

ReishiMax improves glucose metabolism in normal and STZ-induced diabetic rats

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Abstract

ReishiMax (RM) is made of cracked spores of Reishi (*Ganoderma lucidum*) and extract of Reishi fruit body by use of a proprietary manufacturing method, and is standardized to 13.5% Reishi polysaccharides and 6% Triterpenes. We examined its function in improving glucose metabolism in 2 animal models, normal and STZ-induced diabetic rats. (1) 36 SD normal rats were divided into a control and 2 RM (0.15 and 0.5 g/kg by gavage) groups. After 14 days, RM improved oral glucose tolerance ($p < 0.01$ AUC at 0.5 and 1 hr), and increased glucose-insulin index ($p = 0.049$) indicating improved insulin sensitivity. But fasting blood glucose (FBG) was not altered in the normoglycemic rats. (2) STZ-induced diabetic rats with FBG 16-25 mmol/L were selected and randomized to an STZ-diabetic control, and 2 RM (0.3 and 1.0 g/kg) groups, along with a normal control group. After 28 days, RM decreased FBG ($p = 0.022$) and improved oral glucose tolerance ($p = 0.003-0.04$ AUC). We conclude that ReishiMax improves glucose metabolism in both normal and STZ-diabetic animal models.

Introduction

Ganoderma lucidum (Reishi)

- ◆ Used for millenium as a longevity-promoting herbal tonic.
- ◆ In animal studies, enhancing immunity, liver protection, anti-cancer, antioxidant, and benefiting nerve system.
- ◆ Active components:
 - (1) *G. lucidum* polysaccharides and
 - (2) Highly oxygenated triterpenes.
- ◆ *G. lucidum* triterpenes' functions:
 - (1) actinociceptive,
 - (2) anti-HIV,
 - (3) inhibition of release of histamine,
 - (4) inhibition of HMG-CoA reductase,
 - (5) inhibition of angiotensin convertin enzyme,
 - (6) antihepatoma, antihepatotoxic, and stimulating liver functions



Ganoderma lucidum

Proprietary Manufacturing Process

Reishi extract



ReishiMax

6.0% Reishi triterpenes
13.5% Reishi polysaccharides



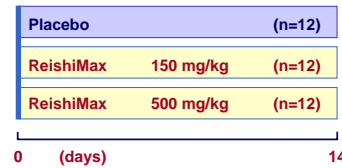
Reishi spores

Cracking Process

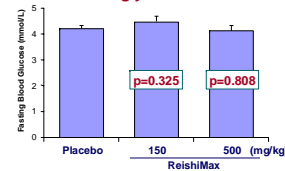


Cracked Reishi spores

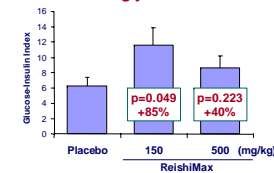
To examine glucose-lowering effects of ReishiMax in normoglycemic rats



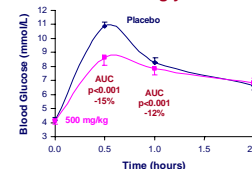
Effects of ReishiMax on FBG in normoglycemic rats



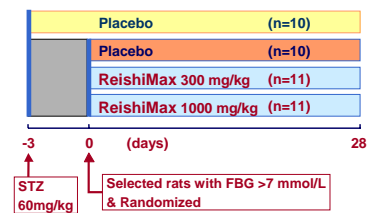
Increases in insulin sensitivity in normoglycemic rats



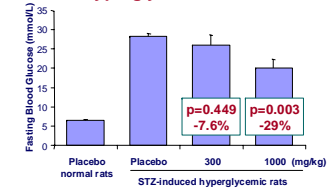
Improvement of oral glucose tolerance in normoglycemic rats



To examine glucose-lowering effects of ReishiMax in STZ-induced diabetic rats



Decreases in FBG in STZ-induced hyperglycemic rats



Summary

ReishiMax Treatment

- ▲ Reduces FBG in STZ-induced diabetic rats ($p = 0.022$), but not in normoglycemic mice
- ▲ Improves oral glucose tolerance in normal rats
- ▲ Improves insulin sensitivity in normal rats

Conclusion

Our findings suggest that ReishiMax improves glucose metabolism.