

# Miracle Fruit / Insulin Study Abstract

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## Improvement of insulin resistance by miracle fruit (*Synsepalum dulcificum*) in fructose-rich chow-fed rats.

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### **Abstract**

In an attempt to probe a new target to improve insulin resistance, miracle fruit (*Synsepalum dulcificum*) was employed to investigate the effect on insulin resistance induced by fructose-rich chow in rats. Single oral administration of the powder of this miracle fruit decreased the plasma glucose in a dose-dependent manner for 150 min in rats fed fructose-rich chow for 4 weeks. Insulin action on the glucose disposal rate was measured using the glucose-insulin index, the value of the areas under the curve of glucose and insulin during the intraperitoneal glucose tolerance test. Oral administration of miracle fruit (0.2 mg/kg) to fructose-rich chow fed rats, three times daily for 3 days, reversed the raised value of the glucose-insulin index, indicating that miracle fruit has the ability to improve insulin sensitivity. The plasma glucose lowering action of tolbutamide, induced by secretion of endogenous insulin, is widely used to characterize the formation of insulin resistance. The time for the loss of the plasma glucose lowering response to tolbutamide (10.0 mg/kg, i.p.) in fructose-rich chow fed rats was markedly delayed after treatment with miracle fruit compared with the vehicle-treated group. Thus providing supportive data that oral administration of miracle fruit could delay the development of insulin resistance in rats. Also, the *in vivo* insulin sensitivity was markedly raised by miracle fruit. In conclusion, the results suggest that miracle fruit may be used as an adjuvant for treating diabetic patients with insulin resistance because this fruit has the ability to improve insulin sensitivity.

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