

Mangosteen's Skin (*Garcinia mangostana* L) as Reducing Blood Sugar Levels in Diabetes Mellitus: Myth or Facts?

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Abstract

A 56-year-old woman with diabetes mellitus experienced a reduction in blood glucose levels after consuming boiled mangosteen's skin water for 2 weeks. The patient's blood glucose levels decreased from 223 mg/dL to 206 mg/dL. This case report is supported by previous research on the antihyperglycemic effects of xanthones γ -mangosteen, a compound found in mangosteen's skin. The study suggests that mangosteen's skin may be a potential natural remedy for reducing blood sugar levels in patients with diabetes mellitus, and further research is warranted to explore its therapeutic potential.

Keywords: Diabetes Mellitus; *Garcinia Mangostana* L; Xanthones γ - Mangosteen

1. Introduction

Diabetes Mellitus (DM) is a metabolic disease caused by the lack of insulin synthesis, increased breakdown, or impaired insulin action [1]. It is classified into two main groups, namely, type 1 and type II, and approximately 85% of diabetes cases worldwide are type 2. Diabetes mellitus is a metabolic disease with an enhanced rate of glucose in the blood [2]. Mangosteen's skin (*Garcinia Mangostana* L) contains xanthone and its derivatives which are capable to decreased the rate of glucose blood for diabetes mellitus patient.

2. Case Description

A 56 years old woman which suffered diabetes mellitus for 2 years. Beforehand, the patient consumed metformin 3 times a day and glimepiride 2mg once a day. Due to the patient not drinking anti-diabetic drug regularly and refuse to use chemical medicine in long term. The patient switched to herbal medicine with drinking boiled mangosteen's skin water every day per 2 glasses (250ml) [3]. Afterwards the patient goes to the polyclinic for control, previously already fast approximately for 6 hours. Previously glucose levels blood was 223 mg/dL then control 2 weeks again for checking with glucose blood rate 206 mg/dL in Figure 1. As obtained from the results of drinking boiled mangosteen's skin water the rate of glucose blood was decreased.

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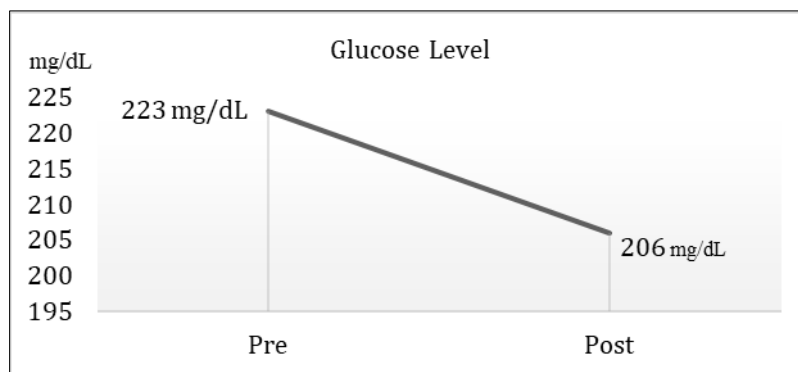


Figure 1 Glucose level before and after consuming boiled mangosteen's skin water for 2 weeks

3. Discussion

In this case, patient of diabetes mellitus experiences a reduction in glucose blood although not too significant. Mangosteen's skin (*Garcinia Mangostana L*) contains a compound active who has antioxidants namely xanthenes γ -mangosteen which own an ability of antihyperglycemic in giving short term (2 hours) and long term (28 days) in diet-induced diabetic rats, pericarp extract of mangosteen is a promising anti-diabetic agent due to its anti-hyperglycemic and antioxidant properties [4,5]. Giving of xanthenes γ - mangosteen in long-term debilitating glucose blood of fast diabetic rat and not show hepatotoxicity and nephrotoxicity [4]. Besides the AMPK, PDAR γ , α -amylase, and α -glucosidase were discovered as a potential target for simulation bond with γ - mangosteen after docky molecular[4,5,6]. To validate docky result, potential inhibitor γ - mangosteen to α - amylase and α - glucosidase higher than acarbose through enzymatic testing [4,6]. Interesting connections allosteric between γ - mangostin and insulin are also found in absorption glucose VSMC, FL83B, C2C12, and 3T3-LI cells. By whole results study show that γ - mangosteen activity is antihyperglycemic through enhancement, absorption of glucose and reduction of saccharide digestion through inhibition α - amylase and α - glucosidase with demonstrated insulin sensitization that γ - mangosteen can become new reference for discovery and development of diabetic medicine [4,7].

4. Conclusion

This case report highlights the potential of boiled mangosteen's skin water as a natural remedy for reducing blood glucose levels in patients with diabetes mellitus. A 56-year-old woman experienced a decrease in blood glucose from 223 mg/dl to 206 mg/dl after consuming this herbal treatment for 2 weeks. This observation aligns with previous research on the antihyperglycemic effects of xanthenes, particularly γ -mangosteen, found in mangosteen skin. Although the reduction in glucose levels was modest, the findings support the potential of mangosteen skin as a complementary therapy for diabetes management. Further research is needed to validate these effects and explore the therapeutic potential of γ -mangostin in diabetes care.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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