



Kyäni Sunrise™ : The Science Behind The Superfoods

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Kyäni Sunrise™ : The Science Behind The Superfoods

One of Kyäni's three proprietary products, Kyäni Sunrise™, is a blend of Superfoods, vitamins, and trace minerals. Taken in the morning, Sunrise provides a rich blend of antioxidants that help defend against free radical damage throughout the day. Kyäni Sunrise contains juices and extracts from some of the world's most potent antioxidant sources.

Although a food or berry may have a high level of innate antioxidant capacity, if one consumed only a small amount, it may not be very effective in defending against free radical damage to cells. Kyäni Sunrise contains Superfruits from around the world where, in many cases, harsh environmental growing conditions drastically increase the food's antioxidant potential. This is especially true for the Wild Alaskan Blueberry, an antioxidant powerhouse and the premiere ingredient in Sunrise.

The inclusion of a large number of Superfoods and a comprehensive group of vitamins in Kyäni Sunrise also helps cells in organs such as nerves, heart, liver, and others to maximize their metabolism. Interested readers may find the following helpful in understanding why Kyäni incorporated

various ingredients in Kyäni Sunrise. Please note this document discusses the formulation of Kyäni Sunrise™ for the United States. Other countries may have formula variations.

FRUITS, VEGETABLES, AND HERBS FOUND IN KYÄNI SUNRISE™

Wild Alaskan Blueberries, Pomegranate, Red Raspberry, Cranberry, Concord Grapes, Grape Skin/Grape Seed, Aloe Vera, Wolfberry, and.

WILD ALASKAN BLUEBERRIES

As the foundational ingredient in Kyäni Sunrise, the Wild Alaskan Blueberry is the king of Superfoods, boasting a broad range of nutrients. Much of the research and health benefits related to blueberries are focused on cultivated blueberries, sometimes referred to as high-bush blueberries. However, *it is known that Wild Alaskan Blueberries, or low-bush blueberries, are superior to high-bush blueberries by a factor as great as ten.* This comparison is illustrated in the overview section below.

Cultivated blueberries are the blueberries available at the supermarket. According to Julie Cascio, (1) research with various fruits shows that cultivated blueberries have a free radical defense score of 24, which is higher than other commercial fruits included in the studies. Anything above 40 is considered *very high*. *Wild Alaskan Blueberries, or low-bush blueberries, score even higher: at 111 in this particular test.*

Others have compared the commercially available blueberry with the kind of blueberry found in Alaska. (2) They report that *regardless of the method of testing*, low-bush blueberries were consistently higher in anthocyanins (these are water-soluble pigments that give fruits, flowers, and some vegetables their distinct color and may appear red, purple, or blue), total phenolics (these are organic compounds found in plants that protect them from injury), and antioxidant capacity compared with high-bush blueberries.

It is important to consider whether these scientific studies have any real meaning for a person who consumes Wild Alaskan Blueberries (or Kyäni Sunrise). USDA scientists recently concluded that eating Wild Blueberries and other antioxidant-rich foods at every meal helps prevent oxidative stress. (3) Oxidative stress is linked to chronic diseases, such as heart disease and aging. This study advances antioxidant research by moving beyond the measurement of antioxidants in foods to actual examination of the performance of specific fruits against oxidative stress in the human

body.

Heart Health

Blueberries may help preserve heart health, especially in those who are obese. Clearly heart disease is a leading cause of death worldwide and obesity is becoming a universal health problem. One eight-week study examined subjects who consumed blueberry supplements compared to a control group. (4) Selective risk factors in obese people such as low-density lipoprotein (LDL; the “bad” cholesterol) and systolic and diastolic blood pressure were significantly reduced in the subjects who consumed blueberry supplements. The health benefits of these modest health improvements cannot be overestimated.

Healthy Blood Sugar Levels

Obese individuals are also at high risk for diabetes with many deleterious effects on circulation to the eyes, heart, and kidneys. Consumption of blueberries improved the handling of glucose in a large cadre of obese, diabetic subjects. (5) Better control of rising blood glucose may help preserve circulation to the vital organs mentioned above.

One placebo-controlled clinical study using a mixed berry preparation that included blueberries showed a significant reduction in cholesterol at the end of four weeks. (6) Blueberries’ anti-inflammatory effects were also investigated in a clinical study involving 42 subjects diagnosed with Type 2 diabetes. (7) Researchers found ingestion of a preparation of blueberry leaves rich in chlorogenic acid plus anthocyanin myricetin significantly reduced C-reactive protein (CRP) and other inflammatory enzymes.

Small clinical trials do support the antioxidant efficacy of blueberries. In one study, consumption of a single meal of blueberries (100 g freeze dried powder) increased plasma antioxidant capacity in the postprandial state. (8) Trials have also shown ingesting blueberries can reduce oxidative stress as measured by plasma biomarkers. (9) Such effects were shown to be specific to the *anthocyanin* content of blueberries. (10)

Another problem facing the Western world is an aging population. The transition to living longer comes with an increase in the number of people with dementia or Alzheimer’s disease. Recently, blueberry juice was shown to improve recognition and learning in a few subjects with early evidence of Alzheimer’s disease. (10)

Several authors have recruited human subjects and, after feeding them

blueberry juice or extracts from blueberries, measured the antioxidant activity in the blood. (11,12) Antioxidant activity increased substantially.

There are many scientific reports in animal models of various diseases including aging, Parkinson's disease, Alzheimer's disease, high cholesterol, and heart problems.

Summary

The ingredients in blueberries appear to enhance antioxidant levels in human blood after ingestion and should help defend against any free radical damage that occurs as a part of natural aging and/or in several disease states.

CONCORD GRAPES

A second Kyäni Sunrise™ ingredient is the juice from Concord grapes. A large study performed in the UK on several juices demonstrated that “[t]he purple grape juice contained the largest number of individual phenolic compounds and also the highest concentration of total phenolics. The main components were flavan-3-ols, **anthocyanins**, and hydroxycinnamates, which accounted for 93% of the total phenolic content.” (13) Phenols are organic compounds that convey antioxidant activity in a vegetable or fruit. A very recent review of most of the human studies in which grape juice was tested appears in *Nutrition Reviews*. (14) The health benefits include a positive influence on cardiovascular health, cancer, neurodegenerative disease, and age related cognitive decline. These effects are often attributed to the antioxidant activity and function of flavonoid compounds found in grapes as well as other actions such as increasing nitric oxide production. The well-established health effects of grapes on cardiovascular disease risk, mainly on endothelial function, LDL oxidation, progression of atherosclerosis, and reduction in oxidative stress, have been clearly identified. Rather than list each of these studies, the interested reader is pointed to reference 14 for further information.

Heart Health

One ingredient in grapes is resveratrol, which has been identified as an important ingredient for health benefits in a number of different conditions. It is thought to be the reason that moderate consumption of red wine helps preserve cardiovascular, cerebrovascular, and peripheral vascular function.

In addition to resveratrol, grapes also contain a large variety of antioxidants, catechin, epicatechin, and proanthocyanidins. Resveratrol is

mainly found in the grape skin, but proanthocyanidins are found only in the seeds. Resveratrol and proanthocyanidin are the major compounds present in grapes responsible for cardioprotection. Grapes can attenuate cardiac diseases such as atherosclerosis and ischemic heart disease. It appears that resveratrol and proanthocyanidins, especially resveratrol, present in grapes play a crucial role in cardio-protective abilities of grapes.

In addition, use of grape juice alone has been shown to reduce blood pressure in hypertensive men. (15) The study was placebo controlled and double blinded, the gold standard for clinical studies in which physicians and other healthcare professionals strongly believe.

Grape juice has also been found to inhibit platelets from sticking together and forming clots. (16) Platelets are cells in blood that help in blood clotting. However, sticky platelets can help form blood clots that can travel to vessels in the heart, brain, or lungs. Therefore, a natural product that inhibits platelet-derived clots would obviously have health benefits.

Finally, grape skin extracts have direct effects to dilate blood vessels (therefore leading to lower blood pressure). This occurs through stimulation of the nitric oxide system. This unique effect on nitric oxide helps to explain many of the cardiovascular effects of grapes and grape skin. (17)

Mental Health

Several studies suggest that cognitive decline (dementia or Alzheimer's disease) is related to decreased blood flow in the brain. In elderly people with dementia, grape juice can improve several tests of mental status. (18) These preliminary findings suggest that supplementation with Concord grape juice may enhance cognitive function for older adults with early memory decline.

Strengthen Immune System

Our most powerful defense against bacterial and viral infections is the immune system. Consumption of grape juice for nine weeks showed enhancement of human immune function but a placebo treatment did not. There were 85 people who participated in the study. Several measures of immune function were assessed on each person and all showed enhanced levels. This is an important study in that one can't assume taking a supplement for a couple of times a week will be as healthy as routine and consistent consumption. (19)

Summary

Concord grapes processed into juice as well as extract from grape skin and seeds contain a powerful blend of phenol compounds, flavonoids, and anthocyanins that fight the injury that would otherwise be created by free radicals. Additionally, grapes appear to be active in all ages relative to cardiovascular health and may be an unappreciated way to help the elderly avoid some of the disabling effects of dementia. Strokes may also be reduced and immune function should be enhanced. Clearly, the benefits of grapes are vast and profound.

RED RASPBERRY

Red Raspberries, as most fruits, contain phenolics that have antioxidant properties. As a food containing a novel antioxidant called ellagic acid, raspberries (and also pomegranates) help prevent unwanted damage to cell membranes and other structures in the body by neutralizing free radicals. However, ellagic acid is not the only well-researched phytonutrient component of raspberries. Raspberries' flavonoid content is also well documented. The key substances are quercetin, kaempferol, and the cyanidin-based molecules called cyanidin-3-glucosylrutinoside and cyanidin-3-rutinoside. These flavonoid molecules are also classified as anthocyanins (which you will remember as being important components of blueberries and grapes as well).

Furthermore, raspberries contain the group of substances that give them their rich, red color. Raspberries' anthocyanins also give these delectable berries unique antioxidant properties, as well as some anti-microbial ones, including the ability to prevent overgrowth of certain bacteria and fungi in the body (for example, the yeast *Candida albicans*, which is a frequent culprit in vaginal infections and can be a contributing cause in irritable bowel syndrome). They also contain vitamin C, manganese, vitamin K, magnesium, folate (folic acid), omega-3 fatty acids, copper, vitamin E, and potassium. (20) Even with all of the remarkable health benefits, a cup of raspberries has only 63 calories!

In addition, Red Raspberries inhibit the production of inflammatory COX-I and COX-II enzymes. Anti-inflammatory products like ibuprofen and aspirin also inhibit COX-I and COX-II, resulting in the reduction of pain associated with arthritis, gout, and other inflammatory conditions. (21)

Although scientific studies have shown unique effects on one single component extracted from Red Raspberries, consumption of whole berries has been shown in scientific studies to be more beneficial than taking the

individual phytochemicals in the form of dietary supplements. The oil from Raspberry seeds is rich in Vitamin E, omega-3 fatty acids and has a sun protection factor (SPF) of 25-50. This is the reason the oil is often used in skin care products. Finally, Red Raspberry ketones are currently being used in Japan as a weight loss supplement in a pill form and as an external patch.

Summary

Red Raspberries contain high amounts of polyphenolic compounds (phenols) and strong antioxidants such as Vitamin C, quercetin, and gallic acid that fight against heart and circulatory disease and age-related mental decline. Their antioxidant levels are nearly as high as blueberries. The future of Red Raspberries as an important health aid will only expand in the future. Red Raspberries are one of the key Superfoods available in Kyäni Sunrise™.

POMEGRANATE JUICE AND EXTRACT

Heart Health

Pomegranate juice concentrate contains antioxidants such as soluble polyphenols, tannins, anthocyanins, and may have anti-atherosclerotic properties. This means the inhibition or reversal of atherosclerosis (or hardening of the arteries). Atherosclerosis is the narrowing of blood vessels and is a major contributor to coronary artery vessel disease and other vessel diseases. Patients with coronary heart disease show changes on the cardiograms during stress tests such as running on a treadmill. In other words, the narrowed vessels cannot provide enough blood flow and oxygen to meet the demands of exercise.

Three months of pomegranate juice consumption resulted in an improved stress test and less electrocardiogram changes. This occurred without changes in cardiac medications, blood sugar, hemoglobin A1c, weight, or blood pressure. (22)

Blood pressure is also reduced during pomegranate consumption. There are two primary reasons why pomegranate affects blood pressure: 1) The enzyme that causes high blood pressure, namely angiotensin converting enzyme (ACE), is also inhibited (23, 24) by pomegranate and 2) pomegranate juice helps protect nitric oxide from being destroyed as identified during research by Dr. Ignarro and his colleagues.

Dr. Louis Ignarro, Nobel laureate for his work on nitric oxide (see paper on

Kyäni Nitro FX™ and Kyäni Nitro Xtreme™) has shown that pomegranate juice protects nitric oxide from being destroyed. Therefore, when Kyäni Sunrise™ is taken together with Kyäni Nitro FX™ and/or Kyäni Nitro Xtreme™, the pomegranate juice in Kyäni Sunrise™ helps to keep nitric oxide working on the cardiovascular system. (25)

Inflammation

A small study in patients with rheumatoid arthritis (RA) showed that pomegranate consumption reduced markers of inflammation in RA patients. This could be related to the anti-oxidative property of pomegranates. (26)

Those who exercise often suffer from muscle soreness. Exercise is healthy and anything that helps reduce muscle soreness would be very appreciated. A study was undertaken to see if pomegranate juice supplementation improved the recovery of skeletal muscle strength after eccentric exercise in subjects who routinely performed resistance training. The results suggest that supplementation with pomegranate juice attenuates weakness and reduces soreness of the elbow flexor. It seems reasonable to suggest that Kyäni Sunrise™ may help one recover from some forms of exercise. (27)

Obesity

Pomegranate juice taken daily for a month by obese subjects caused them to lose weight whereas the control group actually increased body weight. (28)

Other

Rat, rabbit hamster, and cell culture studies using whole pomegranate juice or one of its components have suggested that pomegranate may help prevent ulcers, reduce influenza (the flu), inhibit viruses, improve skin health, and prevent some skin cancers caused by exposure to UV rays. Photo aging may also be delayed or prevented. Digestion may be improved and healthy bacteria in the intestine appear to be more robust in the presence of pomegranate juice.

Pomegranate juice extract is a great source of punicalic acid, an omega 5 polyunsaturated fatty acid that is highly beneficial for cell regeneration and proliferation. The juice of this fruit is an exceptional source of vitamins A, C and E and minerals such as calcium, phosphorous, potassium, iron, folic acid, niacin, thiamin, folates and riboflavin.

Pomegranate has been used for medicinal purposes for thousands of years. It was used as a tonic to heal ailments like ulcers and diarrhea and contains antioxidants like anthocyanin and ellagic acid, compounds like gallic acids, and flavonoids like quercetin which offer protection from diabetes, heart diseases, osteoarthritis and several kinds of cancer.

Pomegranate juice can have a great impact on the health of the heart, by keeping the arteries flexible and decreasing the inflammation in the lining of the blood vessels. It is known to reduce atherosclerosis, which is one of the leading causes of heart disease. It lowers the risk of blockage in the arteries that can cause a restriction in the flow of blood to the heart and brain. In other words it has an anti-atherogenic effect on the heart. It lowers the amount of LDL or bad cholesterol that is retained in the body and increases the amount of good cholesterol or HDL.

Although pomegranate juice contains fructose, it does not elevate the blood sugar level as other fruit juices do. Studies have shown that there was no significant increase in the blood sugar level of diabetic patients who drank this juice daily for a period of 2 weeks.

Pomegranates are also known to reduce high blood pressure. The juice of this fruit reduces lesions and the inflammation of blood vessels in heart patients. It is a natural aspirin, which keeps the blood from coagulating and forming blood clots. It even acts as a blood thinner allowing for an unrestricted flow of blood through the body.

Pomegranate juice eliminates free radicals from the body and inhibits the growth and development of cancer and other diseases. Its high contents of antioxidants stimulate the white blood cells to neutralize toxins in the body thereby promoting a strong and healthy immune system. Pomegranate is believed to induce apoptosis, a process where the cells destroy themselves. Daily intake of pomegranate juice can slow down the growth of cancerous cells in prostate cancer. Moreover it appears to block aromatase, an enzyme that converts androgen to estrogen, a hormone that plays a crucial role in the development of breast cancer.

Pomegranate juice is used in the treatment of diarrhea and dysentery as it plays a vital role in the secretion of enzymes that aids proper digestion.

Pomegranate juice has strong antibacterial and antimicrobial properties that help fight viruses and bacteria and boost our immunity system. It significantly reduces microbes that are found in the mouth commonly responsible for cavities and staph infections. Its antimicrobial properties

make it an inhibitor of HIV transmission. Out of all the fruits, pomegranate may have the highest potential to inhibit the transmission of HIV.

Anemia is a condition caused by the deficiency of red blood cells in the body. Since pomegranate juice contains ample amount of iron it helps in preventing a deficit of red blood cells in the body.

It also soothes urinary tract infection and eases the flow of urine. The high amount of dietary fiber, both soluble and insoluble in pomegranate juice helps to improve digestion and regulate bowel movement. Since it has no saturated fats or cholesterol, it is highly recommended for those aiming to lose weight.

Pomegranate juice acts as an inhibitor on enzymes that are responsible for damaging the cartilage. It is therefore highly recommended for patients suffering from osteoarthritis, a chronic condition characterized by the breakdown of the joint's cartilage. Studies conducted have proved the application of this juice to reduce deterioration of the cartilage. Unsweetened pomegranate juice relieves symptoms of arthritis and bone inflammation. A regular intake of this juice may curb the onset of neurological problems like Alzheimer disease. It is also known to dissolve kidney stones and cure erectile dysfunction in men.

Pomegranate juice is extremely beneficial for pregnant women. It is a great source of a number of vitamins and minerals including folic acid that is a crucial element of a pre natal diet. The anti-inflammatory property of pomegranate juice ensures a healthy blood flow, which is essential for the overall development of the fetus. The potassium content in this juice can also help prevent leg cramps that are generally associated with pregnancy. When consumed regularly by expectant mothers, it is known to lower the risk of premature child birth or birth of babies with low birth weight.

Pomegranate juice can be a secret potion to get a healthy, vibrant and youthful skin.

A diet high in pomegranate juice can help to slow down the process of ageing by reducing wrinkles and fine lines on the face caused by constant exposure to sun. It also helps to sustain the regeneration of the skin cells and prevent hyper pigmentation and occurrence of dark spots.

Pomegranate juice works wonders for dry skin. Its small molecular structure penetrates deeply into the skin to provide ample moisturization and hydration to the skin. Thus it soothes dry and irritated skin. Its content

of punicic acid, an omega 3 fatty acid keeps the skin constantly hydrated by sealing in the moisture.

Pomegranate helps in the regeneration of cells in the epidermal and dermal layers of the skin. It has an ability to hasten the process of healing of wounds. Even the oil of pomegranate seeds is loaded with skin friendly nutrients that are beneficial for the strengthening and regeneration of the epidermis. It also protects the skin from sunburns and heals the damage caused to the skin due to constant exposure to the sun.

Pomegranates are also known to extend the life of fibroblasts that are responsible for the production of collagen and elastin that tighten the skin and prevent the formation of fine lines and wrinkles. Collagen and elastin provide strength and support to the skin. When the fibers of collagen and elastin break down, the skin develops laxity that causes wrinkles and jowl.

Summary

Pomegranates contain powerful antioxidants that positively effect many systems of the body. Pomegranates promote heart in several ways. Additionally, the Superfruit has many other health benefits including the reduction of the inflammation associated with rheumatoid arthritis and decreased obesity.

CRANBERRY EXTRACT

Infections

Cranberries have a long history of preventing the severity of urinary tract infections. (29-32) This appears to be due to preventing the binding of the bacteria to the cells lining the urinary tract that effectively prevents the bacteria from multiplying.

Heart Health

In addition, a growing body of evidence suggests that cranberry flavonoids and polyphenols may contribute to reducing the risk of cardiovascular disease (CVD) by inhibiting LDL-oxidation, maintaining or improving high-density lipoprotein (HDL) levels, reducing platelet aggregation, improving vascular function, and reducing blood pressure among other potential cardiovascular benefits. (33, 34) Cranberry interventions have been shown to improve risk factors for cardiovascular disease among high-risk

populations, including those with Type 2 diabetes. (35)

In one study, low calorie cranberry juice cocktail has also been shown to raise HDL-cholesterol levels among abdominally obese men. (36) In the study, 250 ml of cranberry juice cocktail consumed daily showed positive increases in HDL-cholesterol concentrations. (36)

Published results also show that short-term cranberry juice supplementation is associated with a significant increase in plasma antioxidant capacity and reduction in circulating oxidized LDL concentrations. (37)

Healthy Blood Sugar Levels

Since cranberries are nutrient-rich and contain naturally occurring flavonoids, anthocyanins, and proanthocyanidins, it is thought that drinking cranberry juice cocktail and other cranberry beverages may not have the same glycemic response compared to a placebo beverage with the same sugar content. In other words, the theory was drinking cranberry juice wouldn't cause blood glucose to increase. Current research conducted with humans suggests that the polyphenols in cranberries do, in fact, blunt the blood sugar response in humans. (38, 39) While more research is needed, these preliminary studies suggest that cranberry juice cocktail may be an acceptable product for individuals with impaired glucose tolerance or those at risk for metabolic syndrome.

Antioxidants

Antioxidants help neutralize free radicals, which scientists believe can damage the body's DNA or genes, interfere with normal lipid metabolism, and promote inflammation, thereby increasing the risk for certain chronic diseases. (40-43) Cranberries contain naturally occurring antioxidant compounds: flavonoids (anthocyanins, flavonoids, and proanthocyanidins) (44) and a particularly rich source of phenolic phytochemicals including the phenolic acids (benzoic, hydroxycinnamic, and ellagic acids). Studies using various measures of antioxidant activity have revealed that cranberries and cranberry products have among the highest antioxidant capacity of fruits and fruit juices. (41-43, 45-47)

Summary

Cranberries are a powerful natural fruit with multiple health-promoting properties based on their abundant content of antioxidants. Their anti-bacterial and other effects have led to a focus of their role in helping

decrease urinary tract infections. This has excited scientists because if cranberries could be shown to minimize the binding of bacteria in the mouth or stomach or intestine, perhaps it would provide other targets for cranberries. Such research is currently ongoing and seems promising. Research has also shown that the same antioxidant and cholesterol metabolism effects of the other fruits in Kyäni Sunrise™ are also shared by cranberries.

WOLFBERRY (GOJI)

The Western world owes much to the Chinese and their long history of natural, plant based treatments. Goji is the modernized name for wolfberry, a red berry of the family of plants that includes tomato, eggplant, chili pepper, and potato. For at least 2,000 years, wolfberry has grown wild in China and been used in common recipes and traditional Chinese medicine. Wolves in China actually feast among the berry-laden vines during late summer at prime harvest time, probably to store nutrients for the winter; hence the name “wolfberry.”

Wolfberry juices and fruits have only begun to appear in the US and Europe in this century. As a result, there are a limited number of human trials. Virtually all research has been performed in mice, rats, dogs, and various cell cultures. Wolfberry contains significant percentages of a day's macronutrient needs – carbohydrates, protein, fat, and dietary fiber.

Studies show that 68% of the mass of a wolfberry exists as carbohydrate, 12% as protein, and 10% each as fiber and fat, giving a total caloric value of 370 for a 100 gram (quarter pound) serving. Seeds contain the wolfberry's main complement of polyunsaturated fats such as linoleic (omega-6) and linolenic (omega-3) acids.

Wolfberry's high concentration of micronutrients suggests it is an exceptional health food. There are 11 essential minerals, 22 trace minerals, 7 vitamins, and 18 amino acids. Some of these are calcium, potassium, iron, zinc, selenium, vitamin B2, and vitamin C.

Wolfberries contain dozens of phytochemicals. Three of particular interest are beta-carotene which is a pigment in orange-red foods like wolfberries, pumpkins, carrots, and salmon. Beta-carotene is important for synthesis of vitamin A, a fat-soluble nutrient and antioxidant essential for normal growth, vision, cell structure, bones, teeth, and healthy skin. *Wolfberry's beta-carotene content per unit weight (7 mg/100 grams) is among the highest for edible plants.* Another is zeaxanthin, an extraordinary carotenoid important as an antioxidant. Finally, wolfberries contain polysaccharides.

These are long-chain sugar molecules characteristic of many herbal medicines like mushrooms and roots. Metabolism in the intestine yields short-chain fatty acids which 1) are valuable for health of the colon epithelial lining, 2) enhance mineral uptake, 3) stabilize blood glucose levels, 4) lower pH, and 5) stimulate immune functions. Polysaccharides also display antioxidant activity.

In preliminary research to date, wolfberries may have potential benefits against cardiovascular and inflammatory diseases, some forms of cancer, diabetes, premature aging, memory deficits, vision degeneration, and lung disorders, among other diseases of oxidative stress.

Although not adequately demonstrated yet in published research, a synergy of antioxidant carotenoids (primarily beta-carotene and zeaxanthin) with polysaccharides may make wolfberries an exceptionally rich antioxidant food source.

Micronutrients and minerals combined with key health phytochemicals like carotenoids and polysaccharides give wolfberries remarkable nutritional qualities making this berry possibly one of the most nutritious plant foods on Earth.

Summary

Wolfberry is an exceptional health food containing carbohydrates, protein, fat, dietary fiber, omega-3s, omega-6s, and high levels of antioxidants. Wolfberry's beta-carotene content per unit weight is among the highest for edible plants. As a result, this Superfruit may possess many potential benefits against diseases. Maybe the ancient Chinese were right!

ALOE VERA

Aloe vera has been revered as a natural healer for decades. There is some evidence that Aloe vera extracts may be useful in the treatment of wound and burn healing, minor skin infections, sebaceous cysts, diabetes, and elevated blood lipids in humans. These positive effects are thought to be due to the presence of compounds such as polysaccharides, mannans, anthraquinones, and lectins.

Aloe vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids, and amino acids. (48-50) It contains vitamins A (beta-carotene), C and E, which are antioxidants. It also contains vitamin B12, folic acid, and choline. Antioxidants neutralize free radicals. It contains eight enzymes: aliase, alkaline phosphatase,

amylase, bradykinase, carboxypeptidase, catalase, cellulase, lipase, and peroxidase. Bradykinase helps to reduce excessive inflammation when applied to the skin topically, while others help in the breakdown of sugars and fats. Aloe vera also provides calcium, chromium, copper, selenium, magnesium, manganese, potassium, sodium, and zinc. They are essential minerals for the proper functioning of various enzyme systems in different metabolic pathways and a few are antioxidants.

Aloe vera also provides monosaccharides (glucose and fructose) and polysaccharides:(glucomannans and polymannose). These are derived from the mucilage layer of the plant and are known as mucopolysaccharides. The most prominent monosaccharide is mannose-6-phosphate, and the most common polysaccharides are called glucomannans [β -(1,4)-acetylated mannan]. Acemannan, a prominent glucomannan, has also been found. Recently, a glycoprotein with anti-allergic properties, called alprogen and a novel anti-inflammatory compound, C-glucosyl chromone, has been isolated from Aloe vera gel. (51,52) Aloe vera also provides 12 anthraquinones, which are phenolic compounds traditionally known as laxatives. Aloin and emodin act as analgesic, anti-bacterial, and anti-viral agents.

Additionally, Aloe vera provides four plant steroids: cholesterol, campesterol, β -sisosterol, and lupeol. All these have anti-inflammatory action. Lupeol also possesses anti-septic and analgesic properties. The hormones auxins and gibberellins help in wound healing and have anti-inflammatory action. It provides 20 of the 22 human required amino acids and 7 of the 8 essential amino acids. It also contains salicylic acid that possesses anti-inflammatory and anti-bacterial properties.

Healing Properties

Aloe vera significantly increases collagen synthesis after topical and oral treatment. (53) Furthermore, Aloe vera increases collagen content of the wound as well as changed collagen composition (more type III) and increased degree of collagen cross-linking. Due to this, it accelerated wound contraction and increased the breaking strength of resulting scar tissue. (54) An increased synthesis of hyaluronic acid and dermatan sulfate in the granulation tissue of a healing wound following oral or topical treatment has been reported. (55)

Inflammation

Aloe vera also inhibits the cyclooxygenase (COX-1, COX-2) pathway and reduces prostaglandin E2 production from arachidonic acid. This would

provide a second mechanism for its anti-inflammatory action. (52)

Summary

Aloe vera contains numerous ingredients including vitamins and antioxidants that have been individually recognized as contributors to maintaining good health. It has been revered for decades in promoting wound healing and skin health. Aloe vera is another Superfood included in Kyäni Sunrise™ to promote health and wellness.

MAQUI BERRY JUICE

Maqui berry may protect the body from toxins and chemicals by neutralizing free radicals and may provide aid to those who wish to lose weight, by flushing away fat from cells within the body. It may also help to improve your immune system and therefore assist the body in fighting off illness or disease for a longer period of time. The antioxidant-rich fruit works to keep cells nourished and protected against free radical damage and may help to slow the aging process. It contains a high level of vitamin C, potassium, iron and calcium and has ten times the amount of polyphenols and 100 times more anthocyanins than wine. It is thought that this will aid in heart health and improve aging. Some believe that because of its natural anti-inflammatory properties, it may reduce joint pain and help those who struggle with arthritis.

AMLA BERRY EXTRACT

Amla berry (Gooseberry) has been used for diabetic patients as it contains chromium which acts as a therapeutic. Its low sugar and high fiber content makes it ideal for diabetic patients. It reduces blood sugar by stimulating the isolated group of cells that secrete the hormone insulin. It also improves the glucose metabolism of diabetics and inhibits the production of glycosylated hemoglobin i.e. hemoglobin molecules bound to glucose, thus keeping the body balanced and healthy.

It is also considered beneficial for heart health as it is rich in antioxidants, iron, anthocyanin, flavonoids and potassium. It likely prevents the blockage of flow of blood to the heart by reducing bad cholesterol. It also prevents ischemic pain by facilitating proper flow of blood to nerves.

The high fiber content acts as a natural laxative in clearing the accumulated matter from the intestinal tract, thereby relieving constipation, lessening the symptoms of irritable bowel syndrome and other gastrointestinal problems.

It is a rich source of vitamins and minerals that are vital for brain health. The high iron content helps red blood cells to provide oxygen to the brain. The high amount of antioxidants found in gooseberry can prevent degeneration of brain tissue caused by free radicals.

Taking gooseberry powder with butter and honey before a meal is effective in improving your appetite as it helps to balance nitrogen levels, thereby increasing your weight in a healthy way.

Gooseberry is rich in antioxidants that restrict the growth of carcinogenic cells by keeping harmful free radicals at bay. Its high Oxidative radiance Activity Capacity (ORAC) prevents cell damage from oxidative stress. Due to these properties, it may be effective in preventing tumor cell growth, possibly providing protection against stomach, skin and liver cancer. The antioxidants can also counterattack the side effects of anti-cancer drugs.

Being rich in iron, gooseberry can prevent anemia by increasing the level of iron in red blood cells.

Indian gooseberry is effective in getting rid of menstrual cramps. For this purpose, you have to start consuming it few weeks before menstruation so that it is already in your system to give beneficial effect.

Gooseberry is beneficial for your eyes as well. Being rich in antioxidants, it protects the eye retina from oxidative stress. It reduces the risk of cataract, nearsightedness and loss of eye vision or macular degeneration. Drinking gooseberry juice with honey is effective in improving vision and may reduce intra-ocular pressure and cataracts (56, 57).

Being a rich source of vitamin C, gooseberry plays an important role in increasing immunity. Due to its antibacterial and astringent qualities, it improves the body's immune response towards common diseases like cold, flu and coughs, and prevents infections (58-60).

Being rich in potassium, gooseberry strengthens the nervous system, thus improving circulation. It also contains bioflavonoids that help maintain the permeability of capillaries to enable the nutrients to pass through the blood vessels more freely.

Indian gooseberry juice has been found to be effective in lowering the fat content in the body. It increases the metabolism of food. Fat accumulation can generate toxins that slow down the digestion process, thus adversely affecting your health. As stated earlier, gooseberry is a rich source of vitamin C that can flush out toxins from the body. Thus, obese people can consume gooseberry on an empty stomach in the morning to get maximum benefits.

Gooseberry is rich in vitamin C and antioxidants, which are beneficial for your skin as follows:

Ageing is due to damage by free radicals. Gooseberry is rich in vitamin C and antioxidants that play an important role in reviving the skin texture and making it smooth and radiant. Vitamin C removes toxins from the body, thus reducing skin blemishes and pigmentation. Antioxidants prevent free radical damage to the skin, thus preventing the onset of signs of ageing such as fine lines and wrinkles.

Indian gooseberry is used to prepare amla powder that is a great source of vitamin C, amino acids and tannins. Drinking gooseberry juice on a regular basis can brighten your complexion.

We all wish for long lustrous locks and Indian gooseberry can be beneficial in that respect. It acts as a hair tonic by encouraging hair growth and preventing several hair problems.

Regular intake of Indian gooseberry not only helps in combatting excessive hair loss but also stimulates hair growth.

The water in which dried gooseberry pieces are soaked overnight can be used as a last rinse while washing your hair. This acts as a conditioner by nourishing your hair. A mixture of amla powder and olive oil cleanses your scalp naturally.

ACAI BERRY EXTRACT

Research shows that acai berries are extremely high in anthocyanins, an antioxidant linked to lowering blood cholesterol levels. Acai is also rich in natural plant sterols that help prevent cholesterol from being absorbed into the blood stream. Other cardiovascular benefits include preventing blood

clots, relaxing blood vessels, and improving overall blood flow. An improvement in blood circulation can also contribute to a boost in sex drive, particularly in men.(61,62).

According to scientists from the Federal University of Rio de Janeiro, consuming acai extract may be useful in fighting harmful organisms.

Acai may also be beneficial for those seeking to lose weight or maintain a healthy weight. One study from the National Institutes of Aging found that acai berry pulp helped to reduce the negative effects of a high-fat diet in laboratory studies on flies.

Due to its high antioxidant content, many of today's modern skin care products contain natural acai oil instead of harmful chemical based ingredients. When processed and stored for commercial use, acai oil's antioxidant levels remain high compared to other tropical oils. Acai berries can also give your skin a healthier glow when ingested. In places like Brazil, people have consumed acai berries for centuries to treat skin conditions.

The acai berry is a well-known natural source of dietary fiber, which helps normalize and maintain bowel health, lower cholesterol levels, control blood sugar levels, and aids in maintaining a healthy weight.

Acai berries contain properties that may prevent irritation associated with respiratory distress. On a general level, the anthocyanins found in acai play a role in our cellular protection system, helping to keep cells strong against the invasion of free radicals (61-64).

Acai is very high in Vitamin C and ellagic acid, an immune-boosting combination that may help prevent cancer cell growth by preventing the binding of carcinogens to DNA and strengthening connective tissue. Ellagic acid is believed to cause apoptosis (cell death) in cancer cells without damaging healthy cells. In one study, the Journal of Agriculture and Food Chemistry found that acai-sourced polyphenol compounds reduced cancer cell proliferation by 56-86%. While acai is not a cure for cancer, additional research will continue to examine the berry's benefits and potential role in the fight.

The acai berry contains large amounts of potent antioxidants called plant phytochemicals which protect cells against oxidative damage and reduce the risk of developing certain types of cancer.

Preliminary research shows that acai berry properties may help prevent memory defects in menopausal women.

Considering all of acai's health benefits, consuming acai extract can help improve one's energy and stamina, combat fatigue and exhaustion, and contribute to overall wellbeing.

PANAX GINSENG EXTRACT

Panax ginseng extract (or simply ginseng) is a very popular herb in Asia and Europe. This herb grows extensively in the northern parts of China, Korea, Japan, and Nepal and has been used as a traditional herb for curing ailments such as headaches, stress, and high blood pressure. Ginseng contains vitamin A, D, E, K and B complex minerals like iron and phosphorous that is needed for fetal development. It can be given to young children to develop immunity as well as aid in proper growth.

Panax ginseng extract helps in proper functioning of the nervous system. This extract is a kind of a stimulant which when consumed instantly revives all the neurons thereby relieving stress and tiredness. As a remedy for fatigue, the effect of ginseng is instantaneous and very productive. Ginseng is also an excellent remedy for headache as it activates the neurons. In cases of persistent headaches, people can simply opt for this natural herb extract instead of using drugs that may have adverse side effects.

Regular intake of ginseng extract helps in improving the blood supply to the brain and heart muscles. It also helps the bone marrow (where RBC's are produced) to produce healthier cells.

Researchers have concluded that ginseng extract is very good in treating and curing type II diabetes mellitus by eliminating excess of fat present in the adipose tissue and other internal organs. This also improves the secretion of insulin, a necessary hormone to control diabetes (65).

Another very important benefit one can achieve by the consumption of ginseng is that they can increase their sexual libido. Regular intake can help people with sex related problems and studies have concluded that ginseng stimulates the secretion of the sex hormones and aids longevity during an intercourse. This is also a very good herb to improve arousal, even in women (66).

Ginseng is a very good remedy for controlling the onset of cancerous cells. Scientists have accepted that ginseng extracts contain certain compounds (Falcarinol) that completely inhibit cancer forming cells, especially breast cancer and gastric cancer; Panax ginseng extract is also a very good anti-bacterial, anti-fungal and anti-viral agent (67). Panax ginseng is very good in eliminating parasites and worms in the intestines of children thereby assisting their proper growth.

Overall Panax ginseng extract is hugely beneficial supplement and comes highly recommended from medical practitioners all over the world.

KALE POWDER

Kale is a low-calorie, high-fiber, and zero-fat superfood. With its high-fiber content, Kale aids in digestion and is packed with nutrients, vitamins, folate, magnesium, and more.

Kale is high in iron, a mineral that is essential for the formation of hemoglobin and enzymes which are essential for cell growth, proper liver function, and transporting oxygen to various parts of the body.

Kale is a source of Vitamin K which, according to a study in the *American Journal of Clinical Nutrition*, can reduce the risk of developing or dying from cancer. Vitamin K is also beneficial for normal bone health and blood clot prevention. Increased levels of vitamin K can also help people suffering from Alzheimer's disease.

Kale is bursting with powerful carotenoid and flavonoids which are the specific antioxidants associated with anti-cancer benefits.

Because of its Omega-3 fatty acid content, Kale is considered a great anti-inflammatory food. Omega-3s help fight arthritis, asthma, and autoimmune disorders. Kale can also help lower cholesterol levels.

Kale is high in Vitamin A which is great for vision, healthy skin, and helping to prevent lung and oral cavity cancers. Kale also contains Vitamin C which is beneficial in preventing bone loss, inhibiting osteoporosis and maintaining a healthy metabolism. Vitamin C is also helpful in maintaining cartilage and joint flexibility.

Kale is a great source of fiber and sulfur which have detoxification benefits and help to maintain a healthy liver.

BROCCOLI POWDER

Broccoli has more vitamin C than an orange and as much calcium as a glass of milk. One medium spear has three times more fiber than a slice of wheat bran bread. Broccoli is also one of the richest sources of beta-carotene in vegetables.

Broccoli has a strong, positive impact on our body's detoxification system, and researchers have recently identified key reasons for this detox benefit. Glucoraphanin, gluconasturtiin, and glucobrassicin are 3 glucosinolate phytonutrients found in a special combination in broccoli. This dynamic trio is able to support all steps in body's detox process, including activation, neutralization, and elimination of unwanted contaminants. Isothiocyanates (ITCs) are the detox-regulating molecules made from broccoli's glucosinolates, and they help control the detox process at a genetic level.

Broccoli may help us solve our vitamin D deficiency epidemic. When large supplemental doses of vitamin D are needed to offset deficiency, ample supplies of vitamin K and vitamin A help keep our vitamin D metabolism in balance. Broccoli has an unusually strong combination of both vitamin A (in the form of beta-carotene) and vitamin K. For people faced with the need to rebuild vitamin D stores through vitamin D supplements, broccoli may be an ideal food to include in the diet.

Broccoli is a particularly rich source of a flavonoid called kaempferol. Recent research has shown the ability of kaempferol to lessen the impact of allergy-related substances on our body. This kaempferol connection helps to explain the unique anti-inflammatory benefits of broccoli, and it should also open the door to future research on the benefits of broccoli for a hypoallergenic diet. Broccoli provides high levels of vitamin C, which aids iron absorption in the body, combats the development of cataracts, as well as easing the symptoms of the common cold.

The folate (also known as vitamin B9 and natural folic acid) in broccoli helps women sustain normal tissue growth and is often used as a supplement when taking birth control pills and during pregnancies.

The potassium in broccoli aids those battling high blood pressure, while a large amount of calcium helps combat osteoporosis. The vegetable is also fiber-rich, which enhances the gastrointestinal (GI) tract, as well as supporting healthy cholesterol levels.

In recent years, broccoli has made the headlines regarding three components found in the vegetable. For instance, indole-3-carbinol has captured the attention of those looking to prevent hormone-related cancers, such as breast and prostate cancer. I3C promotes "good" hormones, while working against destructive ones. The sulforaphane in broccoli also helps to increase the level of enzymes that block cancer, while the beta-carotene in broccoli transforms into vitamin A within the body, providing an effective antioxidant that destroys free radicals (responsible for weakening the defense of cells) (68).

ASHWAGANDHA EXTRACT

Ashwagandha is known to inhibit anxiety and improve energy. In certain cases, Ashwagandha may also promote healthy fertility. Ashwagandha acts as a mild sedative, and as indicated by its botanical name *somnifera*, it promotes restful, deep sleep. Ayurvedic medicine has used ashwagandha as a general tonic for centuries and this herb may be just the thing for today's stressed and burned-out populace. One of the chemically active ingredients found in the leaves of Ashwagandha is withanolides. These phytochemicals appear to have a steroid like effect, meaning that they indirectly increase activity of steroidal hormones like testosterone and progesterone. Because of testosterone's effect on sex drive, this could be what is behind ashwagandha's purported aphrodisiac effects (69).

Ashwagandha is a source of withanolide structures. Withanolide D has shown to exhibit antibiotic and antitumor properties. For those undergoing chemotherapy, ashwagandha may be a beneficial adjunct treatment for fatigue and other chemotherapy side effects.

Ashwagandha has a relaxing effect on blood vessels, promoting circulation. This anti-inflammatory property can be beneficial for rheumatic and autoimmune conditions such as rheumatoid arthritis and lupus. For controlling inflammation, studies have shown that naturally occurring steroids in ashwagandha are more potent than the synthetic steroid hydrocortisone. Ashwagandha is commonly used to treat low back pain and sciatica.

SPINACH POWDER

Spinach leaves offer a host of nutritional and medicinal properties that help to bolster the immune system, increase energy, and provide essential vitamins and minerals. Spinach is a good source of Lutein, Protein, Iron, Fiber, Vitamin C, Vitamin A, Vitamin C, Vitamin K, Sodium, Folic Acid, Manganese, Calcium, Phosphorus, Sodium, Beta-carotene, Potassium, Thiamine, Riboflavin, Carotenoids, Niacin, Chlorophyll, Antioxidants, Phytochemicals and Lipoic acid.

Many of these elements (Vitamins A and C, fiber, folic acid, magnesium) have shown promising effects against certain types of cancer, including lung, colon, and breast cancers. Folate also helps to lower the amount of an artery-damaging protein called homocysteine in the blood, helping to protect against heart disease. Flavonoids in spinach help protect against age related memory loss.

Age related macular degeneration is the leading cause of preventable blindness in the elderly. Spinach's secret weapon, lutein, makes it one of the best foods in the world to combat cataracts. Spinach is truly a remarkable food and should not be overlooked (76-90).

Possible benefits of Spinach Powder

- Supporting the cardiovascular system
- Balancing blood sugar levels
- Combating asthma & allergies
- Supporting healthy circulation
- Aiding lung function
- Promoting joint health
- Improving skin
- Cleansing the liver
- Combating inflammation throughout the body
- Supporting good digestion
- Combating anemia
- Supporting a healthy heart
- Detoxifying & cleansing the colon
- Nourishing the brain & combating age-related cognitive problems
- Improving eye health & combating age related macular degeneration

MANGOSTEEN PUREE CONCENTRATE

To date, very little research has been conducted to explore the effects of mangosteen fruit on human health. However, scientists have thus far been able to show that mangosteen extract may exhibit antioxidant, anti-inflammatory, antibacterial, antiviral and anti-tumor properties.

Mangosteen may be useful in helping to shield the brain from the toxic effects of amyloid beta (a substance associated with Alzheimer's disease that forms the brain). Some evidence also suggests that mangosteen extract may be helpful in the treatment of acne.

Additional research has shown that mangosteen may help to boost the immune system. Subjects who were given mangosteen appeared to have reduced levels of C-reactive protein (a marker of inflammation) and experienced a significantly greater improvement in immune response compared to the placebo group.

Cancer

Some claim that mangosteen helps to fight cancer. However, there is no evidence to support the use of mangosteen in cancer treatment or prevention. In fact, a 2006 report from the *Journal of the Society for Integrative Oncology* warns that cancer patients should use caution before consuming mangosteen as it can potentially interact with cancer treatments and affect blood sugar levels.

Uses for Mangosteen

For generations, mangosteen rind has been used throughout Southeast Asia for medicinal purposes. Legend suggests that mangosteen rind was used to make a tea for conditions like diarrhea, bladder infections and gonorrhea. Mangosteen rind was used to create an ointment that was applied to skin rashes. (91-96).

Proponents claim that mangosteen is useful for the following health issues:

allergies
anxiety
cancer
cataracts
chronic pain
depression

high blood pressure
high cholesterol
inflammation
irritable bowel syndrome
migraines
Parkinson's disease

Some nutritionists suggest that mangosteen may slow the aging process, aid in Alzheimer's prevention, increase energy, preserve eye health, stimulate the immune system, improve bone health and protect against heart disease but xanthones in mangosteen may interact with blood-thinning medication (such as warfarin) and possibly lead to bleeding. However, at the doses in Kyäni Sunrise™ this is unlikely to occur.

Others suggest that higher doses of xanthones may depress the central nervous system in animals and cause sedation. However, the doses in Sunrise™ are too low to elicit this effect.

ARONIA JUICE CONCENTRATE

Aronia berries are extremely high in antioxidants having one of the highest anthocyanin concentrations (pigments), and are very high in proanthocyanidins (tannins), in addition to other polyphenols. Aronia berries and the juice have been used in scientific research. An initial review of the available clinical data suggests that regular aronia juice consumption may:

- Reduce blood pressure
- Reduce oxidized LDL cholesterol levels
- Reduce inflammation
- Reduce the chance of a heart attack
- Reduce recovery time following a heart attack
- Reduce weight gain
- Reduce eye inflammation
- Reduce muscle recovery time after workouts
- Regulate Blood sugar
- And reduce the chance of developing cancer

Pear Juice concentrate

Pears contain vitamins A, B1, B2, C, E, folate and niacin and are also rich in copper, phosphorus and potassium, with lesser amounts of calcium, chlorine, iron, magnesium, sodium and sulfur.

Pears (and pear juice) are thought to be hypoallergenic. Pears have antioxidant and anti-carcinogen glutathione that help prevent high blood pressure and stroke. The high vitamin C and copper content act as good antioxidants that protect cells from damages by free radicals. The high content of pectin in pears makes it very useful in helping to lower cholesterol levels pectin is diuretic and has a mild laxative effect and regulate bowel movements.

Pear juice can be a natural source of energy due largely to its high amounts of fructose and glucose. Pear juice can help to bring a fever down quickly. Pear juice has an anti-inflammatory effect and helps relieve sufferers of pain in various inflammatory conditions.

Pears contain boron that helps the body to retain calcium, thus preventing or retarding osteoporosis. The high content of folate prevents neural tube defects in infants. Consuming pear juice may to help clear phlegm and it helps prevent throat problems.

WHITE GRAPE JUICE CONCENTRATE

Is an excellent source of vitamin C that is good for your immune system, but it may also provide benefits for your heart. A study published in 2012 in the European Journal of Applied Physiology indicates a connection between vitamin C and the prevention of narrowed blood vessels and impaired heart function in some situations (103-104)

It also provides some of the iron you need each day. Iron in red blood cells is needed for getting oxygen and nitric oxide to all your cells and tissues -- this has a great impact on your energy level. Not getting enough iron or losing blood due to blood donation, menstruation or an accident can leave you with an iron deficiency. White grape juice can help boost your consumption of iron.

CONCLUSION

Kyäni Sunrise™ is a liquid dietary supplement containing numerous fruit and vegetable based Superfoods. There is substantial scientific and medical evidence supporting the use of these Superfoods in achieving optimal health and wellness. For more information about Kyäni Sunrise and other Kyäni products, please visit www.kyaniscience.com.

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