



THAI FREEZE DRY
COMPANY LIMITED

Roselle: scientific name: *Hibiscus sabdariffa L*



Roselle, also known as Hibiscus tea, has a long tradition of use as a health-supporting drink and food ingredient, and is well known and widely used around the planet.

The key to the unique quality, safety, and convenience of Thai Freeze Dry's roselle powder is our proprietary Cellular Fraction Line [®] premium freeze dry process. Thailand is known for superior quality roselle. We start with the high quality *Hibiscus sabdariffa* that grows and is processed fresh at our doorstep. Our process can not make the plant better than nature has created it, but it does sustain and deliver all the benefits in a fully-dried, stable, highly concentrated powder that has undergone an aqueous ozone antimicrobial treatment.

Roselle is not a fruit or a flower. The edible parts used to make the juice or tea are the "calyces," the red fleshy sepals that cover and enclose the flower's seed pods.

Ancient Wisdom and Spiritual History: The ancient sages did not have the same tools of investigation or the same vocabulary we use today. Consistent results over long periods of time gave rise to knowledge expressed in the spiritual vernacular of their day. When a culture attributes high value to a botanical there are often logical observation-based reasons behind this.

Hibiscus is used as an offering to the Goddess Kali and Lord Ganesha in Hindu worship. The red hibiscus flower is said to incite passion and attract love. Hawaiian women wear a single hibiscus behind the right ear to indicate availability. Egyptian women have been banned from drinking roselle tea because it is said to act as an aphrodisiac and induce lust. Hibiscus is used in incense mixtures to assist divination and clairvoyance and when the pedals are floated on water in a wooden bowl the result is sacred and used to attract good Spirits.

Nutritional Value: Roselle is a good source of nutrients, vitamins and minerals. Consuming 100 grams of raw roselle offers 215 mg of Calcium, 1.48 mg of Iron, 12 mg of Vitamin C, 51 mg of Magnesium, 6.0 g of Carbohydrate, 37 mg of Phosphorus, 208 mg of Potassium, as well as Vitamin A, of Vitamin B1, ,B2 and B3. The flowers are a rich source of anthocyanin (antioxidants) and protocatechuic acid ("PCA"). Let's look not only at what roselle provides, but just as important, what it lacks. Nutritional facts disclose very low levels of fat, sugar, sodium and carbs.
(1)

Keep in mind that in the case of Thai Freeze Dry's roselle powder we have eliminated the water which is approximately 85% of the total weight. It is, thereby, naturally concentrated six to seven times. Roselle tea is a mild infusion. You drink the mild infusion and throw the flower (calyse) away. In the case of our roselle powder you are actually drinking the entire calyse. All benefits, nutritional and otherwise are highly concentrated.

Supporting traditional beliefs we know that Roselle is rich in phosphorus. Phosphorus along with calcium is essential to the formation and maintenance of strong bones and teeth. Phosphorus also helps to combat overall weakness including sexual weaknesses such as loss of libido, frigidity, impotence and sperm mobility (2)

Potassium helps to control electrical activity of muscles including the heart and regulation of our body fluids (including water balance). Health benefits include relief from high blood pressure, stroke and other heart disorders as well as regulation of blood sugar levels. Potassium supports kidney functions, and helps to relieve anxiety and stress. It also enhances muscle strength, brain function and supports the nervous system. (3)

Anti-Bacterial: PCA has been shown to treat malignant bacterial infected cells taken from human oral cavities.(4) In another study the antibacterial effects of PCA derived from roselle effectively inhibited the growth of bacteria in humans and it was concluded that PCA specifically from roselle may be useful in clinical infection prevention and therapy. (5)

Antioxidant / Anti-Inflammatory: PCA is a strong antioxidant and anti-inflammatory in general and specifically associated with liver protection. (6) Higher concentration in the color of the red flavonoid pigments in the anthocyanins was shown to have a direct relationship to the antioxidant effects. Under less ideal processing temperatures and storage conditions the anthocyanin content declines. (7) This validates the strong advantage achieved by Thai Freeze Dry's proprietary Cellular Fraction-Line Technology . This process is a key factor in delivering high quality premium freeze dried roselle powder.

Anti-tumor: PCA was found to increase proliferation and inhibit apoptosis of neural stem cells and was found to induce cell death of human leukemia cells. (8) In a laboratory model using HL-60 leukemia cells, PCA was shown to prevent damage to genetic information that could potentially lead to cancer, help destroy existing tumors (9) and PCA was found to inhibit the growth of lung cancer cells (10). PCA contained in *Hibiscus sabdariffa* may induce cell death (apoptosis) in human leukemia cells.(11) and induce apoptosis in human gastric carcinoma cells to help fight stomach cancer. (12)

Immune Support: The high vitamin C content in roselle can be an adjunctive therapy when combined with conventional treatments. Among the long list of benefits of Vitamin C, it may help to boost immunity and improve blood flow.

Weight Management: Roselle may help your body to break down your food and decrease absorption of carbohydrates. Roselle has been shown to decrease the synthesis of amylase, an enzyme that speeds up the chemical breakdown of starch into sugars. (13) In addition it boosts your metabolism allowing you to burn more calories faster . Studies show that *Hibiscus sabdariffa* significantly reduces body weight gain due to obesity. (14) Drinking a cup of hibiscus tea after meals will reduce the absorption of dietary carbohydrates and assist in weight loss.

Blood Pressure: A report by Diane McKay (antioxidant research laboratory of the Jean Mayer USDA Human Research Center on Aging at Tufts University/Boston) presented to the American Heart Association (published in November of 2008) states that consuming hibiscus tea lowers blood pressure in pre-hypertensive and mildly hypertensive adults. Dramatic improvement resulted from consuming only three cups of roselle tea (a mild infusion) daily for a few weeks. Another study conducted by Odigie IP suggests that roselle can benefit people suffering from high blood pressure and at risk of heart diseases. This is supported by scientific studies which conclude that *Hibiscus sabdariffa* consumption may have a public health benefit due to its reduction of high blood pressure and lowering cholesterol in the blood primarily due to anthocyanins found in

abundance. (15) Another study describes *Hibiscus sabdariffa* as being rich in organic acids, polyphenols, anthocyanins, polysaccharides and volatile constituents that are beneficial for the cardiovascular system and concludes that randomized controlled trials show a significant effect in lowering both systolic and diastolic blood pressure. (16)

In addition hibiscus tea has diuretic properties that increase urination, contributing to lowering blood pressure.

Lowering Cholesterol: Roselle tea has impressive antioxidant properties. It helps lower “bad” LDL cholesterol, thereby helping to defend against heart disease and blood vessel damage.

Diabetes: Roselle ability to lower cholesterol and high blood sugar levels may help people suffering from diabetes. A study conducted on humans with type II diabetes suggests that consumption of roselle tea lowers cholesterol, triglycerides and low density lipo-protein cholesterol to help manage diabetes. (17)

Anti-aging: Antioxidant rich roselle can help to keep your skin looking youthful. *Hibiscus sabdariffa* is a natural source of alpha hydroxy acid (AHA) used in anti-aging products. In addition, the muscle tightening effect *Hibiscus sabdariffa* helps smooth fine lines and wrinkles naturally while it strengthens skin cells. (18)

Keep cool and breathe more easily: Roselle satisfies your thirst (with no added sugar or sweeteners) and has a cooling (refrigerant) effect. It also reduces bronchoconstriction (narrowing of the airways) to allow you to breathe easily.

Studies show that roselle tea decreases the negative effects of drinking alcohol by reducing the absorption of alcohol.

Ingesting roselle has the potential to increase your vitality and lifespan by maintaining good overall health and wellness in many of our organ systems. Our delicious premium freeze dried roselle powder is a safe and convenient way to make cold or hot tea, mix in your yogurt, baking, desserts etc. The applications of 100% roselle powder are as unlimited as your imagination. Let's get healthy!

Precautions: Avoid ingesting roselle powder or tea during the first trimester of pregnancy due to possible hormonal interference.

Disclaimer: This product brief is solely intended as a source of information and does not prescribe or advise the use of any substance mentioned herein. The authors do not intend to diagnose, cure, treat, or prevent any disease. The Food and Drug Administration of Thailand has not evaluated any statements made herein.

Consult with your doctor about all prescription and non-prescription medicines you take before you begin to use any herbal products and partner with your professional health care practitioner on determining your own health destiny.

If you are pregnant, considering pregnancy or are a nursing mother you should consult your physician prior to using any health supplement product.

Endnotes:

(1) USDA Nutritional Database (<http://ndb.nal.usda.gov/ndb/search/> list

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