



## SugarReg

Stock #927-1 (60 capsules)

SugarReg is a unique nutritional formula designed to help maintain normal blood sugar levels. SugarReg provides important trace minerals and herbs that have demonstrated therapeutic potential for reducing elevated blood glucose and improving insulin function. In addition, many of the ingredients in SugarReg have also been shown to help reduce blood cholesterol and triglyceride levels, which are important risk factors for cardiovascular disease. Each capsule of SugarReg contains:

**Chromium** is a trace mineral that is essential for normal insulin functioning. Chromium deficiency is linked to both adult-onset (Type II) diabetes and cardiovascular disease. Approximately 90% of typical U.S. diets contain less than the minimum suggested daily intake for chromium. In addition, the foods most Americans consume are not only low in chromium, but also high in simple sugars and other refined products, which further enhances deficiency. Chromium supplementation has been shown to have beneficial effects with no

documented side effects in individuals with varying degrees of glucose intolerance, ranging from mild glucose intolerance to overt Type II diabetes. A review of more than a dozen studies shows chromium significantly improves insulin function, reduces fasting glucose levels, improves glucose tolerance, and decreases total cholesterol and triglycerides, while increasing HDL cholesterol. A study of 180 Type II diabetics showed chromium significantly decreased fasting and 2-hour postprandial (after-eating) glucose levels, fasting and 2-hour postprandial insulin values, and plasma total cholesterol levels.<sup>1-8</sup>

**Vanadium** - Studies reveal a promising application for the trace mineral vanadium in the management of diabetes. Vanadium has shown therapeutic potential for its ability to mimic the effects of insulin, enhance insulin sensitivity and lower cholesterol. Its effectiveness in the treatment of diabetes has also been confirmed in clinical trials with both insulin-dependent diabetics (Type I) and non-insulin-dependent diabetics (Type II). A study of Type II diabetics found that vanadium produced significant improvements in just 6 weeks, decreasing fasting plasma glucose levels just over 20%, as well as reducing plasma total cholesterol nearly 10% and LDL cholesterol by 8.5%.<sup>9-12</sup>

**Cinnamon** (*Cinnamomum cassia*) - Preliminary clinical trials have shown that cinnamon can reduce mean fasting blood glucose, total cholesterol, LDL cholesterol and triglyceride levels in patients with type 2 diabetes. Researchers have identified substances in cinnamon that improve insulin sensitivity, including the mineral chromium. According to one study, cinnamon supplementation not only provides immediate effects on glycemic control and insulin sensitivity in humans, but its effects also appear to last for up to 12 hours.<sup>13-17</sup>

**Fenugreek** (*Trigonella foenum-graecum*) - Fenugreek has demonstrated significant antidiabetic effects in both experimental and clinical studies. Fenugreek has been shown to help reduce blood glucose levels and improve glucose tolerance in both Type I and Type II diabetics, as well as lower elevated cholesterol and triglyceride levels. A study of Type I diabetics showed fenugreek significantly reduced fasting glucose levels by 30% and decreased 24-hour urinary glucose excretion by 54%. Serum total cholesterol, LDL and VLDL (very low-density lipoproteins) cholesterol, as well as triglycerides were also significantly reduced. In a 3-month placebo-controlled study of patients with mild Type II diabetes, fenugreek significantly reduced both fasting and postprandial (after-eating) glucose levels. Furthermore, in a study of 60 Type II diabetics (none of whom were taking cholesterol-lowering medication), fenugreek significantly changed cholesterol levels after just 4 weeks. By the end of the 24-week study, total mean cholesterol had decreased by 14%, triglycerides decreased by as much as 17%, and LDL and VLDL cholesterol decreased by as much as 23%. Also, HDL cholesterol improved by 10%.<sup>2,3,12,18-22</sup>

Fenugreek contains various hypoglycemic compounds that may function synergistically to reduce fasting glucose. Fenugreek is also a rich source of soluble fiber, which slows carbohydrate digestion and absorption, thus preventing rapid increases in blood glucose. High fiber content may also account for fenugreek's blood cholesterol-lowering and blood lipid-lowering actions. Although fenugreek has no known toxicities, it does contain estrogen-like compounds and should not be taken if pregnant or trying to conceive. Also, people with allergies to chickpeas (a close relative) may experience similar allergic reactions to fenugreek.<sup>2,3,18,22-24</sup>

**Bitter melon** (*Momordica charantia*) - Multiple clinical studies have shown bitter melon significantly improves glucose tolerance without raising blood insulin levels; improves fasting blood glucose levels; and decreases blood and urine glucose levels. An early study showed bitter melon improved glucose tolerance in 73% of Type II diabetics. In a study of 100 moderate Type II diabetics, bitter melon significantly reduced both fasting and postprandial serum glucose levels in 86 patients, while another 5 patients exhibited decreases in fasting serum glucose only. A study involving 6 Type II diabetics showed after 3 weeks of daily bitter melon intake, fasting blood glucose levels had dropped an average of 54%. After 7 weeks, blood glucose levels of all participants were at or near normal, with no detectable

urinary glucose. Bitter melon's hypoglycemic activity appears to be the result of either an improvement in the insulin-secreting capacity of beta-cells or an improvement in the action of insulin. Bitter melon also exhibits the ability to increase HDL cholesterol and reduce total cholesterol and triglycerides.<sup>2,3,12,23,25-30</sup>

**Gymnema** (*Gymnema sylvestre*) is considered one of the most effective complementary therapies for managing diabetes, and is primarily used to help regulate elevated and/or fluctuating blood glucose levels in Type I and Type II diabetics. Gymnema has also been shown to lower blood cholesterol and triglyceride levels without side effects. In a study of 27 Type I diabetics on insulin therapy, gymnema reduced insulin requirements by an average of nearly 50%, based on observed decreases in fasting glucose levels. Researchers also noted a possible regeneration or revitalization of beta-cells resulting from gymnema therapy. Likewise, 22 Type II diabetics on oral hypoglycemic drugs were also given 400mg of a standardized gymnema extract daily. After 18 to 20 months, all participants exhibited improved blood glucose control—21 of the 22 were able to considerably reduce their drug dosages, with 5 being able to discontinue medication entirely, using only gymnema to maintain blood glucose control. Study data suggested that beta-cells may have been regenerated or repaired, based on the increases in serum insulin levels following gymnema supplementation. In addition, the authors of the study considered gymnema to be superior to medication for long-term blood sugar stabilization. Although preliminary, research strongly suggests that gymnema may be capable of not only enhancing glucose metabolism and increasing insulin levels, but also regenerating the pancreas of Type I diabetics.<sup>2,23,31-35</sup>

In order for gymnema to lower blood glucose in insulin-dependent diabetics (Type I), it needs to be taken continuously for 6 to 12 months. Gymnema's effects are gradual, requiring long treatment time; however, this helps to protect against blood glucose levels falling too low (a common experience with hypoglycemic medications). Gymnema may be combined with fenugreek—which is fast-acting—to achieve quick, yet sustainable results. No toxicity or contraindications have been reported for gymnema; however, because gymnema enhances insulin secretion, it may not be appropriate for individuals with hyperinsulinemia (chronically high levels of circulating insulin).<sup>2,12,23</sup>

**Nopal** (*Opuntia streptacantha*) is well-known throughout Latin America for its apparent hypoglycemic (reduce blood glucose) effects. A 1991 study of 14 Type II diabetics showed nopal significantly reduced serum glucose by up to 40.8 mg/dL less than initial values, 3 hours after intake. A similar study with 8 Type II diabetics again found nopal significantly decreased serum glucose by 41-46% less than the values at the start of the 6-hour test. Additional studies with Type II diabetics have further confirmed nopal's hypoglycemic effects. In fact, one study found nopal had a hypoglycemic effect in healthy individuals with induced hyperglycemia, causing glucose levels to rise significantly less with nopal than with the control.<sup>3,23,36-38</sup>

**Banaba** (*Lagerstroemia speciosa*- corosolic acid 18%) - Banaba leaves have been used throughout India, Southeast Asia and the Philippines as a folk remedy for diabetes and hyperglycemia. Numerous in vitro and in vivo studies have consistently confirmed the antidiabetic activity of banaba. Researchers have found that banaba leaves contain the active ingredient corosolic acid, an antidiabetic agent that has been shown to exert insulin-like properties. Corosolic acid appears to stimulate the uptake of glucose by the cells, thus resulting in a reduction in blood glucose levels. Preliminary human studies with Type II diabetics have shown a 30% decrease in blood glucose levels.<sup>39-44</sup>

Individuals taking insulin or other hypoglycemic medications should monitor their blood sugar levels if taking SugarReg, in order to adjust dosages accordingly.<sup>3,31</sup>

#### References:

- <sup>1</sup>Fiedler, C. "Dealing with Diabetes." *Energy Times*; 2000,10(10):29-33.
- <sup>2</sup>Murray ND, M. & Pizzorno ND, J. *Encyclopedia of Natural Medicine, 2nd Ed.* Rocklin, CA: Prima, 1998.
- <sup>3</sup>Broadhurst PhD, C.L. "Treating Type II Diabetes Nutritionally." *Nutrition Science News*; July, 1998.
- <sup>4</sup>Anderson, R.A., et. al. "Elevated intakes of supplemental chromium improve glucose and insulin variables in individuals with type 2 diabetes." *Diabetes*; 1997, 46(11):1786-1791.
- <sup>5</sup>—. "Chromium metabolism and its role in disease processes in man." *Clinical Physiology and Biochemistry*; 1986, 4(1):31-41.
- <sup>6</sup>Salmon, B. "The Truth About Chromium." *Let's Live*; 1996, 64(4):51-54.
- <sup>7</sup>Anderson, R.A. & Kozlovsky, A.S. "Chromium intake, absorption and excretion of subjects consuming self-selected diets." *American Journal of Clinical Nutrition*; 1985, 41(6):1177-1183.
- <sup>8</sup>—. "Chromium, glucose intolerance & diabetes." *Journal of the American College of Nutrition*; 1998, 17(6):548-555.
- <sup>9</sup>Beliaeva, N.F., et. al. "Vanadium compounds—a new class of therapeutic agents for the treatment of diabetes mellitus." *Voprosy Meditsinskoj Khimii*; 2000, 46(4):344-360.
- <sup>10</sup>Badmaev, V., et. al. "Vanadium: a review of its potential role in the fight against diabetes." *Journal of Alternative and Complementary Medicine*; 1999, 5(3):273-291.
- <sup>11</sup>Cusi, K., et. al. "Vanadyl sulfate improves hepatic and muscle insulin sensitivity in type 2 diabetes." *Journal of Clinical Endocrinology and Metabolism*; 2001, 86(3):1410-1417.
- <sup>12</sup>Lininger DC, S., et al. *The Natural Pharmacy*. Rocklin, CA: Prima Health, 1998.

- <sup>13</sup>Khan, A., et. al. "Cinnamon improves glucose and lipids of people with type 2 diabetes." *Diabetes Care*; 2003, 26(12):3215-18.
- <sup>14</sup>Anderson, R.A. "Chromium and polyphenols from cinnamon improve insulin sensitivity." *The Proceedings of the Nutrition Society*; 2008, 67(1):48-53.
- <sup>15</sup>Dugoua, J.J., et. al. "From type 2 diabetes to antioxidant activity: a systematic review of the safety and efficacy of common and cassia cinnamon bark." *Canadian Journal of Physiology and Pharmacology*; 2007, 85(9):837-847.
- <sup>16</sup>Pham, A.Q., et. al. "Cinnamon supplementation in patients with type 2 diabetes mellitus." *Pharmacotherapy*; 2007, 27(4):595-599.
- <sup>17</sup>Solomon, T.P., Blannin, A.K. "Effects of short-term cinnamon ingestion on in vivo glucose tolerance." *Diabetes, Obesity & Metabolism*; 2007, 9(6):895-901.
- <sup>18</sup>Aviv, S. "Fenugreek for diabetes." *Natural Health*; 2000, 30(9):41.
- <sup>19</sup>Sharma, R.D., et. al. "Effect of fenugreek seeds on blood glucose and serum lipids in type I diabetes." *European Journal of Clinical Nutrition*; 1990, 44(4):301-306.
- <sup>20</sup>Bordia, A., et. al. "Effect of ginger (*Zingiber officinale* Rosc.) and fenugreek (*Trigonella foenum-gracecum* L.) on blood lipids, blood sugar and platelet aggregation in patients with coronary artery disease." *Prostaglandins, Leukotrienes and Essential Fatty Acids*; 1997, 56(5):379-384.
- <sup>21</sup>Sharma, R.D., et. al. "Hypolipidaemic Effect of Fenugreek Seeds: a Chronic Study in Non-insulin Dependent Diabetic Patients." *Phytotherapy Research*; 1996, 10:332-334.
- <sup>22</sup>Jones, K. "Fenugreek and cholesterol." *Herbs For Health*; 1997:66-67.
- <sup>23</sup>Broadhurst PhD, C.L. "Keeping diabetes in check." *Herbs For Health*; 1997, 1(4):30-33.
- <sup>24</sup>*Herbal Medicine: Expanded Commission E Monographs*. Integrative Medicine Comm., 2000.
- <sup>25</sup>Welihinda, J., et. al. "Effect of *Momordica charantia* on the glucose tolerance in maturity onset diabetes." *Journal of Ethnopharmacology*; 1986, 17(3):277-282.
- <sup>26</sup>Ahmad, N., et. al. "Effect of *Momordica charantia*(Karolla) extracts on fasting and postprandial serum glucose levels in NIDDM patients." *Bangladesh Medical Research Council Bulletin*; 1999, 25(1):11-13.
- <sup>27</sup>Welihinda, J., et. al. "The insulin-releasing activity of the tropical plant *Momordica charantia*." *Acta Biologica et Medica Germanica*; 1982, 41(2):1229-1240.
- <sup>28</sup>Ahmed, I., et. al. "Effects of *Momordica charantia*fruit juice on islet morphology in the pancreas of the streptozotocin-diabetic rat." *Diabetes Research and Clinical Practice*; 1998, 40(3):145-151.
- <sup>29</sup>Platel, K. & Srinivasan, K. "Plant foods in the management of diabetes mellitus: vegetables as potential hypoglycaemic agents." *Nahrung*; 1997, 41(2):68-74.
- <sup>30</sup>Jayasooriya, A.P., et. al. "Effects of *Momordica charantia*powder on serum glucose levels and various lipid parameters in rats fed with cholesterol-free and cholesterol-enriched diets." *Journal of Ethnopharmacology*; 2000, 72(1-2):331-336.
- <sup>31</sup>Alschuler ND, L. "*Gymnema sylvestre*'s impact on blood sugar levels." *American Journal of Natural Medicine*; 1998, 5(9):28-30.
- <sup>32</sup>Shanmugasundaram, E.R., et. al. "Possible regeneration of the islets of Langerhans in streptozotocin-diabetic rats given *Gymnema sylvestre* leaf extract." *Journal of Ethnopharmacology*; 1990, 30(3):265-279.
- <sup>33</sup>—. "Use of *Gymnema sylvestre*leaf extract in the control of blood glucose in insulin-dependent diabetes mellitus." *Journal of Ethnopharmacology*; 1990, 30(3):281-294.
- <sup>34</sup>Baskaran, K., et. al. "Antidiabetic effect of a leaf extract from *Gymnema sylvestre*in non-insulin-dependent diabetes mellitus patients." *Journal of Ethnopharmacology*; 1990, 30(3):295-300.
- <sup>35</sup>*Gymnema sylvestre*." *Alternative Medicine Review*; 1999, 4(1):46-47.
- <sup>36</sup>Fрати, A.C., et. al. "Influence of nopal intake upon fasting glycemia in type II diabetics and healthy subjects." *Archivos de Investigación Medica*; 1991, 22(1):51-56.
- <sup>37</sup>—. "The effect of two sequential doses of *Opuntia streptacantha*upon glycemia." *Archivos de Investigación Medica (Mexico)*; 1991, 22(3-4):333-336.
- <sup>38</sup>Fрати-Munari, A.C., et. al. "Activity of *Opuntia streptacantha*in healthy individuals with induced hyperglycemia." *Archivos de Investigación Medica (Mexico)*; 1990, 21(2):99-102.
- <sup>39</sup>Banaba Leaf." Supplement Watch; July 18, 2001. <http://www.supplementwatch.com/supatoz/supletters.asp?letter=B>.
- <sup>40</sup>Whitaker MD, J. "A Banaba a Day..." *DrWhitaker.com*; May 23, 2001. [http://www.drwhitaker.com/nc/hc\\_vision\\_retino\\_recent.php](http://www.drwhitaker.com/nc/hc_vision_retino_recent.php)
- <sup>41</sup>"A Natural Approach To Lowering Blood Sugar." *Life Extension Magazine*; September, 2000.
- <sup>42</sup>Klein, G., et. al. "Antidiabetes and Anti-obesity Activity of *Lagerstroemia speciosa*." *Evidence-Based Complementary and Alternative Medicine*; 2007, 4(4):401-407.
- <sup>43</sup>Murakami, C., et. al. "Screening of plant constituents for effect on glucose transport activity in Ehrlich ascites tumour cells." *Chemical and Pharmaceutical Bulletin*; 1993, 41(12):2129-2131.
- <sup>44</sup>Judy, W.V., et. al. "Antidiabetic activity of a standardized extract (Glucosol) from *Lagerstroemia speciosa* leaves in Type II diabetics. A dose-dependence study." *Journal of Ethnopharmacology*; 2003, 87(1):115-117.