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## Potential hypoglycemic effects of *Chlorella* in streptozotocin-induced diabetic mice

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### Abstract

*Chlorella*, a type of unicellular fresh water algae, has been a popular foodstuff in Japan and Taiwan. *Chlorella* has been shown to produce hypoglycemic effects in alloxan-induced diabetic animals. However, there are no other reports of the effects of this substance in other diabetic animal models. Here we have used streptozotocin (STZ)-induced diabetic mice to study the hypoglycemic effects of *Chlorella*. Diabetes was induced in ICR strain mice by the i.p. injection of STZ. Vehicle-treated ICR mice were used as normal control animals and glibenclamide was used as a positive drug control. The effects of *Chlorella* on basal blood glucose, exogenous insulin sensitivity test and plasma insulin levels were measured. In normal mice *Chlorella* produced a transient hypoglycemic effect at 90 min after acute administration; whereas glibenclamide produced a more sustained hypoglycemic effect between 90 min and 180 min after acute administration. *Chlorella* did not affect the basal blood glucose level in STZ mice. However, *Chlorella* enhanced and prolonged the hypoglycemic effects of injected insulin in STZ mice for a further 60 min compared to the normal vehicle-treated group. Plasma insulin levels were increased in normal mice after treatment with glibenclamide, whereas *Chlorella* had no such effect. The current results indicate that *Chlorella* enhances the hypoglycemic effects of exogenous insulin at a dose which does not produce hypoglycemia in STZ mice, suggesting that insulin sensitivity is increased in these mice.

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**Keywords:** STZ diabetic mice; *Chlorella*; Insulin sensitivity; Insulin level; Glucose tolerance