

Salba the Seed of Wellness: An Ancient Grain that is Chasing Diabetes

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Imagine if one little grain could provide many of your daily nutrients and at the same time improve your health, especially in diabetes. That's the case with Salba, which is a novel variety of an ancient oily grain, *Salvia hispanica* L. The grain was originally used as a food and medicine by the highly advanced Aztec civilization. They believed it gave them mystical, almost supernatural energy and power, and they used it in religious ceremonies that paid tribute to their deities. Aztec couriers devoured the grain as their main source of energy and as a way to reduce thirst. They called it "Running Food".

Part of the legacy left by this remarkable and ingenious civilization is this grain that they so highly prized and revered. In fact, recent scientific evidence is emerging which supports some of the properties attributed to the grain by the Aztecs. A series of preliminary human and animal studies conducted at several universities around the world has brought Salba's wealth of potential health benefits to the attention of the modern medical community and consumers.

Salba is a white variety of the usually black chia seeds. Salba was developed using traditional and time-honored selective breeding techniques and is not genetically modified (non-GMO). The objective of the selection was to reduce the highly variable nutrient composition of the 85 varieties of black chia grain which are widely grown in Mexico and South America. As a result of state-of-the-art agricultural methodology and ideal growing conditions in Peru, a single variety (Salba) was developed; a grain with superior and highly standardized composition compared to the original chia grain.

Salba is one of the highest whole food sources of dietary fiber and omega-3 fatty acids (alpha-linolenic fatty acid or ALA), in addition to possessing a rich micronutrient content, including high levels of calcium, iron, potassium, magnesium and antioxidant capacity comparable to some berries (see nutrient equivalent chart, Figure 1).

Based on a long-term study that appeared in

the November 2007 issue of the American Diabetes Association's journal, *Diabetes Care*, Salba may have cardio-protective properties by reducing conventional and emerging heart disease risk factors in patients with type 2 diabetes (1). The 20 patients, with well-controlled diabetes (mean A1c of 6.8%), took part in a randomized, cross-over clinical trial during which they took either 37g /day Salba or wheat bran (control). Salba or control was either baked in bread or sprinkled on food for 3 months on each intervention. The results were rather astonishing. Compared to their own control diet, reductions of 6 units in systolic blood pressure and a 40% reduction of C-reactive protein levels, a marker of low-grade body inflammation were observed after taking Salba. They also showed improved clotting factors that resulted in a blood thinning effect. All this took place against a background of a healthy diabetes diet and subjects continuing to take their usual medication.

The results are quite significant and somewhat unexpected. Most of the evidence that consumption of 3 portions of whole grains per day is cardio- and diabetes protective comes from population studies. Salba is one of the first whole grains shown in an interventional, 3 month, randomized clinical trial in individuals with diabetes that are at high risk of heart disease to improve markers of cardiovascular risk. This comes as good news to all of those wanting to increase consumption of whole grains, as collectively endorsed by major health and governmental authorities around the world.

The combination of functional nutrients found in large quantities, including the high amount of omega-3 in the Salba grain, may be responsible for some of its benefits, especially in lowering blood pressure (BP) and C-reactive protein levels. This may actually be an advantage of a plant source of omega-3 in combination with other nutrients, an effect not observed with fish oil, which in some studies actually worsened diabetes control. Overall, 27 fish oil trials evaluating hemoglobin A1c or fasting blood glucose (BG) found net increases com-

Figure 1: Nutrient equivalent chart



pared to control oils (2). It is important to note that plant based omega-3 fatty acids, Alpha Linolenic Acids (ALA), from Salba seem to be able to get converted to plasma Eicosapentaenoic Acids (EPA) in humans, as found in the Toronto study, raising the levels 90% higher than those in the control diet.

The group at the University of Toronto is planning further studies with Salba to investigate its potential effect on weight loss, with the most recent preliminary results showing a reduction in after meal BG and insulin levels, along with suppression of appetite. It is also interesting to note that there was no difference in BG lowering effects found between whole vs. finely ground Salba, further broadening the practicality of its use.

The preliminary data from Toronto has seen some confirmation through other studies, including a study from the University of Antwerp in Belgium, conducted in healthy individuals (3). This study showed that, following consumption of approximately 45g/day of Salba for one month resulted in reduction in BP, triglycerides and smaller waist circumferences or less abdominal fat. Another piece of the puzzle regarding Salba's health benefits was added most recently by an article published in the *British Journal of Nutrition*. In this study, rats were fed for months with a sucrose rich diet and consequently developed metabolic syndrome and obesity. By adding Salba to their diet, insulin resistance was reversed, along with achieving lower triglyceride levels and reduced abdominal fat when compared to the control group (4). Although this was in rats, the result certainly seem to support the human studies as again, just as in the human study in Toronto, there was a con-

version of plant source of omega-3 (ALA) to EPA in rats consuming Salba.

In light of these encouraging results and ongoing promising research, the whole grain Salba, originating from the ancient Aztec civilization 500 years ago, may represent the most recent addition to the complementary and alternative therapies in the battle against diabetes and heart disease.

Salba represents a new advancement in the way we

approach treatment of diabetes. Now, in conjunction with conventional treatment and healthy food choices, individuals affected by diabetes may be better able to control the disease by incorporating a daily supplement of nutrient consistent Salba into their diet. It's really a lifestyle therapy that is turning bad dietary choices into better ones and propelling old medicine into forms of new treatment for chronic diseases that affect millions of Canadians.

References:

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