



Vitiligo and its Medicinal Plants from the Viewpoint of Iranian Traditional Medicine

Maryam Ranjbar¹, Fatemeh Aliasl², Fatemeh Nejatbakhsh³, Laila Shirbegi³

¹ Department of Iranian Traditional Medicine, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

² Department of Traditional Pharmacy, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran

³ Department of Iranian Traditional Medicine, School of Traditional Medicine, Tehran University of Medical Sciences, Tehran, Iran

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Abstract

Vitiligo as a common depigmenting skin disorder plays a very important role in patient's quality of life. It can cause serious emotional stress, which necessitates its treatment. Because of lack of desirable efficacy of conventional therapies, considering complementary therapies for the management of vitiligo is increasing. The aim of this article is to describe Iranian traditional medicine (ITM) approach to vitiligo mechanism and prognosis as well as medicinal plants proposed for the management of this disease. ITM believes human body organs consist of four fundamental humors. All of them are composed of very specific quantity and quality and any kind of diseases supposedly, is the result of excess or deficit of these humors. Changes in the quantity of "phlegm humor" and improper function of "expulsive faculty" are two main causes of vitiligo. In this paper, the vitiligo prognosis according to ITM and recommended herbal medicines according to the stage of disease have been explained.

Keywords: Vitiligo, Mechanism, Prognosis, Iranian Traditional Medicine, Herbal Remedies, Medicinal Plants

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1. INTRODUCTION

Vitiligo is a common depigmenting skin disorder and plays a very important role in patient's life. It is a chronic and progressive disease. There are many clinical trials

showing decreased patients' quality of life due to this disorder. Therefore, managements should focus not only on a medical treatment but also psychological aspects should be considered completely [1]. The substantial disfigurement associated with vitiligo can cause serious emotional stress for the patients, specifically, women and adults which

Corresponding Author: Laila Shirbegi
Email: l.shirbeigi@tums.ac.ir

necessitate its treatment [2], [3]. Although there are several hypotheses about etiology of vitiligo such as neural and autoimmune mechanism or melanocytes apoptosis but none of them could describe its all aspects properly, and the main cause of the disease has remained unknown [4]. Accordingly, there are different approaches for vitiligo treatment such as topical steroids and narrowband ultraviolet B monotherapy as well as cosmetic comflauge products, immunomodulators, and surgery [2], [5]. Although treatments are able to reconstitute skin pigments, the most of them has complications and their efficacy is temporary. Therefore, vitiligo has been remained non-curable so far. Hence, in recent researches, there is a tendency to evaluate

alternative therapies for dermatological disorders [6], [7]. There are some theories about vitiligo mechanism and prognosis in Iranian traditional medicine (ITM). The aim of this study is to describe ITM point of view about vitiligo mechanism and prognosis as well as introducing commonly used herbal medicines for the treatment.

2. METHODS

Medical manuscripts of medieval Persia from 10th to 19th centuries A.D which are noted as credible textbooks of ITM were reviewed for gathering information about definition, etiology, and prognosis of vitiligo. General information about these manuscripts is listed in table 1.

Table 1. ITM main textbooks used for gathering data about vitiligo

Manuscript	Author	Authoring date	Description
<i>Kitāb al-Qānūn fī al-ṭibb</i> (The Canon of Medicine)	Avicenna	11 th century A.D	It is one of almost 450 treatises authored by Persian scientist and physician Avicenna. He has listed 800 medicaments, containing plant, animal and mineral substances, with descriptions on their administration and effectiveness
<i>Kitāb al-Hāwī fī al-ṭibb</i> (The Comprehensive Book on Medicine or Liber Continens)	Rhazes	10 th century A.D	The book involves several chapters in medicine and pharmacy, 20 th and 21 st of which are on Material Medica and contain 898 simple drugs
<i>Eksir-e -Aazam</i> (The Grand Exir)	Azam Khan Cheshti	19 th century	It is one of the most detailed medical encyclopedias of traditional Persian medicine in four large volumes and involves diseases from head to toe, general ailments and concerned treatments. The author gathered all experiences of other scholars from Persia, India and Greece as well as his own finding and authored the text in 30 years
<i>Zakhire-eKharazmshahi</i>	Seyyed Esmaeel Jorjani	12 th century	It's one of the most famous books of traditional medicine of Iran which consists of practical and theoretical medicine in nine chapter. It is written in Persian and it is also one of the most detailed medical encyclopedias of traditional Persian medicine. This book was in third place after Rhazes's and Avicenna's books which has been studied by medical students
<i>Tebb -e -Akbari</i> (Akbar's Medicine)	Akbarshah Arzani	18 th century	It is a Persian medical textbook in 27 chapters (babs) and a conclusion (khatimah). Symptoms and treatment of diseases are mentioned in related chapters and compound remedies and medical terminology are discussed in conclusion part
<i>Sharḥ al-Asbāb wa-al-'alāmāt</i>	Nafīs ibn 'Iwād al-Kirmānī's	15 th century	It is a commentary on the "causes and symptoms" of diseases
<i>Khulasat al-hikma</i>	Aghili Alavi Khorasani Shirazi	18 th century	It is written in Persian including two main parts of theoretical and practical medicine
<i>Kamel al -Sina'ah al-Tibbiyah</i>	Ali ibn al-'Abbas al-Majusi	10 th century	It used to be a textbook of medicine in European medical schools by the name of Regius Liber

ITM: Iranian traditional medicine

Moreover, electronic databases including Google scholar, PubMed, and Scopus were searched from 1950 until August 2015 to find any evidence about the efficacy and possible mechanisms of action of medicinal plants used for the treatment of vitiligo in ITM.

3. RESULTS

Based on ITM human body consists of four cardinal humors including blood, phlegm, yellow bile and black bile. All of them are composed of very specific quantity and quality and any kind of diseases supposedly are resulted from an excess or deficit of one of these humors. According to ITM any change in these cardinal humors which is called *Sue Mizaj* or imbalanced temperament plays very important role in etiology of the disease. The specific characteristics of the body humors should be described completely to understand the mechanism of vitiligo. Blood is a liquid in red with sweet taste and flows in all vessels. Its major task is to carry “cardinal humors” to the whole body. Blood has the largest amount among body humors. It is the cause of body temperature and regulates it. Phlegm is a liquid in white color with a cold temperament which has a sort of sweat taste. It flows along with blood in all vessels through the whole body and is the basic part of brain and spinal cord structure. Increased amount of phlegm or changes in its quality specifically in brain can cause major problems such as stroke. This humor is an effective lubricant in the articular space and facilitates joint movements. Yellow bile is a liquid in bright yellow color and has bitter taste with warm and dry temperament. It dilutes blood viscosity and helps it flow easily in small vessels and capillaries. Its location is in gallbladder. Yellow bile releases into the small intestine cleans the surface by its bitterness and helps the fecal to be defecated completely. Based on ITM a comfortable, complete and voluminous defecation is one of the important natural functions in the human body, and yellow bile plays very important role in this process. Black bile is a liquid in dark gray color with sour taste. It locates in

the spleen and releases to the upper part of the stomach during starvation and is the main stimulus of appetite. It forms a basic part of bones and teeth and has a cold and dry temperament. Black bile is very important in skin coloration and any increase in the amount of this humor can cause skin darkness [8], [9], [10]. On the other hand all organs in the human body like heart, liver, brain and skin need four vital powers for their proper function named “obedient (subservient) faculty.” Their roles are as follows:

- I. “Attractive faculty” which absorb substances (cardinal humors) from blood to the organ
- II. “Retentive faculty” which hold substances inside the organ
- III. “Transformative faculty” this faculty during “digestion process” transmits substances from its former state and makes it become useful for the organ
- IV. “Expulsive faculty” which expels surplus substances when digestion process is completed [8], [9], [10].

According to above-mentioned vitiligo is caused by two factors:

1. Changes in quantity and quality of “phlegm” which means the concentration and viscosity of phlegm increases within the skin
2. Improper function of “expulsive faculty” that leads to increase the extra amount of phlegm in the skin structure.

In the light of above mentioned there are five clinical manifestations which describe vitiligo prognosis:

1. Skin surface geometry: Phlegm infiltration into dermis destroys the basic structure and causes skin surface depression. This sign shows poor prognosis of the disease. No changes in the skin surface geometry have better prognosis.
2. Appearance of the skin: Regarding to the fact that phlegm is a white and smooth substance, vitiligo is diagnosed by pure white and very shiny skin. It means there is a big difference between affected area and healthy skin. This distinctive clinical sign leads to poor prognosis of the disease.
3. Hair color: Phlegm infiltration into the

hair shaft can cause changes in the hair color to the gray or white, which means much more phlegm accumulation inside the skin. White hair color presents poor prognosis of vitiligo. In reverse, natural hair color of the affected area has a better prognosis.

4. Skin reaction to massage: When phlegm spreads inside dermis, it prevents normal blood perfusion through narrow vessels. Due to the complete changes of phlegm quality and quantity, it becomes condensed and viscous. Therefore, there is no sign of redness or reaction to skin massage and it shows poor prognosis of vitiligo. Contrary to the above-mentioned mechanism any sign of redness and/or reaction to massage reveals good prognosis of the disease.

5. Needle insertion into skin: As mentioned above phlegm infiltrates through the dermis and prevents normal blood perfusion through small vessels and capillaries. Thus, no blood or a few drops of diluted liquid comes out from the skin after needle insertion. It means that condensed phlegm has been accumulated deeply inside dermis. This event indicates poor prognosis of the disease. In reverse normal bleeding after needle insertion of affected area reveals good prognosis of disease [11], [12], [13], [14], [15].

The main approaches of ITM to almost all diseases are categorized into three groups including diet therapy, herbal and natural therapies, and manipulations. Researches

have been done for evaluating the effects of medicinal plants on vitiligo. *Psoralea corylifolia* L. (Fabaceae) Leaves mentioned as a Chinese medicine treatment for skin disorders like vitiligo [16]. Another research proposed *Cassia occidentalis* as a pigmentation inducer by affecting differentiation and migration of melanoblast cells of mouse and tyrosinase function [17]. Medicinal plants suggested in ITM for vitiligo and current evidence for their efficacy [18], [19], [20] have been described in table 2.

4. DISCUSSION

ITM has presented very simple and uncomplicated clinical examinations to predict vitiligo prognosis, and there are five simple clinical prognostic factors for it. According to the stage of disease, it has recommended different approaches for its treatment like herbal medicine which some of them were noted in this study. Further studies are needed to achieve to more conclusive results about the efficacy and safety of medicinal plants suggested in ITM for vitiligo.

6. CONFLICT OF INTERESTS

Authors have no conflict of interests.

7. ACKNOWLEDGMENTS

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Table 2. Medicinal plants for management of vitiligo in ITM and their proved mechanisms of action

Scientific name	Family	Common name	Temperament Mizaj	Iranian traditional Name	Mechanism	Part used
<i>C. chinensis</i> L.	Convolvulus	Dodder Seed	Warm and dry	Kashos	Promotes adhesion of melanocyte to fibronectin	Fruit
<i>C. tinctorius</i> L.	Compositae	Safflower	Warm and dry	Golrang	Promotes adhesion of melanocyte to fibronectin	Flower
<i>P. corylifolia</i> L.	Fabaceae	Babchi	Warm and dry	Babchi	Promotes both adhesion and migration of melanocytes and promotes melanocyte migration <i>in vitro</i>	fruit
<i>P. nigrum</i> L.	Piperaceae	Black pepper	Warm and dry	Felfel	Growth-stimulatory activity on cultured melanocytes	Fruit
<i>T. terrestris</i> L.	Zygophyllacea	Bindii	Warm and dry	Hasak	Promotes melanocyte migration <i>in vitro</i>	Fruit

ITM: Iranian traditional medicine, *C. chinensis*: *Cuscuta chinensis*, *C. tinctorius*: *Carthamus tinctorius*, *P. corylifolia*: *Psoralea corylifolia*, *P. nigrum*: *Piper nigrum*, *T. terrestris*: *Tribulus terrestris*

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