

OPTIMAL HEALTH UNIVERSITY™

Presented by Dr. Wayne Terai

The Awesome Agave

Our modern diet often comes up short on nutrition, which is renewing interest in ancient, traditional foods. Agave is the fashionable rediscovered food of the moment. But is this fashionable food all hype? Dr. Terai investigates the ancient agave to determine if its storied benefits stand the test of time.



Advances in Food Production: For Better or Worse?

Over the past 100 years, major advances in both food production and processing improved food safety and availability. However, Dr. Terai is concerned that the overall nutritive values of plant foods have consequently been drastically reduced.

Modern, empty-calorie foods are strongly linked to the epidemic problem of obesity, as well as cardiovascular and degenerative diseases (*Food Nutr Bull* 2006;27:167-79). The situation has prodded people to reconsider many food choices.

Dr. Terai takes an in-depth look at agave, one of the standard foods eaten by indigenous, or native, peoples in the Americas. Today, this venerable food may be useful for a wider swath of the population.

Agave: The Century Plant

The ancient agave, known as the century plant, has been a cornerstone of native cultures in Mexico, Central



America and the southwestern United States for generations. Though often misidentified as a cactus, agave is instead a succulent, with thick, fleshy leaves that store water. It is slow-growing and thrives in arid, desert areas, but it takes eight to 10 years — or more — to flower.

There are hundreds of agave species, all of which can be traced to a plant family that is at least 25 million years old (*Proc Natl Acad Sci USA* 2006;103:9124-9). Prized by the early Aztec civilization, the agave and its sacred juice, called *nekutli*, were considered gifts from the gods.

Both the Aztecs and Native Americans consumed fermented agave juice during religious ceremonies and special occasions. Through the years, the plant's sap has been the base for beer-like drinks, called *pulque* and *maguey*. Today, the sap of the blue agave (*Agave tequilana*) is the single variety allowed to be distilled into the popular liquor tequila.

Though it has many non-food uses, only the flowers, sap and juice of the agave are consumed, and their benefits have become legend.

Basic Health Benefits of Agave

The once-in-a-lifetime flower of the agave contains a plethora of valuable nutrients, including dietary protein and fiber. Agave flowers also hold high concentrations of protein-building amino acids, such as lysine and trypto-

phan, and potent organic molecules known as alkaloids (*Plant Foods Hum Nutr* 2007;62:133-8). While bloom seasons are short, plants like the agave can serve important nutritive and dietary roles.

Research shows that agave-derived beverages help ensure micronutrient nourishment, while alleviating malnutrition and contributing to the prevention of chronic disease (*Nutr Rev* 2004;62:439-42). These benefits are especially evident for people with the expertise to harvest foods such as the agave from local ecosystems.

Peeling Away the Mystery of Agave

Scientists, especially in Mexico, have conducted intensive chemical analyses of agave in recent years — attempting to learn more about the advantages of the primordial plant. One study found that pure agave extract exhibits antimicrobial function (*J Ethnopharmacol* 1996;52:175-7).

Another project determined that agave, and similar plants, manufacture natural steroid-like substances known as saponins. These steroidal agents exhibit powerful antifungal activity (*Antimicrob Agents Chemother* 2006;50:1710-14).

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Agave's antifungal powers have yet to be tapped fully, but science suggests that they could be pressed into action against common complications of cancer drug treatment.

The Healthy Sweetener

Agave is frequently distilled into a sweetener because it is loaded with natural sugars (*Bioresour Technol* 2001;77:101-8). An article in the June 18, 2008 *San Francisco Chronicle* advises that just a few drops of agave syrup can easily replace a teaspoon or more of sugar. Darker, less-refined versions of agave syrup retain the plant's distinctive vanilla flavor and may also preserve some of its minerals and enzymes.

Agave is sweet, but its sugars are 90 percent fructose, or fruit sugar. Fructose has half the calories of most carbohydrates. It also has a lower "glycemic index." So, unlike conventional sugar, it does not promote dietary insulin production, or the subsequent problem of insulin resistance, in the body (*J Pediatr Endocrinol Metab* 2008;21:225-35).

Weight Control, Diabetes and More

Agave sweetener could be good news for diabetics, though, like most sugary foods, it should be eaten in moderation. A new animal study examined the physical consequences of agave's fructose molecules, or fructans.

Scientists learned that agave fructans have promising effects on glucose, or sugar, metabolism, as well as on cholesterol levels (*Br J Nutr* 2008;99:254-61). Agave has other appealing nutritional and technological properties that can suppress appetite and lower body weight.

It seems counterintuitive that a super-sweet food, like agave, might be an efficient diet food. But additional animal research confirms that agave sugars protect against weight gain and fat mass development in the body (*Obes Res* 2005;13:1000-7). Again, appetite regulation is a bonus.

Another animal study suggests that the

fermentable fiber in agave sugar, known as fructo-oligosaccharide (FOS), could play a role in controlling obesity and the metabolic disorders that often accompany that condition (*Life Sci* 2006;79:1007-13). Agave's FOS content decreases energy intake, body weight gain and glycemia, or the concentration of sugar in the blood.

Agave is part of a growing trend among diabetics toward alternative diabetes care. People with diabetes often obtain superior preventive care through chiropractic and alternative medical sources (*Diabetes Care* 2006;29:15-9). Every year, more and more diabetics find support from chiropractic and similar modalities (*J Altern Complement Med* 2006;12:895-902).

Agave for the Gut

Probiotics are live, edible ingredients that help foster the growth of beneficial bacteria in the digestive system. They have become popular additives to cutting-edge food products. Research indicates that agave's FOS-based sugars have desirable probiotic properties (*J Agric Food Chem* 2008;56:3682-7).

FOS is well-tolerated and can lead to significant increases in favorable microflora, or bacteria, in the colon (*Nutr J* 2007;6:42). Since agave was customarily used for intestinal disturbances, it makes sense that today's researchers have uncovered that the plant's FOS has an effective, laxative-type quality.

Further proof of agave's potential to assist digestion comes in the form of intensive chemical examination. These tests ensure that the "good" bacteria in agave products, including lactic acid, can live through the fermentation process and offer digestive benefits when consumed (*Int J Microbiol* 2008;124:126-34).

If you suffer from digestion problems, probiotics plus chiropractic care may be an ideal solution. In comprehensive patient surveys, 27 percent of those reporting positive results from chiropractic care say they had improved

digestion following chiropractic spinal adjustments (*J Manipulative Physiol Ther* 2005;28:294-302).

Agave for Pain Relief?

Researchers describing agave varieties native to the Dominican Republic proved that the plant's extracts produce a powerful anti-inflammatory result when taken orally or applied topically (*J Ethnopharmacol* 2000;71:395-400).

Other animal studies bear out the anti-inflammatory effects of agave (*J Pham Pharmacology* 2004;56:1185-9).

Of course, for relieving inflammation, chiropractic should be a top choice along with nutritional interventions, like agave. Studies show that, for spinal pain that has an inflammatory component, chiropractic adjustments produce early recovery and deliver better pain relief than oral medications (*Spine* 2003;28:1490-502).

Singing the Praises of Agave

The ancient agave is a healthy, natural food with distinct benefits. Lately, it has turned up as a sweetener in energy drinks and other trendy food items, verifying that interest in agave is surging.

When buying agave products, make sure to look for those that are minimally refined. These maintain the plant's naturally occurring chemicals and substances thought to be responsible for its medicinal characteristics. Also, look for 100 percent agave sweeteners. Just because a product has some agave, doesn't mean it isn't loaded with unhealthy sweeteners as well.

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