

# Knowledge People with Type II Diabetes about the Importance of Herbs in Lowering Blood Sugar Levels

Muna Salah Rashid

Department of Biology, Collage of Science, University of Tikrit, Tikrit, IRAQ.

Corresponding Author: muna.salah@tu.edu.iq



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## ABSTRACT

At the moment diabetes has become an epidemic disease and according to recent statistics 400 million people have diabetes in the world and it is mainly associated with developing countries, Among the huge and heterogeneous numbers type 2 diabetes (T2DM) is the most prevalent, according to the Global Burden of Diseases study for the year (2016) it was found that T2DM and its complications were responsible for increasing the percentage of disability by 22% in the last ten years. This has greatly affected public health.

For this reason, there was a need to make a questionnaire on the knowledge of people with type 2 diabetes (T2DM) of the importance of herbs in reducing blood sugar levels, and the research included 142 samples (individuals) who were asked questions in the form of an electronic questionnaire (google form) through social networking sites (Facebook, WhatsApp, Telegram, Messenger and others) and the questionnaire included questions about diet, symptoms and concomitant diseases in addition to whether the patient is taking drugs that lower the level of sugar in the blood as well as about the use of herbs by the patient and what they are These herbs and how much they amount per day, the average amount of herbs used by the patient was one cup, and the most important herbs used were turmeric and learners and led to a decrease in the level of sugar in the blood of the patient who used them.

We conclude from this research that type II diabetes is most of its symptoms are frequent urination, thirst, slenderness, limb pain, in addition to limb neuropathy, while the diseases associated with this disease are high blood pressure, heart failure, kidney failure, visual impairment or blurred vision and other diseases.

**Keywords-** herbs, cinnamon, curcumin, diabetes type 2, Fenugreek.

## I. INTRODUCTION

Type II Diabetes is a disease characterized by high blood sugar levels caused both by the body's inability to produce insulin and by a lack of glucose uptake in cells. Individuals with type 2 diabetes often have higher fasting blood sugars because their bodies cannot produce enough insulin to meet their needs. And so, taking herbs are one way that has been found to help people with diabetes lower their blood sugar levels and improve their well-being. (Goyal R, Jialal I., 2022)

In this article, we will be exploring what herbs can do for individuals who struggle with type II diabetes,

as well as discussing why they're so beneficial and how they work in the body.

### ***What herbs are used for type II diabetes ?***

All sorts of herbs and plants can be used to help lower blood sugar in individuals with type 2 diabetes. Some of the most effective are:

1. Fenugreek: This herb is native to the Middle East, but has spread out all over the world due to its many health benefits. Studies have shown that when diabetic rats were given a dose of fenugreek extract over a period of eight weeks, their fasting blood sugars were reduced by an incredible amount — nearly fifty percent. (Arpana *et al.*, 2015).

2. Forastero: This plant also has many benefits. In a study conducted at the University of California, extract of forastero was given to all of a group of patients with diabetes and, after three months, their fasting blood glucose levels dropped significantly — in some cases by more than twenty percent! The researchers concluded that this herb helps reduce the level at which blood sugar sticks to cells in the body, thus reducing the amount of insulin needed to stimulate glucose uptake. (Wesam *et al.*,2016)

3. Beta-sitosterol and campesterol: These two herbs have been shown to be very effective in treating diabetes, especially type II. Both substances are found naturally in plants, and beta-sitosterol is also present in small amounts in some animal products. These compounds reduce the amount of glucose that cells take up and store, so a small amount of beta sitosterol or campesterol can make a big difference. (Monisha *et al.*,2022)

4. *Gymnema sylvestre*: This herb is perhaps one of the most popular herbs used for diabetes treatment along with ginseng and cinnamon. It works by preventing the re-absorption of glucose once it's inside the body's cells, which means more glucose is excreted through urine without ever being absorbed into muscles or fat cells. (Pragya *et al.*,2017).

5. Cinnamon: It is useful for the treatment of diabetic patients since it helps in increasing the production of insulin, a type of hormone essential to control blood sugar level by all possible means. The recent studies also have highlighted the fact that patients with Type 2 diabetes have experienced positive effects on the blood sugar level thereby consuming the ingredients of cinnamon in large quantities. Another advantage is that this agricultural product helps to combat the cardiac problem as well as reduces the bad cholesterol level which a patient with diabetes is liable to develop at any time. (Bhashika *et al.* 2022)

6. Turmeric (curcumin): Turmeric has been used as a spice and medicine for centuries. It is thought to have anti-inflammatory and antioxidant properties, which could benefit people with diabetes.

One study found that curcuminoids, which are the main active ingredients in turmeric, could improve glucose control in people with type 2 diabetes. Another study found that it could prevent the development of Type 1 diabetes in mice. However, other studies have found that taking turmeric supplements can improve blood sugar control in people with prediabetes and type 2 diabetes but have no effect on people with type1(Maithili *et al.*,2015).

## II. METHODS OF WORK

### Experiment Design

A questionnaire was conducted that included (14) fifteen questions and the questions were as follows:

First question: Age:

The answer was a short answer text

Second question: Gender:

And the answer was a choice of either male or female

Third question: Type of diabetes ?

The answer was in the form of two options

- Insulin-dependent type I
- Type II dependent on diet or medication

Fourth question: Do you take a sugar regulator? The answer was two options:

Either yes or no

Fifth question: Do you adhere to the diet?

And the answer was yes or no

Sixth question: What are the symptoms associated with your diabetes? The answer was multiple options as follows:

- We convert
- Frequent urination
- Leg limb pain

Cold limbs

- Thirst
- Other

Seventh question: Please write the symptoms that we did not mention earlier

And the answer was half a short answer

Question Eight: Do you use certain non-sugar regulator medications, especially for diabetes ?

And the answer was half a short answer

Question Nine: Do you suffer from other diseases that I mention?

And the answer was half a short answer

Tenth question: Do you use herbs to reduce the level of sugar in the blood ?

And the answer was yes or no

Eleventh question: What herbs did you use to lower blood sugar?

And the answer was half a short answer

Twelfth question: What is your blood sugar level (number) ?

And the answer was half a short answer

Question Thirteen: What is the level of sugar in the blood after using herbs ?

The answer in the form of multiple choices was as follows:

- Less than 120
- 130-150
- 160-190
- 200-230
- 240-260
- 270--300

Question fourteen: How much herbs were used as a drink per day? The answer was multiple choice as follows:

- Cup
- Two of cups
- Three or more

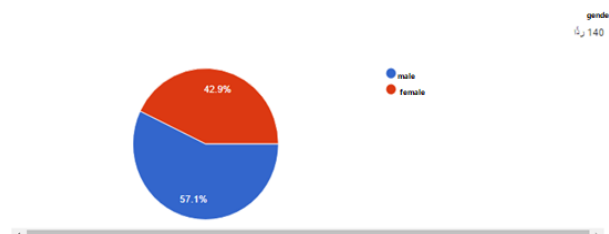
The questionnaire was electronic in the form of a Google Form and was published on social networking

sites (Facebook, Telegram and WhatsApp) in addition to some groups for diabetics in these virtual sites, and the data collection continued from 1/10/2021-1/2/2022 by four months, and the number of samples was 142 samples, all of whom had type II diabetes.

After completing the data collection, the results were analyzed and the arithmetic mean, median and standard deviation were taken according to the Excel system

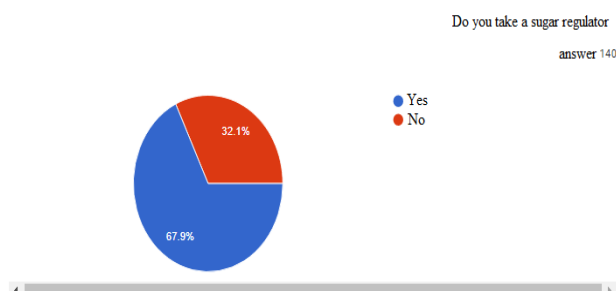
### III. RESULTS AND DISCUSSION

The study included 142 individuals aged 18-77 years with an arithmetic average of 47.79286. The median was 50 with a standard deviation of 14,20229. The most frequent category was 56 The participation rate of females was 42.9% and males 57.1%.



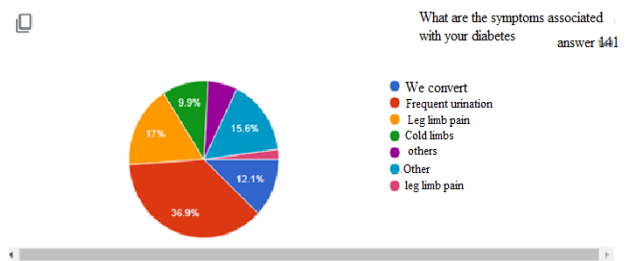
The first three Questions contain information about age and gender and the type of diabetes

- The fourth question was: Do you take a sugar regulator
- The answers were
- 32.1% answered no (45 individuals)
- 67.9% answered yes (95 individuals)



The fifth question: What are the symptoms associated with your diabetes

- Frequent urination was selected highest at 36.9% (52 individuals)
- Soreness in the limbs of the legs 17% (24 individuals)
- %12.1 -individuals (17)
- Thirst 15.6% (21 persons)
- Cold extremities 9.9% (14 persons)
- Other 6.4% (9 persons)



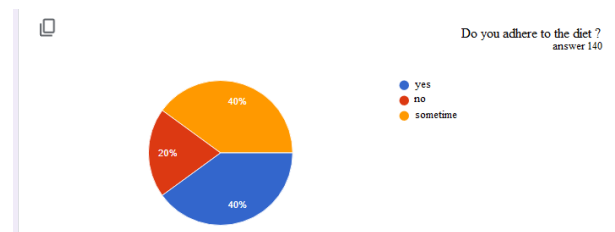
Sixth question, please write the symptoms that were not mentioned previously and the answer was as follows

- Headaches
- blood pressure
  - o Vision blurring
  - o Joint pain
  - o General transformation
- Fatigue
  - o Numbness and numbness of the limbs
  - o Limb neuropathy
  - o Loss of consciousness
  - o Hypertension of the eye
- Sweating
- palpitation
  - o Heat and soreness of the fingertips
  - o depression, dizziness, nervousness, forgetfulness and stress

Seventh question: Do you use certain drugs other than sugar regulator?

The answers were as follows:

- Use of aspirin and vitamin B12
- Diabitone (dietary supplement)
- Gilbride
- Panadol and cholesterol medication / pressure and lipid drugs
- Glemax 1g
- Admiral Ameiral
- Glucophage and Jardiance
- Kombklyzer
- eighth question: Do you adhere to the diet?
- 40% answered yes (56 individuals)
- 20% answered no (28 individuals)
- 40% answered sometimes (56 individuals)

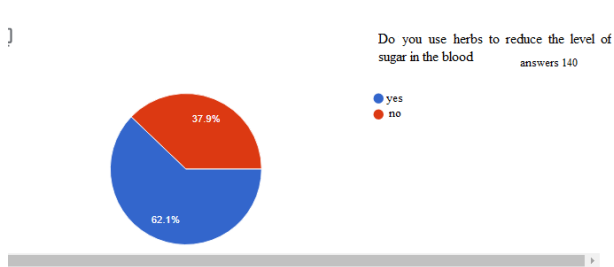


- Question ninth: Do you suffer from other diseases? Mention
- blood pressure
  - o Irritable colon / Irritable colon
- asthma
  - o Psoriasis

- Vertebrae damage of the back and neck
- High fat
- Calcification of vertebrae
- Polycystic ovary
- Heart failure and chronic kidney failure
- Atrophy of the thyroid gland
- Osteoporosis/heart attack

Tenth question: Do you use herbs to reduce the level of sugar in the blood

- The answer rate was no 37.9% (53 individuals)
- Yes 62.1% (87 persons)

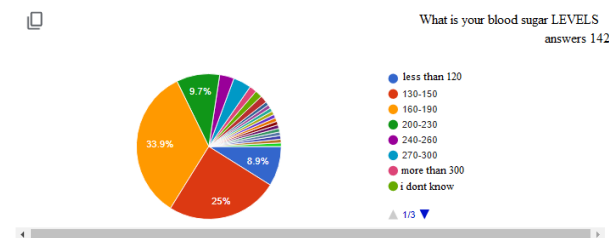


The Eleventh Question: What herbs do you use to reduce blood sugar?

- The highest rate of use was for students and turmeric
- 23 persons for learners
- 16 individual turmeric
- 9 people for the arena
- 8 Onion
- 7 Garlic
- 4 Alfalfa
- 3 Cummins
- And other herbs in small proportions

Twelfth question: What is your blood sugar LEVELS?

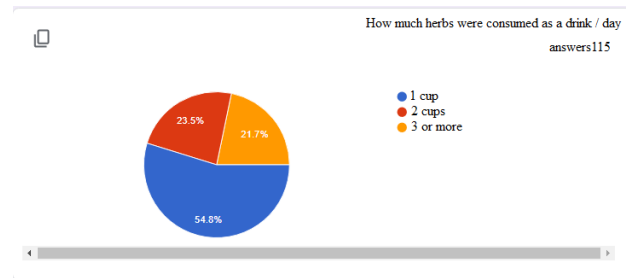
- It ranged from 91 to 450
- with an arithmetic average of 183,275
- The Median 170
- and a standard deviation of 82,1622
- The most frequent category is 150



Thirteenth question: What is the level of sugar in the blood after using herbs?

- The answer ranges from 120 - more than 300
- with an arithmetic mean of 156,7798
- The Median 160
- and standard deviation 66,72835
- The most frequent category was 140

- The highest sugar level was 33.9% (92 individuals) with a glucose level (160-190)
  - 25% (31 individuals) with a glucose level (130-150)
- Fourteenth question: How much herbs were consumed as a drink / day
- 44.3% drank one cup (63 people)
  - 19% two cups (27 persons)
  - 17.6% Three cups (25 persons)
  - 19% did not drink herbs (27 individuals)
  - with an arithmetic average of 1,352113
  - The Median 1
  - and standard deviation 0,983532
  - The most frequent category was 1



Curcumin is a vital active part found in the roots of the turmeric plant *Curcuma longa*, and curcumin has different pharmacological and biological effects and some experiments have been conducted outside the living body in vitro and inside the body in vivo, and include antioxidants, anti-inflammatories, antimicrobials, anticancers and to protect the kidneys and liver and have an effect on the joints and reduce diabetes. In animals, aqueous extract of curcumin delayed the development of diabetes, improved B-cell function, prevented B-cell death and reduced insulin resistance. (Pivari et al., 2019).

The experiments using the scholars are among the randomized controlled trails (RCTs) that affect the reduction of sugar, but these studies are few and conflicting, despite the succession of special studies in this area. (Hebert et al., 2016)

Some studies and reviews have been conducted in connection with evaluating the effect of cinnamon or scholars on blood sugar and lipid levels, and there has been a statistically significant decrease in plasma sugar level in the case of fasting. (Hasanzade et al., 2013)

This is what has been observed in this research as individuals who take turmeric or study have significantly reduced their blood sugar level (Allen and et al., 2013).

As for the rest of the herbs, they have other benefits that differ from other diseases that can lead to the reduction or cure of some diseases. (Fletcher, 2022)

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