

## Benefits of Huangqi Herbal Treatment for Patients with Diabetes Mellitus

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### Abstract

**Introduction:** Diabetes mellitus (DM) is a metabolic disorder caused by abnormalities in insulin secretion and an imbalance between insulin supply and demand. In Traditional Chinese Medicine (TCM), diabetes mellitus is better known as Xiao Ke. In TCM, Xiao Ke disease is caused by internal heat exhaustion deficiency, and one of the traditional treatments for diabetes is the herbal Huang Qi (Radix astragali). **Method:** This research is a case study, where the researcher makes an in-depth observation of the use of Huang Qi herbs in diabetes mellitus patients. **Result and Discussion:** The results of diabetes treatment in the initial observation of the patient's blood sugar were 152 mg/dL, and in week 4, it decreased to 86 mg/dL. Isoflavonoids, saponins, and polysaccharides are the three main types of beneficial compounds that have pharmacological activity and therapeutic efficacy in many diseases, one of which is diabetes. In TCM, Huang Qi is beneficial for tonifying Qi and strengthening Yang in spleen Qi deficiency so that the spleen can increase its effectiveness in transformation and transportation. **Conclusion:** The results of the treatment of diabetes mellitus, or Xiao Ke, using Huang Qi herbs are proven to be able to reduce blood sugar levels in diabetics.

**Keywords:** Diabetes; Huang Qi; Radix Astragali; Xiao Ke;

## **Introduction**

Diabetes mellitus (DM) is a metabolic disorder caused by abnormalities in insulin secretion and an imbalance between insulin supply and demand, characterized by hyperglycemia. Chronic complications associated with diabetes mellitus include microvascular and macrovascular diseases (Agustiniingsih, 2016). Diabetic nephropathy (DN) is a common complication of type 2 diabetes. If left untreated, it can lead to glomerulosclerosis, which can seriously increase disability and mortality in patients with type 2 diabetes. In addition, DN is thought to contribute to the occurrence of end-stage renal disease (Chen et al., 2021)

In Eastern medicine, or TCM (Traditional Chinese Medicine), diabetes mellitus is better known as Xiao Ke. In TCM, Xiao Ke disease is caused by internal heat exhaustion deficiency, resembling Xulao disease, which has symptoms of exhaustion and deficiency. Despite drinking a lot, the spleen fails to transport so much liquid that the kidney fails to control it, and the liquid water goes straight down, causing the patient to be easily thirsty (polydipsia) and urinate a lot (polyuria) (Japaries, 2021).

One of the traditional treatments for diabetes is using herbs, one of which is Huang Qi. Huang Qi (*Radix astragali*) is the name of a genus of legume herbs. The main medicinal source is the root of *Astragalus membranaceus* var. *mongholicus*. Modern pharmacology has proven Huang Qi is able to increase oxygen consumption, strengthen normal and malfunctioning heart contractions, dilate tubular blood vessels, renal blood vessels, and peripheral blood vessels, improve skin blood circulation, and lower blood pressure. In TCM, Huang Qi is used for patients who have kidney disease with Yin deficiency and damp heat (Safflower, 2020) in (Xia et al., 2020)

Huang Qi is beneficial for tonifying qi, promoting the production of body fluids, and treating xiao ke syndrome, accompanied by symptoms of thirst and fatigue. Huang Qi is used at a dosage of 10 to 15 grams, and the maximum dosage of Huang Qi is 120 grams. The chemical ingredients in Huangqi are acetylastragaloside I, astragaloside I-IV, isoastragaloside I-II, astramembrannin II, cycloastragenol, cyclosiversigenin, soyasaponin I, tragacantha, kumatakenin, and fomononetin. Huangqi can also treat gastric ulcers, duodenal ulcers, and gastric prolabs (Chen et al., 2004). In traditional Chinese medicine (TCM), *astragali radix* is often used together with other plants such as *angelica* and *ginseng* to treat stroke, tumors, and kidney function (Xiong et al., 2014)

## **Method**

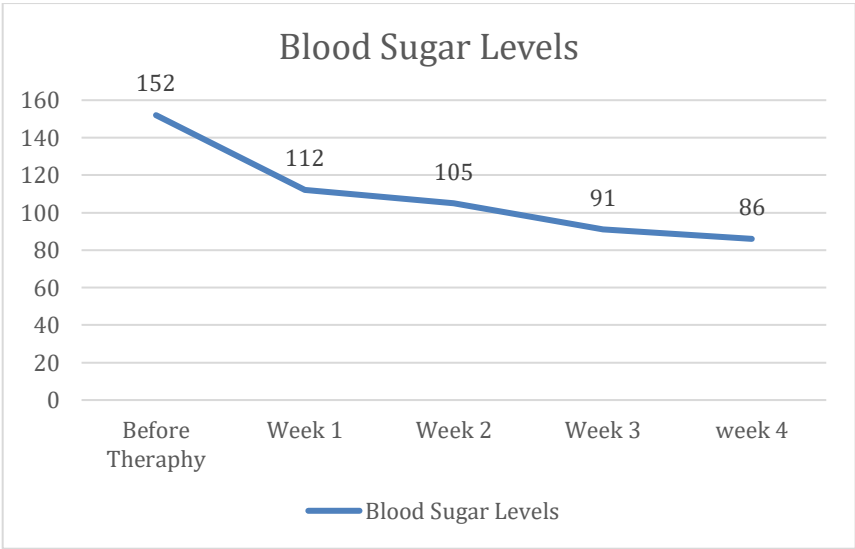
This research is a case study where the researcher makes in-depth observations regarding the use of Huang Qi herbs for diabetes mellitus patients. This study was observed for 1 month with a dose of 15 mg of Huang Qi in granule or powder form. Therapy is carried out for at least 1 month to see the effect of lowering blood sugar (Dun et al., 2016). Blood sugar test measurements were taken five times before therapy and every week for one month

**Result and Discussion**

**Patient data**

The patient is a 69-year-old male, 154 cm tall, 61 kg in weight, and has 114/64 mmHg blood pressure. The patient has had a history of diabetes mellitus for the last 5 years.

**Blood sugar observation**



**Graph 1.** Observation of blood sugar levels

The observation of the patient's blood sugar level at the beginning of therapy was 152. Then it decreased to 112, in week 2 it decreased to 105, in week 3 it decreased to 91, and in week 4 it decreased to 86.

**Observation of the patient's tongue**



**Figure 1.** Observation of the patient's tongue

Observation of the patient's tongue is used to assess the state of the body's Zheng Qi, which reflects the state of the heart, spleen, and stomach and can assess the overall state of blood Qi and Xie. Based on the observation data, the patient's tongue showed the following characteristics: The tongue is thick, shiny, smooth, fat, and pale white in color, with the edge of the tongue showing indentations like bite marks

## **Discussion**

The patient's baseline blood sugar was 152 mg/dl after taking medical drugs. Medical drugs can still control the patient's blood sugar temporarily. According to the Indonesian Ministry of Health (2022), the fasting blood sugar value should not be more than 126 mg/dl ( $> 7.0$  mmol/L) because it will indicate diabetes. Symptoms of diabetes in the dominant patient observation data are frequent urination, dizziness, buzzing ears or tinnitus, thirst but not wanting to drink, chest tightness, palpitations, tired, lazy movements, abdominal pain, and low back pain. This is in accordance with the theory of typical diabetes symptoms of polyuria (frequent urination), polydipsia (frequent thirst), impaired coordination of limb movements, tingling in the hands or feet, and itching, which is often very disturbing. Classic symptoms in patients, including type 1 diabetes mellitus. According to the Ministry of Health of the Republic of Indonesia (2022), in Type 1 diabetes mellitus, the classic symptoms that are commonly complained of are polyuria, polydipsia, polyphagia, fatigue, irritability, and pruritus (itching of the skin). Based on the observation data of dominant diabetes symptoms, this elderly male patient is also suffering from type 2 diabetes mellitus. Type 2 diabetes mellitus patients are generally more susceptible to infection, it is difficult to heal wounds, and there are complications in blood vessels and nerves such as buzzing ears, palpitations, low back pain, dizziness, forgetfulness, numbness or tingling hands and feet, buzzing ears, fatigue, and laziness to move.

According to Sim Kie Jie (2002) at (Abdullah and Yuliana, 2015), a thick, shiny tongue membrane is an expression of undigested food in the stomach and dirty phlegm. The presence of a tongue membrane indicates heat from the stomach. Pale white tongue color indicates insufficient Yang qi, so that the production function of Yin and Xie decreases. This shows that the driving force of blood circulation is reduced so that the blood supplied by the tongue is less, causing the tongue to become pale white. This is a sign of qi deficiency and insufficient Xie blood, so Yangqi becomes weak.

While the shape of the fat tongue is due to the presence of moist pathogens in the body related to the spleen-float function being less smooth in digesting food, The mirror-like slippery tongue is a sign that the Yin of the Wei stomach is dry due to the exhaustion of Qi in the stomach, which forms the tongue membrane, indicating that the spleen and stomach are weak and Xie's blood is insufficient.

The edge of the tongue shows indentations like bite marks due to the fat tongue being pressed against the teeth, leaving marks, and these bite marks appear together on the fat tongue. Tongue bite marks are a sign that the spleen is weak and there are damp

pathogens and a Qi deficiency. Shiny tongue membrane: the surface of the tongue is covered with a layer of slippery, oily mucous membrane so that the tongue is shiny.

### **Treatment results according to conventional medicine**

In the observation results, huangqi herbal treatment therapy can reduce the patient's blood sugar from 152 mg/dL to 82 mg/dL, proving that huangqi herbs can reduce blood sugar levels in diabetics. According to Agyemang et al. (Agyemang et al., 2013), Huangqi (*Radix astragali*) is an astragalus polysaccharide containing monomeric components extracted for the treatment of diabetes. Phytochemical studies showed that Huang Qi contains isoflavonoids, triterpene saponins, polysaccharides, and some other trace elements. Isoflavonoids, saponins, and polysaccharides are the three main types of beneficial compounds that top the pharmacological activity and therapeutic efficacy of many diseases.

According to the results of in vivo and in vitro studies, huang qi has immunomodulating, antioxidant, anti-inflammatory, and antitumor properties and proved to be beneficial for the treatment of cardiovascular diseases, diabetes mellitus, cancer, respiratory diseases, nervous system diseases, and other diseases (Guo et al., 2019). Studies have also shown huang qi significantly improved abnormalities in blood lipids, glucose, insulin resistance, and oxidative stress levels in mice (Gong et al., 2021)

### **Therapeutic results according to TCM medicine**

According to Chen and Tina (Chen et al., 2004), Huangqi is beneficial to tonify Qi and strengthen Yang in spleen Qi deficiency so that the spleen can increase its effectiveness in transformation and transportation. This is consistent with the symptoms of fatigue, laziness, numbness or tingling of hands and feet, and loose stools caused by spleen deficiency. Huang Qi able to tonify Qi to control blood circulation and produce sufficient blood. It is suitable for the symptoms of Qi deficiency due to blood circulation congestion, such as chest tightness and wounds that are difficult to heal. Huangqi can also tonify the spleen and lung Qi as treat symptoms of easy thirst in xiaoke patients.

Huangqi is proven to treat Qi and blood deficiency that causes yin-yang imbalance with symptoms of headache, palpitations, fatigue or lazy movement, and sweating. This shows that qi is the leader of blood, and qi tonification increases blood production as overcome deficiency. Huang Qi can treat spleen deficiency, which interferes with jinye fluid transportation in the body. Huang Qi tonifies qi and promotes normal circulation of water to treat conditions such as lethargy, weakness, and intolerance to wind. Huang Qi tonifies qi and, in turn, facilitates the regulation of water removal to treat symptoms of frequent urination in xiaoke sufferers.

### **Conclusion**

The results of diabetes mellitus or Xiao Ke treatment using Huang Qi herbs or *Radix astragali* for 1 month proved to be able to reduce the blood sugar levels of diabetics from 152 mg/dl to 86 mg/dl.

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