Useful Medicinal Plants for Vision Impairment in Traditional Iranian Medicine

Jamshid Shayanfar1, Hassan Ghasemi2, Seyed Saeed Esmaili3, Fatemeh Alijaniha4, Ali Davati5

1 Department of Iranian Traditional Medicine, School of Medicine, Shahed University, Tehran, Iran
2 Department of Ophthalmology, Shahed University, Tehran, Iran
3 Department of Traditional Medicine, School of Medicine, Shahed University, Tehran, Iran
4 Traditional Medicine Clinical Trial Research Center, Shahed University, Tehran, Iran
5 Department of Social Medicine, School of Medicine, Shahed University, Tehran, Iran

Abstract

Vision impairment is an important general health issue that imposes many costs on governments and the health system every year. Despite the decline in infectious eye diseases, which has reduced the vision impairment and blindness over the past two decades, vision impairment is still a major health problem in some parts of the world. In traditional medicine books, visual weakness is referred to as “any disturbance in the act of seeing”. Many medicinal herbs have been mentioned in books of Traditional Iranian medicine (TIM) for the management of vision impairment. The aim of this study is to review the medicinal plants mentioned in TIM, which are considered effective for the treatment of vision impairment or its enhancement. In this library-based study, medicinal plants effective in the treatment of vision impairment were searched using 6 valid sources of traditional medicine, including Makhzan ol-Adawiya, The Canon of Medicine, Tuhfat al-Momenin, Al-Abniyah An Haqaiq al-adwiya, Al-Shamil Fi al-Sana’at al-tebiyah, and Ekhtiarate Badiee. This was done in 10 steps (finding keywords, searching for resources, preparing a single list, finding synonyms, classifying, reviewing, extracting plants from compositions, summarizing, scoring and sorting based on the obtained score). A total of 89 medicinal plants were extracted, most of which had a hot and dry temperament. Based on the obtained score, 12 plants got the highest scores (10 and above). The extracted plants can be the basis for further clinical studies to make new effective drugs for the prevention and treatment of vision impairment.

Keywords: Vision Impairment; Ophthalmology; Medicinal Plants

Introduction

Visual impairment is a type of non-com municable disease that has mental and physical effects in the elderly. In 2010, 0.5% of the world population was blind, and 2.8% had severe-to-moderate vision impairment. In total, the major causes of vision impairment include, cataract, age-related macular degeneration (ARMD), uncorrected refractive errors, glaucoma, and corneal opacity [1]. Low vision refers to a condition where one is not blind, but has a less-than-normal vision. It is detected by a visual acuity of 3/60 to less than 6/18 in the healthier eye, after the best correction. Visual impairment also refers to condi-
tions that range from low vision to blindness [2]. In other words, low vision is a term for the vision impairments that cannot be corrected with standard eyeglasses or with medical or surgical treatments and may result from many eye or neurological diseases [3]. Studies have shown that vision impairment affects the quality of life by limiting social interactions and individual autonomy [4]. Visual impairment may appear with blind spots, decreased peripheral vision, decreased central vision, failure in contrast of the image, or the symptoms together. With aging and diseases such as diabetic retinopathy, the population with low vision has also increased [5]. The incidence of vision impairment also increases as the age increases among all age groups, and the risk of the disease in all regions of the world is higher in women than in men [6]. A study conducted in 2013 has estimated the financial cost of vision impairment in the United States adult persons at $51.4 billion per year [7]. In TIM references, weakness in vision has been considered as Zafe Basereh, and it has been defined as any disturbance in the act of seeing. In this disease, one cannot see the objects as they are even with effort, and an error occurs in the act of seeing [8]. The approach of TIM toward health protection is based on improvement of lifestyle and emphasizes on the importance of prevention. In the area of treatment, although pharmacotherapy and manipulation are used to treat patients, lifestyle modification, especially the emphasis on nutrition, has widened the horizons for researchers in a variety of diseases, including eye illnesses [9,10]. Ancient Iranian physicians were experts in the field of diagnosis, description and treatment of eye diseases, as well as the definition of applied words. Almost all books of TIM have addressed the diagnosis and treatment of eye diseases. In addition, several specialized ophthalmological books have been written from the perspective of TIM [11]. About 25% of total prescribed drugs have been acquired from plants. Medicinal plants are famous for their little toxicity, effectiveness, and fewer side effects. A wide range of medicinal herbs has been recognized to be effective in complementary medicine schools, such as Ayurveda and Chinese medicine, in the treatment of eye diseases such as cataract and glaucoma [12].

Studies have shown that the probability of discovering a new effective drug increases up to 40% when traditional experiences are attended, in comparison to 1% in accidental researches. Thus searching in traditional textbooks may be an effective way for finding new drugs. [13]. This study aims to provide a classified and sorted list of medicinal plants mentioned in TIM references, which can be used for vision enhancement or treatment of vision weakness after conducting clinical studies.

Search Strategis

This research is a library-based study and review. In this study, 6 important references of TIM have been used. Selected references have been chosen from various historical periods, including 1. Al-Abniyah An Haqaq al-adwiya (Abu Mansour Movafagh Heravi in the 4th century; Hijri), 2. The Canon of Medicine (Ibn Sina in the 5th century; Hijri), 3. Al-Shamil Fi al-Sana’at al-tebiyah (Ibn Nafis in the 7th century; Hijri), 4. Ekhtiarate Badiee (Haji Zeiniddin Ali Ibn Hussein Ansari in the 8th century; Hijri), 5. Tuhfat al-Momenin (Momen Tonekaboni in the 11th century; Hijri), and 6. Makhzan al-Adwiya (Mohammad Hussein Aghili Khorasani in the 12th century; Hijri).

Key-words including “eye” (with other synonyms in Arabic such as “ain”, and “basar”), and vision (with its synonym “basereh”), in addition to enhancement, strength, weakness, acuity, and clearing, were searched in the above-mentioned books. Subsequently, the selected plants that were effective in treating vision weakness or vision enhancement, were scored based on the model presented in the study of Mozafarpour et al. Using this model, he chose the medicinal plants effective for constipation and bloating according to TIM books [14, 15]. This scoring pattern was also used for other diseases such as palpitation [13]. In this model, scoring was done based on words indicative of the intensity and level of the effect on vision impairment or vision enhancement and sum of the scores in different books. The medicine with a stronger effect achieved a higher score, and the one with the weaker effect owned a lower score. This was done in 10 steps (finding keywords, searching for references, preparing a single list, finding
Useful Medicinal Plants for Vision Impairment

Shayanfar J, et al.

SYN 

Useful Medicinal Plants for Vision Impairment

Shayanfar J, et al.

In addition to specific plants, the general influence on the eye health was also studied. The route of administration and temperaments of each plant were also explained. In addition the positive effect of some medicinal plants on vision weakness (with higher score) in clinical studies, has been explained in new literature. The types of medicinal effects on vision weakness or enhancement have been evaluated.

Results

After collecting and scoring the plants, a total of 89 plants (Table-3) were found to have an effect on vision enhancement or weakness which sorted from stronger effect to weaker

Table 1. The Criteria to Score Properties Mentioned for the Plants in the Books

| Criteria                                                                 | Score |
|--------------------------------------------------------------------------|-------|
| A strong emphasis on the vision enhancement or the effectiveness on vision impairment with terms such as seriously, strongly beneficial, experimented, ultimately, and intense. | 3     |
| The expression of the vision enhancement or effectiveness on vision weakness with terms such as usefulness for vision weakness or vision enhancement, and vision sharpening | 2     |
| Expressing the effects on eye health with terms such as usefulness or beneficial for eyes | 1     |
| The implicit expression of vision enhancement or the effectiveness on vision weakness with terms such as eliminating vision darkness, clearing vision, and increasing the light of eye. |       |

Table 2. A Scoring Example of the Plants

| Book          | Plant          | Makhzan al-Adwiya | the Canon of medicine | Al-Abniyah An Haqaq al-adwiya | Al-Shamil Fi al-Sana’at al-tebiyah | Tuhfat al-Momenin | Ekhtiarate Badiee |
|---------------|----------------|-------------------|-----------------------|-------------------------------|-----------------------------------|-------------------|------------------|
| Hasha         | Mamiran        | Using as kohl is useful for vision darkness | Using as kohl is useful for vision darkness, thereby enhancing it | Using as kohl is useful for vision darkness | Increases the light of eye |
| Score         | 1              | 2                 | 2                     | 2                             | 1                                 | 1                 |
| Total score   | 9              | 13                |                       |                               |                                   |                   |
| Traditional name | Scientific name | Temperament | Rout of administration | Score | Ref. No |
|------------------|-----------------|-------------|------------------------|-------|---------|
| Hasha            | Thymus capitatus| Hot and dry | Oral                   | 13    | 1-6     |
| Hozoz            | Lycium afrum L. | Moderate and dry | Using as kohl         | 12    | 1-6     |
| Harmal           | Peganum harmala L. | Hot and dry | Using as kohl          | 12    | 1-6     |
| Balsan           | Commiphora gileadensis | Hot and dry | Using as kohl          | 12    | 1-6     |
| Farasium         | Marrubium vulgare L. | Hot and dry | Suppository-eye drop    | 12    | 1-6     |
| Esghil           | Scilla maritima L. | Hot and dry | Oral                   | 11    | 2-6     |
| Sodab            | Ruta graveolens L. | Hot and dry | Oral                   | 11    | 1,2,4-6 |
| Razianaj         | Foeniculum vulgare L. | Hot and dry | Using as kohl          | 10    | 1-6     |
| Basal            | Allium cepa L. | Hot and dry | Oral                   | 10    | 1-4,6   |
| Balilaj          | Terminalia bellerica | Cold and dry | Oral                   | 10    | 2-6     |
| Heltit           | Ferula assa-foetida L. | Hot and dry | Using as kohl          | 10    | 3-6     |
| Enab-o-Salab     | Solanum nigrum L. | Cold and dry | Using as kohl          | 10    | 2-6     |
| Oshnah           | Usenea barbata Ach | Moderate    | Using as kohl          | 9     | 2-6     |
| Darsini          | Cinnamomum zeylanicum | Hot and dry | Using as kohl          | 9     | 1-6     |
| Ribas            | Rheum ribes L. | Cold and dry | Using as kohl          | 9     | 2-6     |
| Sokar-ol-Oshr    | Calotropis procera dryand | Hot and dry | Using as kohl          | 9     | 2-6     |
| Sabr             | Aloe vera L. | Hot and dry | Using as kohl          | 9     | 1,3-6   |
| Satar            | Thymus vulgaris | Hot and dry | Oral                   | 9     | 1,3-6   |
| Gharanfol        | Eugenia caryophyllata | Hot and dry | Using as kohl          | 9     | 2-6     |
| Mamiran          | Chelidonium majus L. | Hot and dry | Using as kohl          | 9     | 1-6     |
| Ostokhodas       | Lavandula stoechas L. | Hot and dry | Oral                   | 8     | 3,5,6   |
| Amolaj           | Phyllanthus emblica L. | Cold and dry | Oral                   | 8     | 2,3,5,6 |
| Ejas             | Prunus domestica L. | Cold and wet | Using as kohl          | 8     | 2,3,5,6 |
| Javshir          | Opopanax chironium/ (L.) Koch. | Hot and dry | Using as kohl          | 8     | 2-4,6   |
| Khelaf           | Salix alba L. | Cold and dry | Using as kohl          | 8     | 2-4,6   |
| Roman            | Tunica granatum | Cold and wet | Using as kohl          | 8     | 3-6     |

*Continue in next page*
### Table 3. The Effective Medicinal Plants in the Treatment of Vision Weakness

| Plant Name                | Scientific Name                                      | Plant Part Used | Method of Use     | Hits | Range |
|---------------------------|-----------------------------------------------------|-----------------|-------------------|------|-------|
| Loz-ol-Mor                | Amygdalus amara Hayne                               | Cold and dry    | Using as kohl     | 8    | 2-4,6 |
| Kornab                    | Brassica oleracea L.                                | Hot and dry     | Oral              | 8    | 2-6   |
| Mamitha                   | Glaucoma corniculatum L                             | Cold and dry    | Using as kohl     | 8    | 3-6   |
| Mor                       | Commiphora Myrrha (Nees)                            | Hot and dry     | Using as kohl     | 8    | 3-6   |
| Aas                       | Myrtus communis L.                                  | Cold and dry    | Using as kohl     | 7    | 4-6   |
| Aghaghia                  | Acacia arabica                                      | Cold and dry    | Using as kohl     | 7    | 2-4,6 |
| Athl                      | Tamarix gallica L.                                  | Cold and dry    | Eye drop          | 7    | 3,5,6 |
| Badruj                    | Ocimum basilicum L.                                 | Hot and dry     | Eye drop          | 7    | 2-6   |
| Bokhur-e-Maryam           | Cyclamen europium L.                                | Hot and dry     | Using as kohl     | 7    | 1-3,4 |
| Tormes                    | Lupinus angustifolius L.                            | Hot and dry     | Oral              | 7    | 3-5,6 |
| Salikheh                  | Cinnamomum bejolghota (Buch. /Ham.) Sweet           | Hot and dry     | Using as kohl     | 7    | 1,3-6 |
| Sakbinaj                  | Foeula perica                                       | Hot and dry     | Using as kohl     | 7    | 2-5   |
| Shaljam                   | Brassica rapa L.                                    | Hot and wet     | Oral              | 7    | 2,3,5,6|
| Felfel                    | Piper nigrum L.                                     | Hot and dry     | Using as kohl     | 7    | 2-6   |
| Ghasab-ol-Zarirah         | Arundo phragmites L.                                | Hot and dry     | Using as kohl     | 7    | 2,3,5,6|
| Ahhilaj-e-Asfar           | Terminalia citrina Roxb.                            | Cold and dry    | Using as kohl     | 6    | 2-3,5,6|
| Joze-Bova                 | Myristica fragrans L.                               | Hot and dry     | Using as kohl     | 6    | 2,5,6 |
| Kharbagh-e-Asvad          | Helleborus niger L.                                 | Hot and dry     | Using as kohl     | 6    | 2,4,6 |
| Dam-ol-Akhbevin           | Dracaena cinnabari Balf.f.                          | Cold and dry    | Using as kohl     | 6    | 4-6   |
| Zaferan                   | Cocus sativus L.                                    | Hot and dry     | Using as kohl     | 6    | 2-6   |
| Somagh                    | Rhus coriaria L.                                    | Cold and dry    | Using as kohl     | 6    | 3,5,6 |
| Sonbol                    | Hyacinthus orientalis                               | Hot and dry     | Using as kohl     | 6    | 3,5,6 |
| Shaghayegh                | Anemone sp.                                         | Hot and dry     | Using as kohl     | 6    | 2,4,6 |
| Shahtareh                 | Fumaria parviflora Lam.                             | Moderate and dry| Using as kohl     | 6    | 3,5,6 |
| Tabashir                  | Bambusa arundinacea Willd                           | Cold and dry    | Nasal snuff       | 6    | 5,6   |
| Kondosh                   | Gypsophila struthium L.                             | Hot and dry     | Nasal snuff       | 6    | 3,5,6 |

*Continue in next page*
### Continue of Table 3. The Effective Medicinal Plants in the Treatment of Vision Weakness

| Plant                  | Common Name                  | Habitat       | Condition     | Method of Use   | Code |
|------------------------|------------------------------|---------------|---------------|-----------------|------|
| Marzanjush             | Origanum majorana L.         | Hot and dry   | Using as kohl | 6               | 3,5,6|
| Vaj                    | Acorus calamus L.            | Hot and dry   | Using as kohl | 6               | 1-3,5,6|
| Hesrem                 | Vitis vinifera L.            | Cold and dry  | Using as kohl | 6               | 3,6  |
| Kharbagh-e-Abyaz       | Veratrum album L.            | Hot and dry   | Using as kohl | 5               | 2,4,6|
| Zanjobil               | Zingiber officinare roscare  | Hot and dry   | Using as kohl | 5               | 1-4  |
| Gharasia               | Pranus avium L.              | Cold and dry  | Using as kohl | 5               | 4-6  |
| Oghovan                | Tanacetum parthenium         | Hot and dry   | Using as kohl | 4               | 5,6  |
| Barsian                | Albizia lebeck (L.) Bth.     | Hot and dry   | Oral- Smelling| 4               | 3,6  |
| Tashmizaj              | Cassia absus                 | Hot and dry   | Using as kohl | 4               | 5,6  |
| Jadvar                 | Curcuma zedoaria Rosc.       | Hot and dry   | Eye drop      | 4               | 5,6  |
| Khardal                | Brassica juncea (L.) Czern   | Hot and dry   | Using as kohl | 4               | 3,6  |
| Dardar                 | Ulmus campestris             | Cold and dry  | Using as kohl | 4               | 2,4-6|
| Sous                   | Glycyrrhiza glabra L.        | Hot and dry   | Using as kohl | 4               | 5,6  |
| Selgh                  | Beta vulgaris L.             | Hot and dry   | Using as kohl | 4               | 1,3  |
| Gharab                 | Salix habilonica L.          | Cold and dry  | Using as kohl | 4               | 2,4-6|
| Fotr                   | Funji spp                    | Cold and wet  | Using as kohl | 4               | 5,6  |
| Kravia                 | Cuminum cyminum L.           | Hot and dry   | Using as kohl | 4               | 2,6  |
| Komon                  | Carum carvi L.               | Hot and dry   | Kohl-Eye drop | 4               | 2,3,6|
| Kondor                 | Boswellia carterit           | Hot and dry   | Using as kohl | 4               | 3,5,6|
| Mash                   | Vigna radiata R.wilczek      | Cold and dry  | Oral          | 4               | 5,6  |
| Anbarbaris             | Berberis vulgar L.           | Cold and dry  | Using as kohl | 3               | 3    |
| Anison                 | Pimpinella anisum L          | Hot and dry   | Using as kohl | 3               | 3    |
| Zaitun                 | Olea europaea L.             | Hot and dry   | Using as kohl | 3               | 2,4  |
| Sokkar                 | Saccharum officinarum L.     | Hot and dry   | Using as kohl | 3               | 2,3,5|
| Ghataran               | Pix liquida                  | Hot and dry   | Using as kohl | 3               | 2,4  |
| Kafar                  | Laurus camphora              | Cold and dry  | Using as kohl | 3               | 1,3  |

*Continue in next page*
Useful Medicinal Plants for Vision Impairment

Shayanfar J, et al.

Table 3. The Effective Medicinal Plants in the Treatment of Vision Weakness

| Plant | Scientific Name | Temperament | Route of Administration | Effectiveness |
|-------|-----------------|--------------|--------------------------|--------------|
| Asarun | Asarum europaeum L | Hot and dry | Oral | 2 3 |
| Anzarut | Astragalus sarcocolla Dym | Hot and dry | Using as kohl | 2 3 |
| Otroj | Citrus medica varcedrata | Cold and dry | Using as kohl | 2 3 |
| Afsantin | Artemisia absinthium L. | Hot and dry | Using as kohl | 2 3 |
| Bohnkareh | Ealipta alba | Hot and dry | Oral | 2 6 |
| Hur | Populus alba | Hot and dry | Using as kohl | 2 3 |
| Zaravand | Aristolochia longa L. | Hot and dry | Oral | 2 3 |
| Faranjmeshk | Ocimum pilosum | Hot and dry | Apply on head | 2 3 |
| Ghantorion | Centaurea cyanus L. | Hot and dry | Using as kohl | 2 3 |
| Limun | Citrus aurantifolia L. | Cold and dry | Using as kohl | 2 3 |
| Kam-at | Tuber album Sow. | Cold and wet | Using as kohl | 2 3 |

[17-22]. A vast majority of the plants had a dry temperament, and most of them were hot and dry (Table-4). A total of 12 plants Hasha, Hozoz, Harmal, Balsan, Farasun, Esghil, Sodab, Razianaj, Basal, Balilaj, Heltit, and Enab-o-Salab, scored higher than other plants. Most of the plants were extracted from Makhzan al-Adwiya, and the least ones were compiled from Al-Abniyah An Haqaiq al-adwiya (Table-5). Most plants were found to be effective in vision enhancement, and a smaller number on vision impairment (Table-5). The route of administration for most plants was similar to Kohl (Collyrium), and for a smaller number, it was oral. The results of clinical studies searched for plants with higher score (10 and above) are as follows: The aqueous extract of the seeds of Razianaj (Foeniculum vulgare) has protective and therapeutic properties against sodium selenite-induced cataract in rabbit’s eye. The possible mechanism of this extract is antioxidant activity. Different phytochemical studies have shown the presence of compounds like flavonoids, phenolic compounds, and volatile compounds, in this plant. It has several other pharmacological properties such as anti-inflammatory, oculohypotensive effects. Lens opacity scores were lower in rabbits that received aqueous extract eye drops of this plant twice daily for 5 days before cataract induction and 21 days after cataract induction[23]. Another study by Agarwal et al. showed that Foeniculum vulgare aqueous extract reduces intraocular pressure and the maximum reduction in pressure is comparable with timolol. Its mechanism of action is through an anti-cholinesterase effect [24]. Sudhakar et al. showed that the oral use of Sodab (Ruta graveolens) two times a day for 2 years clearly reduced the annual progression of myopia, and even after the discontinuation of the medication, the speed of progression of myopia decreased. The mechanism of action of this plant is likely through the ciliary body, which leads to the exact focusing of the image on the retina by improving the accommodation in myopic individuals even while working near the object [25]. Javadzadeh et al. presented that the administration of 1 drop of onion extract in mice eyes for 14 days every 8 hours prevents the formation of selenite-induced cataract [26]. In 2010, a study conducted by Gupta et al. on 9-day-old rat pups showed that intraperitoneal injection of the aqueous extract of Triphala (combination of Emblica officinalis, Terminalia belerica, and Terminalia chebula) at doses of 25mg/kg body weight prevents selenite-induced cataract formation the forma-
Table 4. The frequency of plants natures

| Temperament       | Hot and dry | Cold and dry | Cold and wet | Moderate and dry | Hot and wet | Moderate |
|-------------------|-------------|--------------|--------------|------------------|-------------|----------|
| Number            | 58          | 23           | 4            | 2                | 1           | 1        |

Table 5. The Frequency of Effective Medications and Usefulness of Medicinal Plants on Vision Weakness or Enhancement

| Book                | No or effectiveness | Makhzan al-Adwiya | the Canon of medicine | Al-Abniyah An Haqaiq al-adwiya | Al-Shamil Fi al-Sana’at al-tebiyah | Tuhfat al-Momenin | Ekhtiarate Badiee |
|---------------------|---------------------|-------------------|-----------------------|---------------------------------|-----------------------------------|------------------|------------------|
| Number of selected plants | 69                  | 46                | 18                    | 67                              | 58                                 | 43               |
| Effectiveness on vision enhancement | 42                  | 11                | 4                     | 29                              | 32                                 | 11               |
| Effectiveness on vision weakness  | 8                   | 4                 | 2                     | 2                               | 9                                  | 4                |

The frequency of plants natures

| Temperament       | Hot and dry | Cold and dry | Cold and wet | Moderate and dry | Hot and wet | Moderate |
|-------------------|-------------|--------------|--------------|------------------|-------------|----------|
| Number            | 58          | 23           | 4            | 2                | 1           | 1        |

Discussion

The causes of vision impairment in TIM include bodily causes, brain causes, causes specific to vision power, causes related to the eye layers, and causes related to the nerve that should be considered in the treatment of vision impairment. Ancient Iranian physicians addressed the primary cause of the disease while paying attention to the essential principles of maintaining health (climatic conditions and environment, food and drink, physical activities and rest, evacuation and retention, psychiatric conditions, sleep and wakefulness), and finally, they used medications and manipulation or physical therapy (such as surgery). For example, in cataract (Nozul olma), Ancient Iranian physicians believed that in the early stages of the disease, treatment is possible through nutrition and drug therapy, but when the disease progresses, surgery is the only treatment. Patients are advised to avoid eating meat, fish, and fruits, and instead, consume dry foods. In the Canon of medicine, Avicenna emphasizes that eye probing for cataract surgery should not be done quickly, and should be waited for until its completion [35]. Some inappropriate and harmful conditions and foods lead to vision weakness and should be avoided from TIM point of view. These are: dust, smoke, very hot or very cold weather, continuous gaze to objects specially very close to the eyes.
small things, too much crying, too much intercourse, exceed drinking alcohol, overeating and sleeping immediately after eating food, eating excess salt, eating foods like lentil, cabbage, garlic, sugar, long or short sleeping, and prolonged watching luminous objects. Some useful plants for eyesight are eating foods in moderate amounts, moderate sleeping, eating cinnamon, saffron, star anise and turnips [22]. The main mechanism of eye damage in cataract, glaucoma, and ARMD is oxidative stress. Antioxidants form the first layer of defense in contrast to oxidative stress and are got with diet and internal production. The most important antioxidants that perform a protective role in the eyes include ascorbic acid, superoxide dismutase catalase, and reduced glutathione. Initial studies suggest that the antioxidant capacity of the plasma can increase with diets rich in antioxidants, like fruits and vegetables, through the diet [28]. In addition, there is evidence that oxidative stress leads to the activation of the molecular components contributing to the development and appearance of diseases associated with myopia [36]. A wide range of medicinal herbs is used in the management of some eye diseases, including cataract and glaucoma. Although in some health systems such as Ayurveda and Traditional Chinese Medicine, common therapeutic properties have been expressed for a plant, in the treatment or prevention of the vision impairment has been shown in a few clinical studies in modern medicine. Considering the 6 principles of maintaining health, and preventive effects of herbal medicine in early stages, TIM emphasizes on vision enhancement against vision weakness and health-maintaining principles rather than the disease treatment alone. Obviously, in advanced stages of the disease, surgery will be more important than other methods, and herbal medicines may be considered as a complementary treatments along with the surgery.

**Conclusion**

According to TIM and studies conducted, many medicinal herbs can be used in the treatment of vision impairment, and it is necessary to conduct more precise clinical and animal studies about the widespread use of these plants in its treatment, and this study can be the first step in this direction.

**Conflict of Interest**

None.

---

**References**

1. Mohammadi SF, Saedidi-Anari G, Ashrafi E, Mohammadi SM, Farzadfar F, Lashay A et al. Prevalence and major causes of visual impairment in Iranian adults: A systematic review. Middle East Afr J Ophthalmol. 2017;24(3):148-55.
2. Mikiashvili M. Strategies for solving tasks by blind: characteristics of mental images, thus strategies for handling tasks by blind adults 2011.
3. Fontenot JL, Bona MD, Kaleem MA, McLaughlin Jr WM, Morse AR, Kalech TL et al. Vision rehabilitation preferred practice pattern®. Ophthalmology. 2018;125(1):228-78.
4. khoshzaban F, Haji-Ali-Nili N, Jabarvand M, Karimi M, Rahimi R, Aliajaniha F et al. Review of dry eye disease and its treatment in Iranian Traditional Medicine. Medical History Journal. 2016;8(27):29-46.
5. Bittner AK, Wykstra SL, Yoshinaga PD, Li T. Telerehabilitation for people with low vision. Cochrane Database Syst Rev. 2015.
6. Maake MM, Oduntan OA. Prevalence and causes of visual impairment in patients seen at Nkhensani hospital eye clinic, south africa. Afr J Prim Health Care Fam Med. 2015;7(1):1-6.
7. Cardarelli WJ, Smith RA. Managed care implications of age-related ocular conditions. Am J Manag Care. 2013;19(5 Suppl):S85-91.
8. Arzani M. Teb-e-Akbari. Tehran: Ehya teb tabiee; 2008.
9. Khodaei MA, Noorbala AA, Parsian Z, Targhi ST, Emadi F, Alijania F et al. Avicenna (980-1032CE): The pioneer in treatment of depression. Transylvanian Review. 2017.
10. Khodaei MA, Ghaffari F, Emadi F, Emaratkar E, Alijania F, Noorbala AA et al. Healthy lifestyle in Prevention and Treatment of Depression from the View of Iranian Traditional Medicine. Medical History Journal. 2017;9(30):169-92.
11. Khoshzaban F, Haji-Ali-Nili N, Jabarvand M, Karimi M, Rahimi R, Aliaslj J et al. Review of dry eye disease and its treatment in Iranian Traditional Medicine. Medical History Journal. 2016;8(27):29-46.
12. Semwal A, Kumar V, Bhatt SP, Ashok K. Medicinal plants with antiocular activities. Int J Med Res. 2016;1(2):35-53.

13. Ghaffari F, Alijaniha F, Fallahi F. Single remedies for Khafaghan in Iranian Traditional Medicine. Journal of Islamic and Iranian Traditional Medicine. 2013;4(1):1-11.

14. Mozaffarpour SA, Naseri M, Dooki MRE, Bijani A, Kamalinejad M, Yousefi M et al. Introduction of natural medicinal materia effective in treatment of constipation in Persian traditional medicine. History of Medicine Journal (Quarterly). 2016;3(9):79-95.

15. Mozafarpour SA, Mojahedi M, Saghebi R, Mahmoudpour Z. Effective medical plants extracts on bloating in traditional Persian medicine. History of Medicine Journal (Quarterly). 2016;27(8):11-27.

16. Sheikh Rezaee MR, Bonyadi A, Hosseini AS. The effective medicinal plants in cataract Treatment: an inquiry in persian medicine resources (4-13th century AH). Journal of Babol University of Medical Sciences. 2017;19(19):67-73.

17. Aghilli Mh. Makhzan ol-adwiya. Tehran: Tehran University of Medical Sciences; 2009.

18. Ansari-Shrazi A. Ekhtiarate Badiee. Tehran: Razavi Drug Distribution Co; 1993.

19. Momen-Tonekaboni M. Tohfat ol-Momenin. Tehran: Shahr Press; 2007.

20. Movafagh-Heravi A. Al-Abniyeh An-Haqaeqe al-adawiye. Tehran: Tehran University of Medical Sciences; 2009.

21. Nafis I. Al-Shamel Fi al-Sana’a al-tebiyeh. Tehran: Tehran University of Medical Science; 2008.

22. Avicenna. The canon of medicine. Tehran: Sourouch; 2010.

23. Omar Adil Hassan ARA-R, Ahmed Majeed Rasheed, Malak Akram Al-Yawer. Effect of Foeniculum vulgare Seed Aqueous Extract Eye Drops on Selenite induced Cataract in Rabbits. Int J Pharm Sci Rev Res. 2017;47(1):83-7.

24. Agarwal R, Gupta SK, Agrawal SS, Srivastava S, Saxena R. Oculohypotensive effects of Foeniculum vulgare in experimental models of glaucoma. Indian J Physiol Pharmacol. 2008;52(1):77-83.

25. Sathy SS. Effect of homoeopathic preparation of Ruta graveolens on the progression of childhood myopia before, during and after cessation of treatment: A retrospective study. Indian Journal of Research in Homoeopathy. 2017;11(4):249-56.

26. Javadzadeh A, Ghorbanihaghjo A, Bonyadi S, Rashidi MR, Mesgari M, Rashchizadeh N et al. Preventive effect of onion juice on selenite-induced experimental cataract. Indian J Ophthalmol. 2009;57(3):185-9.

27. Biswas N, Gupta S, Das G, Kumar N, Mongre P, Haldar D et al. Evaluation of Ophthacare® eye drops—a herbal formulation in the management of various ophthalmic disorders. Phytother Res. 2001;15(7):618-20.

28. Braakhuis A, Raman R, Vaghefi E. The association between dietary intake of antioxidants and ocular disease. Diseases. 2017;5(1):3.

29. Jain R, Sharma A, Gupta S, Sarethy IP, Gabrani R. Solanum nigrum: current perspectives on therapeutic properties. Altern Med Rev. 2011;16(1):78-85.

30. Asgarpanjah R, Ramazanlou F. Chemistry, pharmacology and medicinal properties of Peganum harmala L. Afr J Pharm Pharmacol. 2012;6(22):1573-80.

31. Saraswat M, Suryanarayana P, Reddy PY, Patil MA, Balakrishna N, Reddy GB. Antiglycating potential of Zingiber officinale officinalis and delay of diabetic cataract in rats. Mol Vis. 2010;16:1525-37.

32. Sa'ad L, Ghanadi A, Javanmard SH, Vahidian MH. The effect of hydroalcoholic extract of Ferula foetida stems on blood pressure and oxidative stress in dexamethasone-induced hypertensive rats. Res Pharm Sci. 2015;10(4):326-34.

33. Zahedi M, Hojjati MR, Fathpour H, Rabiei Z, Alibabaei Z, Basim A. Effect of Rheum ribes hydro-alcoholic extract on memory impairments in rat model of Alzheimer’s disease. Iran J Pharm Res. 2015;14(4):1197-206.

34. Chandana V. An ayurvedic perspective to geriatric eye disorders with special reference to age related macular degeneration (AMD). Int J Ayur Pharma Research. 2016;4(3).

35. Shabaninezhad E, Zargaran A, Mehdizadeh A, Khalili M. CATARACT IN TRADITIONAL PERSIAN MEDICINE MANUSCRIPTS, 9-11TH CENTURIES AD (CANNON, MANSURI-FI-TEB AND FERDOS AL-HEKMAH). 2013.

36. Francisco BM, Salvador M, Amparo N. Oxidative stress in myopia. Oxid Med Cell Longevity. 2015;2015.