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FILE: ■ *Gymnema (Gymnema sylvestre)*

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RE: Review of *Gymnema*

Kanetkar P, Singhal R, Kamat M. *Gymnema sylvestre*: A memoir. *J Clin Biochem Nutr*. September 2007, 41:77-81.

Gymnema (Gymnema sylvestre) is a slow growing, perennial, climber that is native to India, tropical Africa, and Australia. It is used in traditional medicine to treat diabetes, asthma, eye complaints, inflammations, snakebite, and family planning. Currently it is used for its antimicrobial, antihypercholesterolemic, hepatoprotective, and sweet suppressing activities. The active ingredients are thought to be oleanane saponins called gymnemic acids.

Gymnemic acids may be effective for treating diabetes and obesity, although human trials are needed to confirm this benefit. In animals, gymnema leaves cause hypoglycemia. From a mechanistic perspective, gymnemic acids from gymnema exert hypoglycemic effects by: (1) increasing secretion of insulin, (2) promoting regeneration of pancreatic islet cells, (3) increasing utilization of glucose, and (4) inhibiting glucose absorption from the intestine. Gymnemic acid molecules bind to the absorptive external layers of the intestine and prevent sugar molecules from being absorbed by the intestine thereby promoting low blood sugar.

The authors describe an interesting mechanism of action thought to prevent obesity; gymnemic acid molecules binding to the taste buds where sugar binds. This action is thought to prevent sugar craving. The authors also state that obesity is caused by accumulation of carbohydrates and fat and gymnemic acids curb the binding of carbohydrates to receptors in the intestine. They claim that "the empty calories are taken care of so that the body does not go into an obese stage." Gymnemic acids are sold in the form of gymnema tea to be used to curb obesity.

The gymnema leaves also have laxative, diuretic, and cough suppressant effects. The authors acknowledge that these actions would be considered adverse events if they were to occur in a patient using gymnema leaves for treating diabetes. *Gymnema* leaves have also been shown to lower cholesterol and triglyceride levels, but it is unknown whether these effects are clinically significant.

This plant appears to be in the preliminary stages of clinical development. It will be interesting to see what the future holds.

—*Heather S. Oliff, PhD*

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