



## The Healing Effect of Honey as Stated in Quran and Hadith

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### ABSTRACT

**Background:** Honey is a valuable foodstuff full of carbohydrates, enzymes, amino acids, organic acids, minerals, aromatic combinations, pigments, wax and pollens.

**Objectives:** Honey is an important food referred to in Quran. In a way that in Nahl Sura, verse 69, we will read: And healing for men is in it This study is conducted to understand the effect of honey in treating the diseases mentioned in Quran and accessing a food which is totally harmless especially to the elderly.

**Materials and Methods:** 5 beehives located in a place called "Sirachal" in 40th km of Tehran-Chalus road. After collecting honey, the amount of glucose, fructose and sucrose calculated with the method of iodometry by Sawyer method in the laboratory of calculation and computation of pollens.

**Results:** The results showed that the proportion of fructose to glucose is 97% in honey. Therefore, honey is high in fructose which is almost equal to the amount of glucose. 89% of plants whose pollens were present in honey had been medicinal plants.

**Conclusions:** To be absorbed in any non-hepatic cells, fructose needs to turn into glucose. Therefore, the process of decomposition and finally absorption takes longer and the energetic demand of body is supplied in a longer period. There would be no extra glucose aggregation in blood and body will have enough time to constantly absorb it. Consuming honey is too much better for the elderly than sugar. There is a hadith commanded by the prophet Mohammad in which he advise people of eating honey and calls it the sweetest food. After 1400 years, researches demonstrated that fructose that is an important part of honey's sugar is sweeter than glucose. What the prophet has said as a sign of his eternal knowledge includes advice to eat healthy food. Most of plants the pollens of which were found in honey were medical and this reminds us of the verse 68 of Nahl sura: "and your lord inspired the honeybees". Surely, nothing can dispatch honeybees toward valuable and medical plants but the inspiration and revelation.

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### ► Implication for health policy/practice/research/medical education:

Honey, as a valuable nutrient plays an important role in providing carbohydrates, fats and even amino acids and proteins. It is also important in supplying most of the vitamins and minerals. Containing antibiotics, disinfectants (inhibin and etc.) and aromatics and herbal essences, honey plays important roles in healing diseases like digestive and vascular diseases and recovering of wounds. The interesting point is that it does not have any side effects for the elderly, though it provides energy to the body.

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## 1. Background

Honey is a valuable foodstuff full of carbohydrates, enzymes, amino acids, organic acids, minerals, aromatic combinations, pigments, wax and pollens. Based on 1906 bill of Federal Department of Food and Drug, honey includes nectar and sugar exuded from plants which is collected by honeybees, transformed and saved in beehives.

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1.1. Honey in Islam and Other Religions

Based on the folk stories of German people, honeybees are put in this world to produce wax for the churches. In Egyptian myths, the origin of honeybees is “Ra” the god of sun. Honeybees had also been the symbol of Hindu gods, Krishna Indira and Vishnu. In some parts of Europe, people believed that honeybees are messengers of God and kept them in some monasteries of Europe (1).

In Islam’s point of view, the activities of honeybees do not have a superstitious aspect and necessary justifications are made by divesting its apparent power and assigning it to the divine power of God in the form of revelation and inspiration. A reason of Islam’s superiority over other religions is that it pays attention to all concerns and needs of man including physical and material and spiritual demands. Considering physical health and maintaining it is a necessity and self-oppression is a deadly sin. Attention and advice to healthy foods and eating habits are of the most important remarks of Islam in Quran, Hadith and its principles.

According to Imam Ali, “honey is the healing of all diseases and there is no disease in it. It reduces phlegm and refreshes the heart”. (2)

Today, lots of technological advances have made us successful in most of the activities. We have found the way to treat different diseases through advances surgeries or new drugs, and this is a blessing of God. But, unfortunately we do not pay enough attention to feeding and have sometimes ignored it. Traditional foods are substituted by harmful “Fast Foods”. The reason of which is tight time. These will ultimately lead to increasing diseases. Access to a perfect food especially for the elderly is an issue all around the world and these people are mostly afraid of eating honey because the assumption is that honey increases blood glucose.

By utilizing the deep religious teachings which are compatible to the creation of man and the sciences of the day we have attempted in this study to find the wisdom behind honey, this nature made food which is highly recommended by Quran and Hadith and to put it in the list of best food for everyone, especially the elderly.

1.2. The Differences Between Fructose and Glucose

Fructose and glucose are two simple and important sugars for body. They have the same molecular formula:  $C_6H_{12}O_6$ . But their structure is different or they are isomers. Glucose and fructose are categorized in two different groups. Glucose is and aldose and fructose is ketoses (Figure 1). Sugars eaten by men or animals turn into to glucose and then their energy releases through the process of breathing. Fructose or fruit sugar is found in fruits, vegetables and honey, but glucose is found in the phloem of plants and blood of man. The most important sugars of honey are glucose, fructose and sucrose. In body, fructose is found in two forms, free and combined

with glucose in disaccharide or dual sugar called sucrose. Any cell in body can metabolize glucose but fructose is mostly metabolized in liver and a few cells like sperms and intestinal cells can use fructose directly (3, 4).

The stages of digestion and absorption of fructose is different from that of glucose. The Free fructose is directly absorbed by intestine. When fructose is used in the form of sucrose, first decomposition and absorption of sucrose happens completely in the beginning of the small intestine. Then the resulting fructose is absorbed in the small intestine, enters the hepatic portal vein and then goes directly to the liver. During the process of decomposition in liver, fructose produces triose sugars. These sug-

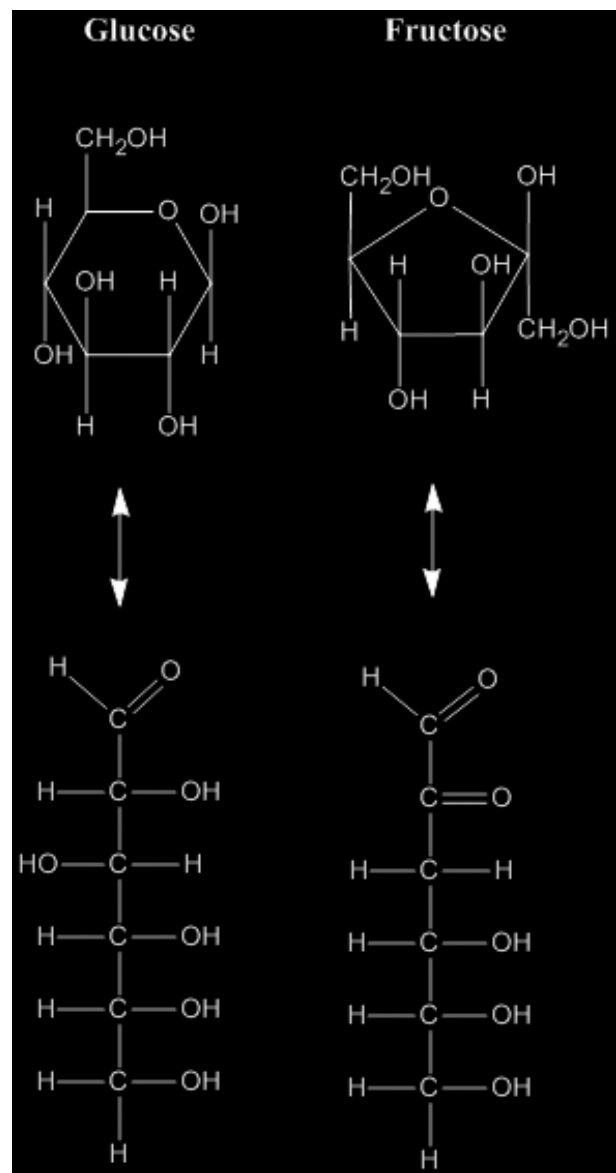


Figure 1. Linear and Cyclic Molecular Structure of Glucose and Fructose, Glucose and Fructose Ldvs Agent is Identified with the Cause of Ketosis

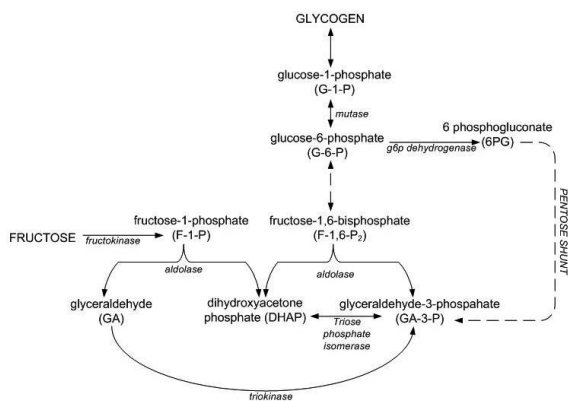


Figure 2. Metabolic Conversion of Fructose into Glycogen in the Liver

ars can go in three ways i.e., go the way of gluconeogenesis, synthesize glucose or take part in glycogen synthesis or head toward pyruvate production in more catabolism (Figure 2) (5).

### 1.3. Advantages of Fructose Compared with Glucose

Fructose is sweeter than glucose and is therefore added to foods and beverages as a sweetener. Other reasons of adding fructose is food flavoring. Fructose is better than glucose for diabetic people. In the environment temperature (37), fructose is sweeter than sucrose (Figure 3). Therefore, the diabetic people can take less of it (6).

### 1.4. The Role of Honey in Treating Different Diseases

Years before, man found out the existence of microbial factors like bacteria and fungi; honey was used in surgical operations and treatment of burns. Ancient Greeks believed that honey can delay aging and obviate fatigue (1). Honey is useful in treating and preventing vascular obstruction, kidney and gallbladder stones, urinary organ diseases, etc (7).

Honey is a good source of antioxidants; it plays a great role in preventing cancer and heart diseases and spreads in blood rapidly. When mixed by a proper amount of

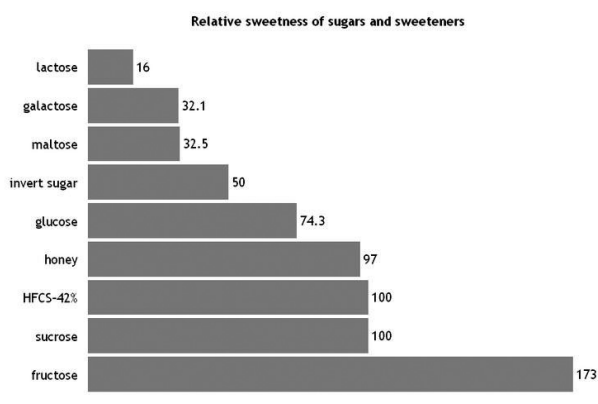


Figure 3. Relative Sweetness of Sugars and Sweeteners

water, honey will rapidly spread in blood and help the brain, the major consumer of sugar in body, by liberating sugar cell and prevents fatigue. It is also proved that each type of honey will have the same characteristics of the plant the nectar of which is predominant in it and thus will be effective in healing specific diseases. For example, “Eucalyptus” honey disinfects lung, intestine and urinary system and is recommended for all respiratory system diseases. “Clover” honey is useful for athletes and everyone who is too active and has low physical power. “Tilia cordata” honey is anti-spasm and acts as a tranquilizer for nervous system and mitigates insomnia. “Thymus” honey is recommended for infectious diseases, physical weakness, ulcer and coughing (8).

## 2. Objectives

This study aims at understanding the effect of honey on healing diseases mentioned in Quran and finding a perfect and harmless food for the elderly.



Figure 4. A Sample of Plant Formation of the Area.



Figure 5. The Worker Bees of Apis mellifera species in Storage Activity of Pollen and Nectar.

### 3. Materials and Methods

Verses of Nahl sura of Quran and Prophet and Imams' Hadith about honeybee and honey are studied for this research. This study was conducted in "Sirachal" which is located in the 40<sup>th</sup> km of Tehran-Chalous road with minimum AMSL of 1780 and maximum of 2910 and in a land of 1500 hectares width. Five beehives placed in the heights of the region (Figure 4) and honey was collected in July, August and September (Figure 5). Fructose, glucose, sucrose and the proportion of fructose to glucose was calculated by iodometry with titration, based on AOAC 997.20

standard (1980). Palynology was performed on ten grams of each honey on each month. Attenuated with water and centrifuged by Sawyer method, pollens of honey were calculated (9). The plants pollens of which were found in honey were identified and named after credible foreign (10) and local (11) keywords.

### 4. Results

The results of this study showed that the proportion of fructose to glucose was almost one and in average 0.97 during all months of honey collecting (Table 1). Also 89%

**Table 1.** Sugars Glucose, Fructose, Sucrose, Total Sugars, Glucose and Fructose than the Average of Honey was Obtained in Different Months

Sugars	Glucose, g	Fructose, g	Sucrose, g	Total Sugars, g	Glucose/ Fructose
June	31.99	31.49	5.8	69.2	0.95
July	40	39.5	5.4	85	0.98
September	35.139	34.685	8.24	78.06	0.99
Average	35.7	35.225	6.48	80.42	0.97

**Table 2.** Average Number and Percentage Pollen Count in 10 Grams Honey, From June to July Perceptions

Species	Number	Density, %
<i>Berberies vulgaris</i>	2191626/592	58.8
<i>Isatis kotschyana</i>	140467.0428	5.5
<i>Acanthophyllum microcephalum</i>	46540.31875	1.82
<i>Cerasus microcarpa</i>	28770.32367	1.1
<i>Cotoneaster ovata</i>	25388.4617	1
<i>Eupatorium cannabinum</i>	18052	0.7
<i>Epilobium hirsutum</i>	10718.3761	0.42
<i>Cardaria draba</i>	10154.25	0.4
<i>Melilotus officinalis</i>	7333.628067	0.39
<i>Astragalus aureus</i>	9026.003	0.35
<i>Reseda lutea</i>	9026	0.35
<i>Centaurea virgata</i>	8461.8761	0.3
<i>Salvia virgata</i>	6778.76	0.26
<i>Phlomis olivieri</i>	6769.5	0.26
<i>Chearophyllum macropodium</i>	6769.5	0.26
<i>Pterocephalus canus</i>	5077.1261	0.2
<i>Cousinia nekarmanica</i>	3384.75	0.13
<i>Hypomarathrum microcarpum</i>	3384.75	0.1
<i>Bromus danthoniae</i>	3384.75	0.1
<i>Dianthus orientalis</i>	2256.5	0.09
<i>Crepis sancta</i>	2256.5	0.09
<i>Rosa iberica</i>	2256.5	0.09
<i>Astragalus microcephalus</i>	2256.5	0.09
<i>Lonicera iberica</i>	2256.5	0.09
Unknown	2256.5	0.09
<i>Gypsophylla bicolor</i>	1692.3761	0.07
<i>Alcea ficifolia</i>	1692.375833	0.07
<i>Achillea vermicularis</i>	1692.375833	0.07
<i>Allium erubescens</i>	1692.375833	0.07
<i>Euphorbia aellenii</i>	1692.375833	0.07
Total	2563115.067	100

of the plants, pollens of which were found in honey were medicinal plants. Persian and scientific name of plants, number of pollens and their aggregations are shown in (Table 2). The highest percent of pollen aggregation (85%) is attributable to *Berberies*. Figures of pollination (collecting pollen or nectar) from the medicinal plants included in this study are presented below (Figures 6, 7, 8 and 9).

### 5. Discussion

The sublime God says in verses 68-69 of Nahl sura: And thy lord inspired the bee, saying: choose thou habitations in the hills and in the trees and in that which they thatch; then eat of all fruits, and follow the ways of thy lord, made smooth (for thee). There cometh forth from their bellies a drink divers of hues, wherein is healing for mankind. lo! Herein is indeed a portent for people who reflect.

Allameh Tabata'i says: "the life of honeybee is full of extraordinary and mysterious delicacies which are not discovered but by deep reflection and meticulous thought. That's why God has said that therein is indeed a portent for people who reflect"(12). Therefore, in this study we tried to discover some of these secrets by deeper reading of honey sugars. In the honorable verse, honeybee is commanded to eat fruits. Here, fruits can have two meanings: first, the nectar of flowers which is in a way a fruit or product of different reactions in plant and second the fruit itself. Since, sometimes due to lack of access to fruits or decline in number of favorite flowers, the honeybee prefers to eat the fruit itself, of course if there is a crack or hole in the fruit, since honeybees never damage the products. In such cases, it is obvious that sugar in honey will be fructose. The type of fruit is also important because the level of sugar is different in various fruits. Fructose improves properties and ingredients of honey. For example, it is extremely effective on decreasing the freezing

point (13). Fructose has a high solubility, therefore it takes more time to be crystalized in watery solutions (14). This way, fructose improves honey's characteristics and helps honey freezing or crystalizing to take more time. Fructose adds flavor to foods but it naturally exists in honey.

Studies have shown that the highest amount of sugar absorption happens when glucose and fructose are equal and half (15). This is the general state in honey and a way of honey standardization. In honeys under our study, the average proportion of fructose to glucose was 0.97 and near one in different months of honeybees' activity, which is the best. Another way of identifying natural honey is the amount of HMF or hydroxyl methyl furfural which is the result of fructose breakup in honey. Unfortunately, there are people who cheat in producing this unique divine food. Therefore, today most of researchers aim to find methods of identifying natural honey.

Glucose is the common form of sugar which burns and provides energy for all body cells. Fructose, notwithstanding its various attributes, is metabolized in liver. Moreover, there are three ways for it to pursue, one of which is turning into glucose. Fructose is glucose isomer; has the

potential of turning into glucose and to be absorbed in any non-hepatic cells it needs to be transformed into glucose at first step. This way, the process of decomposition and finally absorption will take more time and the energetic demand of body will be supplied in a longer period. There would be no high aggregation of glucose in blood and body has the opportunity to continuously absorb it. Thus, eating honey is far better for the elderly. Having vitamins, minerals, amino acids and even fat and some proteins, honey, besides supplying useful sugars, acts as a supplementary nutrient. There is a Hadith quoted from the Prophet in which he recommends people to eat honey and meanwhile calls it the sweetest food. After 1400 years, today studies demonstrated that fructose which is an important part of honey's sugar is sweeter than glucose. What the prophet has said is a sign of his eternal knowledge and includes advice to eat healthy food.

Some people believe that honey is harmful for diabetic patients. But there are reasons to reject this assumption: 1. Honey is sweeter and people usually eat less of it, therefore less glucose enters their blood. 2. About half of honey's sugar is fructose which is saved in liver as glycogen



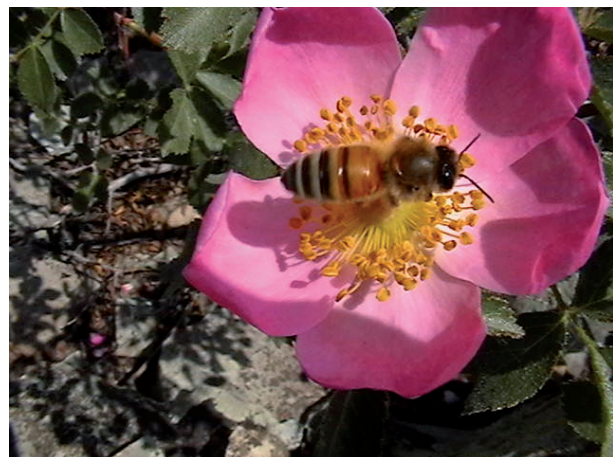
**Figure 6.** Honey Bee Pollination (collecting nectar) on *Convolvulus chondrilloides*



**Figure 7.** Honey Bee Pollination on *Alcea ficifolia*



**Figure 8.** Honey Bee Pollination (collecting nectar) on *Echinops elbursensis*



**Figure 9.** Honey Bee Pollination (collecting pollen) on *Rosa iberica*

after transforming into glucose.

Some consider fructose as a reason of fatness and condemn honey; they believe glycogen transforms to fat. But recently studies show that though fructose turns into fatty acids but the harm of it is the result of processed foods and beverages which contain extra fructose and not fruits and vegetables (16). Therefore, there would be no problem with honey in which the amount of fructose is virtually equal to glucose; there would be no extra fat and yet the best absorption.

89% of plants in this study were medicinal including *Berberis vulgaris*, *Cotoneaster ovata*, *Astragalus aureus*, *Achillea vermicularis*, *Salvia officinalis*, *Alcea ficifolia*, etc. This way, by collecting pollens and nectar of plants which are mostly medicinal, honeybee enters those characteristics into honey, and we ultimately receive it (17). *Berberis* with the highest aggregation (85%) has made honey effective in treating and preventing vascular obstruction, kidney stones and urinary organ diseases. Surely, nothing but inspiration and revelation can dispatch honeybees to valuable and medicinal plants this targeted to benefit us ultimately.

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### Authors' Contribution

Razieh Taghavizad is the only writer of the article.

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