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Case Studies

The Current Understanding of the Clinical Condition Bahaq (Pityriasis Versicolor): Hypothesis and A Review of Evidences

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Abstract

Bahaq is a commonly encountered clinical condition of the skin. It is characterized by the presence of hypopigmented or hyperpigmented or erythematous macule which appears on the neck, chest, shoulder and arms. In classical literature, *Bahaq* and its subtype *Bahaq abyad* and *Bahaq aswad* have been described. In a recent development, these Unani terminologies (*Bahaq abyad* and *Bahaq aswad*) have been correlated with the terminologies used in modern medicine for similar clinical presentation by the competent authority in India. The equivalent terms assigned for *Bahaq abyad* as pityriasis alba and *Bahaq aswad* as pityriasis nigra do not seem to be suitable. They lead to misdiagnosis and treatment failure. In this article, we have reviewed evidences from the literature to have current understanding of the clinical conditions *Bahaq abyad* and *Bahaq aswad*. The literature review showed that these two dermatological clinical conditions have an individual identity. They differ from each other in terms of clinical presentation, demographic characteristics, pathogenesis and treatment. Moreover, we have presented one case report of *Bahaq abyad* and *Bahaq aswad* each to have an understanding of its demographic characteristics, risk factors, clinical features and clinical course of the disease. We have diagnosed these cases as per descriptions mentioned in the classical literature and tried to correlate to the equivalent terms representing a similar clinical presentation in modern medicine. After a review of evidence, we hypothesize the most suitable equivalent terms for the clinical conditions *Bahaq abyad* and *Bahaq aswad* as pityriasis versicolor instead of *Bahaq abyad* as pityriasis alba and *Bahaq aswad* as pityriasis nigra. This research article may guide the Unani physicians in clinical practice for proper diagnosis, therapeutic approach, drugs selection and treatment of *Bahaq* and its subtypes.

Keywords: *Bahaq; Bahaq abyad; Bahaq aswad;* Pityriasis versicolor; Unani medicine

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Introduction

Bahaq is a commonly encountered skin disease in which small flaky discoloured patches appear [1]. It is one of the clinical conditions described in the classical literature of Unani System of Medicine (USM) or Persian medicine. It is prevalent in tropical countries and commonly affects late teen and young adults of either sex [1-3]. It is characterized by changes in skin colour which may be hypopigmented or hyperpigmented or erythematous macule which appears on the neck, chest, shoulder and arms [1,2,4-7]. The shape of the lesion is generally round [6] and it surfaces may be smooth or rough [1,6-10]. This disease is generally asymptomatic but sometimes itching may be present [5,7,8,11-15]. In a recent development, Central Council for Research in Unani Medicine (CCRUM), an autonomous organization under the Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy (AYUSH), Government of India has standardized and defined various Arabic, Persian and Urdu clinical and non-clinical terminologies used in Unani medicine and published a document known as "Standard Unani Medical Terminology (SUMT)". In this document classical and non-classical technical terms have been described with possible standard equivalent terms. Classical terms are those which were used originally by Unani physicians of medieval period, as well as Indian physicians of early period. Non-classical terms are those which were coined from the middle of the 20th century AD and are included in the literature of Unani Medicine. The Unani medical terms are defined in English to have a better understanding of the classical concept of Unani medicine to academia, researchers and policymakers.

The usage of these standardized terminologies or their equivalents have drawn the attention. As, they are used to develop National Morbidity Codes (NMC) for reporting real times morbidity statistic and treatment outcome at National AYUSH Morbidity and Standardized Terminologies Electronic (NAMASTE) Portal. They are used to maintain electronic health records at pan India level.

We have come across with the equivalent terms for the clinical conditions *bahaq abyad* as pityriasis alba and *bahaq aswad* as pityriasis nigra in the document SUMT. The table 1 shows the definition of *bahaq abyad* and *bahaq aswad* as mentioned in SUMT. It has been observed in the survey of published literature that the clinical picture of *bahaq abyad* does not correspond with pityriasis alba. Similarly, *bahaq aswad* has no relation with pityriasis nigra. In this article we have tried to find out the exact presentation of *bahaq abyad*, *bahaq aswad*, pityriasis alba and pityriasis nigra in the literature and clinical practice. After review of evidences, we have hypothesized the most suitable equivalent terms for *bahaq abyad* and *bahaq aswad* in this research paper.

Pathogenesis of bahaq and its subtypes

The etiopathogenesis of bahaq and its subtypes has been described in classical literature of USM such as "Al Havi al Kabeer" "Moalijat-e-Buqratiya", "Firdaus-ul-Hikmat","Kitab al Taisir", etc. It is considered as a humoural disease [13]. Derangement in quality and quan-

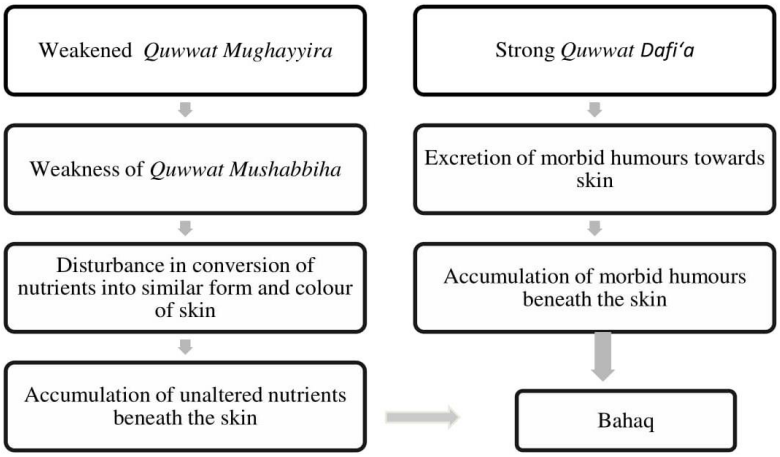
Table 1. Definition of *Bahaq abyad* and *bahaq aswad*

Term ID	Parent ID	Code Word	Arabic Term	Translation	Definition
908	905	J-2	*Bahaq abyaḍ*/ بهق ابيض/ Waḍaḥ وضح	Pityriasis alba	Slight white discolouration associated with fine scaling of the skin. Its causes are the same as that of Baraṣ but mild in severity that is why it is confined only to the skin. It is also considered to be an infection of the skin which is caused by some organism and can spread to others by clothes.
909	905	J-3	*Bahaq aswad* بهق اسود	Pityriasis nigra	Blackish discoloration of the skin. It is due to predominance of burnt yellow bile.

tity of phlegmatic and melancholic humours is the main causative factor [13,16]. When morbid humour collected beneath the skin, the part of the skin turns hypopigmented or hyperpigmented depending upon the type of the humour (either melancholic or phlegmatic) [6,8,16,17]. There is a role of the faculty *Quwwat Mughayyira* (transformative faculty) in the collection of morbid humour beneath the skin [10,12]. It is hypothesized that when *Quwwat Mughayyira* of the affected skin becomes weak and *Quwwat Dafi'a* (expulsive faculty) becomes strengthened, this clinical condition may develop [10,12,13]. Flow chart 1 describes the pathophysiology of this disease. *Quwwat Mughayyira* helps in the transformation of nutrient into tissue. In the clinical condition due to weakness of *Quwwat Mughayyira* the affected part doesn't get proper tissue formation [10,12,16]. There is another faculty of the body known as Quwwat Mushabbiha (power of resemblance) which plays an important role in the normal coloration of the skin. Excessive metabolic products produced in the tissue are generally excreted out into the blood. This process is controlled by faculty known as Quwwat Dafi'a. In this clinical condition, these faculties do not perform their normal function resulting in derangement in the quality and quantity of phlegmatic and melancholic humours.

Several factors have also been identified which are directly or indirectly associated with the causation of this disease such as weakness of Quwwat Mumayyiza (augmentative faculty) of the liver, *Du'f al-Tihal* (functional weakness of spleen), Du'f al-Mi'da (weakness of stomach), intake of flatulence food, malabsorption [9,14,18,23]. Environmental factors such as humidity and personal hygiene also play an important role in the development of this disease [14,15]. In classical literature two types of bahaq have been described; *Bahaq abyad* and *bahaq aswad* [1,8,13,19]. *Bahaq abyad* is generally hypopigmented macules whereas *bahaq aswad*

is a black one. The classification of the bahaq depends upon the colour of the macules. As per humoral theory, black and white macules develop due to the presence of morbid melancholic and phlegmatic humour respectively [8,13,23].



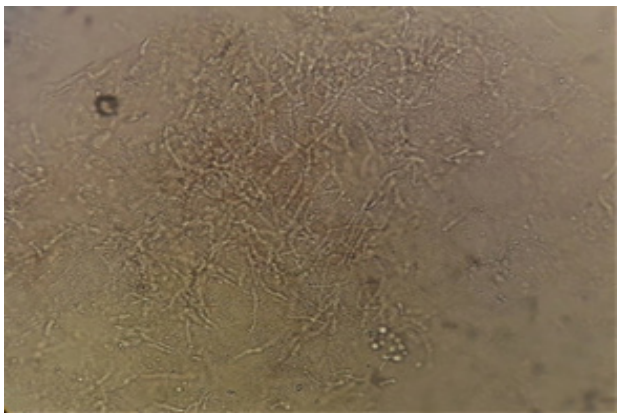
Flow chart 1: pathophysiology of bahaq

Case presentation-1

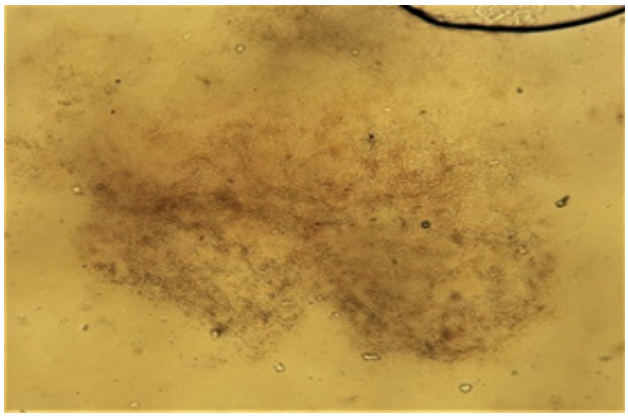
A 35 years aged unmarried male patient visited the outpatient department of National Research Institute of Unani Medicine for Skin Disorders with chief complaints of discoloured, itchy skin lesions on arms, forearms, shoulder, neck and back side of the body for 3 months. He had been asymptomatic during the last three months. He suddenly noticed a few hyperpigmented patches on his chest and forearms before 3 months. The patches continued to increase in number and became darker than earlier. He felt itching on the lesions after exposure to sunlight or sweating. The patient did not report any past history of diabetes mellitus type 2, hypertension, hypothyroidism and superficial dermatophytosis. The patient had a history of smoking (6 cigarettes/day). The vitals of the patient were stable (Blood Pressure 122/76 mm Hg, Temperature 98°F, Pulse 80 beats/min, Respiratory rate 14/min) on the visiting day. The *Mizaj* (temperament) of the patient was assessed as *Balghami* (phlegmatic) on the basis of standard questionnaire developed by Central Council for Research in Unani Medicine, New Delhi. Body Mass Index (BMI) was calculated as 24.8 kg/m^2 (Height 168cm; Weight 70kg). He belonged to the lower middle class as per the classification of socio-economic status. His job was repairing of out of order mobiles. There was no family history of skin dermatophytosis, diabetes mellitus and hypertension. He had not taken any treatment for this problem. The patient was apparently healthy and oriented. On local examination of the lesions, there were multiple hyperpigmented macules on arms, forearms, shoulder, neck and back. The distribution of the lesion was bilaterally symmetrical. The shape of the lesions

was irregular. Their margins were well defined. The surfaces of the lesion had fine scales. On gentle rubbing with glass slides, the scales became prominent. This sign was called as scratch sign. The scales of the lesions were examined on glass slides after application of 15% KOH under the compound microscope. Fungal hyphae and spores in the form of Meatball or a bunch of grapes were observed in this investigation. The patient was diagnosed clinically with pityriasis versicolor and it was confirmed by the presence of hyphae and spores of *Malassezia furfur* in the mycological examination. Figures 3a and 3b show the presence of hyphae and spores in the slides. The patient had signed the written informed consent form for participation in this study.

Figure 1. *Bahaq aswad* (pityriasis versicolor)



(a)



(b)

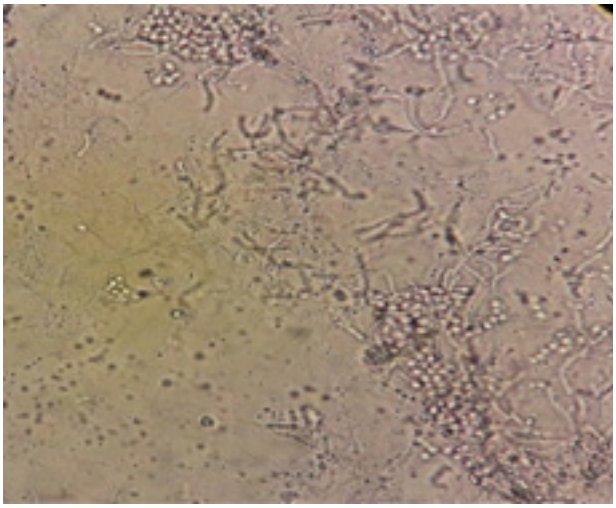
Figure 2. (a) 40 X (KOH mount fungal spore & hyphae). (b) 10 X (KOH mount fungal spore & hyphae)

Case presentation-2

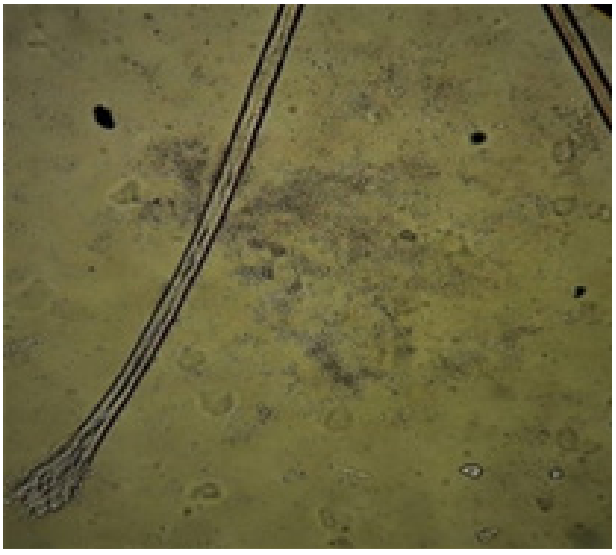
A 34 years old married female patient visited outpatient department of National Research Institute of Unani Medicine for Skin Disorders with chief complaints of itchy skin lesion on upper back, right and left arms for one month. Initially, she noticed a few hypopigmented patches before one month. The patches have been increased in number and become lighter than earlier during one month. The patient had complaint of itching occasionally. The intensity of itching got increased after exposure to sun light or sweating. She was a housewife. The patient had history of similar presentation in the past. She was not diabetic and hypertensive. She had no history of smoking and betel chewing. The vitals of the patient were stable at the time of first visit. (Blood Pressure: 110/78 mm Hg, temperature: 97.6°F, Pulse: 74 beats/min., respiratory rate: 16 times/min.). She belonged to lower middle class as per socio-economic status. There was no family history of skin dermatophytosis, diabetes mellitus and hyperten-

sion. She had not taken any treatment for this problem. The patient was apparently healthy and oriented. On local examination of the lesion there were multiple hypopigmented macules on upper side of back, right arm, left and right forearms. The distribution of the lesions was asymmetrical. The shape of the lesions was mostly irregular (Figure 3). A few of them had circular shapes. Their margins were well defined. There was no mark of excoriation. The surfaces of lesion had fine scales. On gentle rubbing with glass slides the scales became prominent. This was positive Scratch Sign. The scales of the lesions were examined on glass slides after application of 15% KOH under compound microscope. Fungal hyphae and spores in the form of meatball or bunch of grapes were observed in this investigation. The patient was diagnosed clinically as pityriasis versicolor and it was confirmed by presence of hyphae and spores of *Malassezia* furfur in mycological examination (Figures 4a & b).

Figure 3. *Bahaq abyad*



(a)



(b)

Figure 4. (a) 40X(KOH mount fungal spore & hyphae). (b) 10X(KOH mount fungal spore & hyphae)

Discussion

In this article, we reviewed the literature and presented two cases diagnosed with pityriasis versicolor. They were diagnosed clinically and confirmed by microscopic mycological examinations. The clinical features like hypo or hyperpigmented multiple macules with well define margins, infrequent itching, presence of scales on the surface of the lesions were present. Initially, the number of lesions was less but later

on, they increased in number. All the signs and symptoms got resolved after 60 days of treatment. As per classical literature of Unani system of medicine, these two cases may be diagnosed as *bahaq aswad* and *bahaq abyad*. In *bahaq abyad* the lesion may be hypopigmented whereas in *bahaq aswad* the lesion should be hyperpigmented [1,4,5,7,22]. They are diagnosed on the basis of colour of the lesion. The above description demonstrates that the clinical presentation of the case 1 matched with the clinical picture of *bahaq aswad* and pityriasis versicolor. The clinical presentation of case 2 matched with *bahaq abyad* and pityriasis versicolor.

In the document, the term *bahaq abyad* is correlated with pityriasis alba and *bahaq aswad* with pityriasis nigra. In the literature, the clinical presentation of pityriasis alba is quite different from *bahaq abyad*. Pityriasis alba occurs in children of 6-12 years old [24]. It is characterized by asymptomatic whitish macules with ill-defined margins on the face [4,21-24]. Whereas pityriasis nigra is a rare clinical condition. It is characterised by hyperpigmented asymptomatic or occasionally pruritic lesion present in the palm and sole [4, 21,22]. It seems that English equivalents for the standardized unani medical terminologies *bahaq abyad* and *bahaq aswad* are not suitably designated. They vary not only in clinical presentations but also in aetiology. Pityriasis alba has unknown aetiology and sometimes related to bacterial infection [4,21,22]. Whereas pityriasis nigra is caused by fungal infection [4,21]. This fungus differs from the causative agent of pityriasis versicolor. The usage of these two terms pityriasis alba for *bahaq abyad* and pityriasis nigra for *bahaq aswad* in National AYUSH morbidity codes may create confusion among academia, practitioners, researchers and students about the incidence and prevalence of these diseases in India. the standardized unani medical terminologies are used for recording real times morbidity statistic at National AYUSH Morbidity and Standardized Terminologies Electronic (NAMASTE) Portal. Table 2 shows the monthly statistics of *bahaq abyad* and *bahaq aswad* at NAMASTE portal.

Table 2. Monthly statistics of *bahaq abyad* and *aswad* at NAMASTE portal (March, 2021)

S. No.	NAMC System	DIS_Code	DIS_Name	Count
8	Unani	J-2	*Bahaq abyaḍ*/ Waḍaḥ	140
20	Unani	J-3	*Bahaq aswad*	106

From the above discussion, it is obvious that the clinical presentation of pityriasis versicolor may be correlated very much with the presentations of *bahaq abyad* and *bahaq aswad* as mentioned in the classical literature of Unani system of medicine. At the same time, *bahaq abyad* and *bahaq aswad* can be differentiated very clearly from pityriasis alba and nigra. Table 3 describes the differentiating point among *bahaq aswad*, *bahaq abyad*, pityriasis alba and pityriasis nigra. In the literature, we found that pityriasis alba and pityriasis nigra are infrequent clinical con-

ditions of unknown aetiology. Whereas, pityriasis versicolor may be diagnosed clinically and confirmed by mycological examination with the presence of *Malassezia furfur*. As per hypothesis of Unani system of medicine, *bahaq* is a humoral disease. Morbid humours (*phlegmatic and melancholic*) may provide a conducive environment to *Malassezia furfur* which is a normal flora on the human skin to cause pityriasis versicolor. It is, therefore, we hypothesize that the English equivalents for *bahaq abyad* and *bahaq aswad* should be pityriasis versicolor. Pityriasis alba and pityriasis nigra should be identified as different clinical conditions of the skin.

Table 3. Comparison among *bahaq abyad*, *bahaq aswad*, pityriasis versicolor, pityriasis alba and pityriasis nigra [1,3,4,6,7,11,13,15,21,22,24]

Disease	Bahaq Abyad	Bahaq Aswad	Pityriasis Versicolor	Pityriasis Alba	Pityriasis Nigra
Synonyms	White stained	Black stained	Tinea versicolor Dermatomycosis furfuracea Tinea flavea Liver spots Chromophytosis	Kushki ke daag, seem	Tinea nigra palmaris Keratomycosis Nigricans palmaris
Onset	Chronic	Chronic	Chronic	Chronic	Rare
Etiology	Morbid humour (phlegm)	Morbid humour (black bile)	*Malassezia furfur,*	Unknown	Hortaea werneckii
Predisposing factor	Accumulation of phlegm with blood, Accumulation of morbid phlegm beneath the skin	Accumulation of Black bile with blood, Accumulation of morbid black bile beneath the skin	Warm and humid environment, Hyperhidrosis	associated with Atopic dermatitis Summer, Temperate climates	Tropical and sub-tropical areas
Age	15-45yrs	Young adult	Adolescent, Young Adult,15-35yrs	3-16 years age	Any age but rare in childhood
Sex	Male>Female	Female and Male	Male>Female	The sexes are equally susceptible	Any age but rare in childhood
Clinical Features	Hypopigmented macules (colour may be Yellowish white stain Itching, Scaling	Hyperpigmented macules (Colour looks like black stained), Scaling	Hypopigmented, Hyperpigmented or Erythematous macule,	Hypopigmented lesion (off-white color) slight Scaling, fuzzy margins, round oval or irregular	Asymptomatic, Hyperpigmented macules (Colour brown to greenish or blackish resembles like silver nitrate stained), Scaling rare

Distribution of lesion	Mostly Face but some time on arm, back Trunk, chest, upper arm, groin	Arm, Back, Trunk, Chest, Upper Arm, Groin	Upper Trunk, Back	Face of children, Neck, Arm	Palm and Sole
Duration of lesion	Months to year	Months to year	Months to year	Self-limited, spontaneous remission after 1 or more years	2 – 7 weeks
Recurrence	Common	Common	Common	Common	Very rare
KOH mount examination	KOH positive	KOH positive	Positive for fungal hyphae	Negative	KOH positive

Conclusion

In this article we have hypothesized the most suitable English equivalents for standardized Unani terminologies for the clinical conditions *bahaq aswad* and *bahaq abyad*. This study may draw the attention of the researchers, academia and physicians in the usage of the standardized equivalent terminologies pityriasis alba and pityriasis nigra as synonyms for *bahaq abyad* and *bahaq aswad* respectively while reporting in medical records. The current reflection of the morbidity statistics for *bahaq abyad* and *bahaq aswad* in NAMASTE portal may not be accurate due to incorrect usage of the standardized terminologies. The NAMASTE portal shows real-time statistic of the clinical conditions consulted in AYUSH hospitals in India. The findings of this study may have an importance that it may guide in the accurate diagnosis of the clinical conditions *bahaq abyad* and *bahaq aswad* and usage of suitable English equivalent (alternative) pityriais versicolor for these clinical conditions.

Conflict of Interest

Authors declared that there was no conflict of interest.

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