah	Underprocess

CONCLUSION

Unani medicine offers a valuable perspective on understanding the etiopathogenesis and treatment approaches for melasma. The holistic and personalized approach of Unani medicine offers valuable potential for managing melasma, particularly through its emphasis on natural remedies, addressing root causes, and lifestyle modifications. The undesirable effects of modern medicine have already diverted the attention of people towards Unani system of medicine. To further increase the acceptability and awareness among people, there is an urgent need to develop trust and faith towards the Unani system of medicine by establishing its validity in treatment for various diseases. This can be done by proper scientific research, data transparency, community engagement and patient education. Unani medicine can play a vital role in the management of melasma by using herbs/drugs having black bile evacuation (*Tanqiya-i Saudā*), anti-inflammatory (*Dāfi'-i Muḥal-lil)*, and detergent (*Jālī*) properties.

FUNDING : Nil

CONFLICT OF INTEREST : Nil

ACKNOWLEDGEMENTS

The authors are highly thankful to Dr. Nahida Rafeeq (PG Scholar), Dr. Irfat Ara (DD RRIUM Srinagar), Dr. Arshid Iqbal (PG Coordinator RRIUM Srinagar) and Dr. Zaffar Hussain (HOD Department of Moalijat RRIUM Srinagar) for their precious advice and helpful discussion. Authors acknowledge all the persons whose reference has been cited in this paper.

REFERENCES

1) Newcomer, V.D.; Lindberg, M.C.; Sternberg, T.H. A Melanosis of the Face ("Chloasma"). ARCH. Dermatol. 1961, 83, 284-299. [Google Scholar] [CrossRef] [PubMed].
2) Sanchez NP, Pathak MA, Sato S, Fitzpatrick TB, Sanchez JL, Mihm MC., Jr Melasma: a clinical, light microscopic, ultrastructural, and immunofluorescence study. *J Am Acad Dermatol*. 1981; 4(6):698-710. Doi: 10.1016/S0190-9622(81)70071-9. [PubMed] [CrossRef] [Google Scholar].
3) Walter, D.A. Dermatology for skin of colour.
4) Mandry Pagan R, Sanchez JL. Mandibular melasma. *PR Health Sci J*. 200; 19(3): 231-234. [PubMed] [Google Scholar].
5) Kabiruddin AH. *Moalijat-e-Sharah Asbab*. Vol-4. Hyderabad; Hikmat Book Depot YNM. 450-51.
6) Ibn sina. *Al-Qanun-fil tibb* (Urdu translation by Kantoori G H). Vol-2. New Delhi; Aijaz Publishing House; 2010: 1422-24.
7) Baghdadi, I.H. *Kitabul Makhtarat Fil Tib*; CCRUM, Ministry of Health and Family Welfare, **2007**.
8) Pasricha JS, Khaitan BK, Dash S. Pigmentary disorders in India. *Dermatol Clin.* 2007; 25:343–522.
9) Genetic Dermatology, Cosmetic Dermatology for skin of color; MC Graw Hill Education, 2009.
10) Grimes PE. Melasma: etiologic and therapeutic considerations. *Arch Dermatol.* 1995;131:1453–7.
11) Ahmad HW, Moalajat vol4, New Delhi: Qaumi Council Baraye Farpgh Urdu Zaban; 2006: 30-35.
12) Raihan A; Komaran, M.S study of contact sensitivity to cosmetic allergens in melasma. Pigment Int; 2019.6: 34-
13) M.Ahmad HW, Moalajat vol 4, New Delhi: Qaumi Council Baraye Farpgh Urdu Zaban; 2006: 30-35.
14) Lukman M, Ulfa M, Syahruni R, et al. 'Antityrosinase effect of botanicals; a review of medicinal plants cosmetic'. Journal of Chemical and Pharmaceutical Research. 2015;7:716-22.
15) Vazquez M, Maldonado H, Benmaman C, Sanchez JL. Melasma in men. A clinical and histologic study. *Int J Dermatol.* 1988; 27(1):25–27. doi: 10.1111/j.1365-4362.1988.tb02329.x.
16) Lee HC, Thng TG, Goh CL. Oral tranexamic acid (TA) in the treatment of melasma: a retrospective analysis. *J Am Acad Dermatol.* 2016;75(2):385–392. doi: 10.1016/j.jaad.2016.03.001.
17) Khan M.A. *Akseer Azam*; Idara Kitabul Shifa, New Delhi 2011.
18) Jamil S.S; Siddiqui, S.A; Fazil, M. Standard Unani Treatment Guidelines for common diseases: Central Council for Research in Unani Medicine (CCRUM), 2014.
19) Mafoos A. *Kamilus Sana*; CCRUM, Ministry of Health and Family Welfare: 2010.
20) Arzani, M.A. *Tibb-e-Akbar Urdu*; Matba Nami Munshi nausal Kishor, Lucknow. 1870.
21) Razi Z. Kitabul Hawi vol 21 par; CCRUM: New Delhi, 2007.
22) Grimes, P.E. Management of hyperpigmentation in darker racial ethnic groups. *Semin. Cutan. Med. Surg.*, **2009**, *28*(2), 77-85.
23) Gupta, A.K.; Gover, M.D.; Nouri, K.; Taylor, S. The treatment of melasma: A review of clinical trials. *J. Am. Acad. Dermatol.*, 2006, *55*(6), 1048-1065 .
24) Mapunya MB, Nikolova RV, Lall N. Melanogenesis and anti-tyrosinase activity of selected South African plants. Evidence based Complementary and Alternative Medicine 2012; 1-6.
25) Hakeem Mohd Azam Khan. *Muheet-e-Azam* Urdu; Central Council for Research in Unani Medicine, New Delhi.2012: 317.
26) Hakeem M. H. Qarshi. *Jamia-ul-Hikmat*; Aijaz Publishing House, New Delhi: 994.
27) Wang Y. Preliminary screening of 44 plants extracts for anti-tyrosinase and antioxidant activities, Pak. J Pharm Sci 2015; 28: 1737-44.