



Honey and Bilberry Fruit Extract to Reduce Myopia: A Case Study in Indonesia

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Abstract

Background: Myopia is the number 2 most common disease in our outpatient cases. Using eye lenses and glasses is still unpleasant for some patients with a high minus. The choice of eye surgery is a solution, but it will be a severe problem for poor people in developing countries. Alternative treatments using honey and bilberry extract, apart from being halal, are also relatively cheaper.

Aim: To prove the effectiveness of honey and bilberry extract in curing myopia in Indonesian.

Case Report: A 12-year-old girl with chief complaint of declining vision while looking far away. After doing examination, we got 0.75 minus on both eyes. We gave recipe for eyeglasses and honey with bilberry extract mixture 3 sponges every morning and night.

Conclusion: Honey and bilberry extract have been proven to sharpen vision. Large-scale studies are needed to strengthen our clinical evidence.

Keywords: Honey; Bilberry; Myopia; Indonesian; Developing country

Introduction

Myopia is the most common eye disorder throughout the world. The incidence of myopia, which has continued to increase in the last 50 years, is estimated to have affected 1.6 billion people worldwide. Myopia is a refractive error in which the rays are parallel coming from an object is focused in front of the retina when the eye is not accommodated. Based on the degree, myopia can be divided into low, moderate and high myopia. Patients with high myopia are at greater risk for retinal detachment, chorioretinal atrophy, lacquer cracks, and other abnormalities. This will increase the risk of blindness. There are currently two basic mechanisms believed to cause myopia: Form deprivation (also known as pattern deprivation) and optical defocus. Form deprivation occurs when the image quality on the retina is reduced; optical defocus occurs when light focus in front of or behind the retina.

Honey has been traditionally used for various medicinal purposes, including promoting eye health. Several studies have highlighted the potential benefits of honey for the eyes. Manuka honey, in particular, has been found to possess anti-inflammatory and antioxidant properties that can be used to treat dry eye [1,2]. A randomized masked trial also assessed the clinical safety and tolerability of a Manuka Honey Microemulsion (MHME) eye cream for the management of blepharitis and found that it was well tolerated in healthy human subjects. Additionally, a review of recent clinical research emphasized the ability of honey to be used in the treatment of eye diseases, among other conditions, due to its antioxidant, antimicrobial, and anti-inflammatory effects [3,4]. While these studies show promising results, it's important to note that further research is needed to fully understand the potential benefits of honey for eye health. Because this is a promising treatment and is written in the Koran, Surah An-Nahl 68-69. And your Lord inspired the bee [saying]: 'Make your home in the mountains, and on the trees and the trellises that they erect. Then eat from every [kind of] fruit and follow meekly the ways of your Lord.' There are issues from its belly a juice of diverse hues, in which there is a cure for the people. There is indeed a sign in that for a person who reflects.

Bilberry extract, specifically in the form of Difrarel, has been studied for its potential effects on slowing the progression of high myopia in children. A 2-year follow-up study involving 64 highly myopic children found that oral Difrarel (containing anthocyanins from bilberry extracts) slowed axial elongation and stopped myopia progression in children with high myopia. The drug effect

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was consistent after its discontinuation for 1 year [5]. However, there is limited evidence on the use of bilberry extract for myopia control in humans. An experimental study on myopia control using bilberry anthocyanins found that Uncorrected Distance Visual Acuity (UCDVA) and Uncorrected Intermediate Visual Acuity at 80 cm (UCIVA) were improved in patients who underwent bilateral trifocal Intraocular Lens (IOL) implantation after clear lens extraction [6]. Another study on fermented bilberry extracts showed that the extract was effective in causing increases in subjective accommodation and mesopic contrast sensitivity in myopic eyes [7].

In conclusion, while there is some evidence suggesting that bilberry extracts may have a positive impact on myopia progression, more research is needed to confirm these findings and establish the effectiveness of bilberry extracts in humans.

Honey has been used for a long time to help with different health problems, like keeping our eyes healthy. Many studies have shown that honey could be good for your eyes. Manuka honey can help with dry eyes because it has anti-inflammatory and antioxidant qualities [1,2]. A study tested a new eye cream made with Manuka Honey to see if it was safe and well-tolerated for treating blepharitis. It found that it was safe and well-tolerated in healthy people. Also, a recent study showed that honey can help treat eye diseases and other conditions because it has antioxidants, can fight germs, and reduces swelling [3,4]. Though the studies look promising, more research is necessary to understand the benefits of honey for eye health. This treatment seems to work well, and it's mentioned in the Koran, Surah An-Nahl 68-69. Your Lord told the bee to make its home in the mountains, trees, and on the structures people build. Eat from all the different kinds of fruits and follow the path of your Lord humbly. Other colored juices come from the belly of the fruit, and they can cure people. There is something to learn if you think about it.

Bilberry extract, called Difrarel, has been looked at to see if it can help prevent high myopia from worsening in kids. A study followed 64 children with severe nearsightedness for two years. It found that taking Difrarel, a medicine made from bilberry extracts, helped slow down their eyes' growth and stop their nearsightedness from worsening. The drug's effect stayed the same even after it was stopped for one year [5]. But we only have a little proof that bilberry extract helps with myopia in people. A bilberry extract test to control nearsightedness found that patients with special lenses put in their eyes had better vision at far and medium distances [6]. Another research on fermented bilberry extracts found that the extract helped improve vision in nearsighted eyes by making it easier to focus and see in low light [7]. In summary, some evidence suggests bilberry extracts might help with nearsightedness, but more research is needed to be sure if they really work for people.

Case Presentation

A 12-year-old girl came to Maryam and Isa Clinic with chief complaint of decreased vision while looking far away. After doing examination, we got 0.75 minus on both eyes. We gave recipe for eyeglasses and honey with bilberry extract mixture 3 sponges every morning and night. After two months of therapy, the patient improved to minus in the right eye at 0.5 and the left at 0.25.

Discussion

Honey has potential therapeutic benefits for eye health. According to this finding and a comprehensive review [1], natural

ingredients derived from plants, herbs, and other natural sources have a long history of use in traditional medicine systems and are known to possess bioactive compounds with potential health benefits. Honey is one of the natural ingredients that can promote eye health and manage various eye conditions. Honey has anti-inflammatory activity and anti-irritation activity, which can reduce redness and dryness of the eye. Moreover, a study [8] found that honey has anti-inflammatory effects that can reduce eye inflammation.

Honey has been used in traditional medicine for its various health benefits, including improving eyesight and treating myopia. While there is no direct evidence that honey can cure myopia, some studies have explored the use of honey in combination with other ingredients to treat myopia and presbyopia, which is the aging of the eye. A study comparing the effects of Saptamrita Lauha (an Ayurvedic medicine formula) and Yoga therapy on myopia found that while there was no significant reduction in visual acuity and clinical refraction, some associated changes were observed in the Yoga therapy group when compared to the Saptamrita Lauha group. However, relief from headache was found to be equally effective in both groups.

Another study discussed a traditional Chinese medicine formula for treating myopia, which contains ingredients such as Chinese angelica, astragalus, medlar, honey-fried Licorice root, *Tribulus terrestris*, sword-like *Atractylodes rhizome*, red raspberry, Indian Buead, Szechwan tangshen root, common selfheal fruit-spike, Grassleaf Sweet flag rhizome, cassia seed, cassia bark, plantain herb, and thin leaf milkwort root-bark [9].

This formula has the advantages of simple preparation, good absorption effect, obvious curative effect, no side effects, high safety, and contribution to relieving symptoms of diseases in time. A different study provided a traditional Chinese medicine formula for improving eyesight, which includes ingredients such as blueberry juice, Radix Codonopsis, wolfberry fruit, schisandra fruit, chrysanthemum flower, cassia seed, feather cockscomb seed, polygala root, peppermint, and bee honey [10].

This medicine is said to nourish and protect the eyes, adjust the viscera function with respect to the eyes and brains, promote cerebral development, and effectively control the eyes. It has been used to prevent and reduce eye diseases of myopia, hyperopia, strabismus, and amblyopia, among others [11].

In conclusion, while honey itself may not directly cure myopia, it has been used in traditional medicine formulas to improve eyesight and treat myopia in combination with other ingredients. These formulas have shown promising results in improving eyesight and providing relief from associated symptoms, such as headaches.

Bilberry extract has been suggested to have potential benefits for eye health. A randomized, double-blinded, placebo-controlled trial investigated the effects of a standardized bilberry extract (Mirtoselect) on dry eye symptoms and found that it could alleviate dry eye symptoms and have antioxidant potential [12]. Another study showed that consumption of an anthocyanin-containing supplement derived from bilberry for six weeks improved eye function, particularly in terms of pupillary response and near point, in healthy Japanese adults with eye fatigue after using visual display terminals [13].

Bilberry extract contains anthocyanins, which are suggested to improve visual functions and are important in maintaining eye health [5]. Anthocyanins are the active compounds in bilberry extract that

have been studied for their potential effects on myopia. For example, a study on the effects of bilberry extract, Difrarel, on form-deprivation myopia in animal found that oral administration of Difrarel inhibited axial elongation and decreased the myopic shift of refractive errors in the form-deprived eye [14]. These findings suggest that anthocyanins from bilberry extract may play a role in the observed effects on myopia. However, further research is needed to fully understand the mechanisms by which these compounds affect myopia, but several studies have suggested potential mechanisms that may contribute to its effects. These mechanisms include [6,7,14-17]:

a) Inhibition of axial elongation: Bilberry extract has been found to inhibit axial elongation in form-deprived animal, which may help prevent the progression of myopia.

b) Administering bilberry extract by mouth has been found to reduce the development of nearsightedness in guinea pigs, which suggests that it could help prevent myopia.

c) In a study on nearsightedness in guinea pigs, giving them bilberry extract by mouth made MMP2 go up and collagen I break down in their eyes. This might be why the extract helps with nearsightedness.

d) Bilberry extract can help improve how well someone can see in low light and their ability to distinguish between different shades. This could help people with nearsightedness see better.

While these mechanisms provide some insights into the potential ways bilberry extract may treat myopia, further research is needed to fully understand the underlying mechanisms and to establish its efficacy in humans.

The recommended duration of treatment with bilberry extract for myopia is not clearly established. However, a study on the effect of oral Difrarel, a bilberry extract, on the progression of high myopia in children involved administering the treatment for 1 year and then discontinuing its intake for another year. The study found that the drug effect was consistent after its discontinuation for 1 year, suggesting a potential long-term benefit. Further research may be needed to determine the optimal duration of treatment with bilberry extract for myopia [5].

The safety of bilberry extract, particularly in the form of Difrarel, for pregnant women or individuals with certain medical conditions has not been extensively studied. While bilberry extract is generally considered safe for most people when taken in appropriate amounts, there is limited specific information available regarding its safety for pregnant women or individuals with certain medical conditions. Therefore, it is important for pregnant women and individuals with specific medical conditions to consult with a healthcare professional before using bilberry extract to ensure its safety and suitability for their individual circumstances.

Conclusion

We found an excellent progression after a month of giving honey mixed with bilberry extract. The decrease of minus 0.25 until 0.75. "Indeed, Allah SWT has sent down diseases along with their medicine, and he has made every disease have a medicine, so seek treatment, but do not seek treatment with what is haram." (HR. Abu Dawud).

Honey contains nitric acid, which can increase the production of nitric oxide. It is essential to repair blood circulation to optic

fiber. Bilberry may help treat retinopathy because it contains anthocyanosides, which can protect the retina. Bilberry has also exhibited protective effects against macular degeneration, glaucoma, and cataracts. We found no side effects, and they like to be eaten by kids. The use of halal bilberry extracting ingredients is necessary for the safety and comfort of the Muslim population in Indonesia in particular. Further research is needed to prove these findings in large population scales.

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