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REVIEW ARTICLE

Delightful Broccoli: Nutritional information& Health benefits

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ABSTRACT

Consuming fruits and vegetables of all kinds has long been associated with a reduced risk of many lifestyle-related health conditions. Many studies have suggested that increasing consumption of plant foods like broccoli decreases the risk of obesity, diabetes, heart disease, and overall mortality. It may also promote a healthy complexion and hair, increased energy, and overall lower weight. It is a very good source of dietary fiber, pantothenic acid, vitamin B6, vitamin E, manganese, phosphorus, choline, vitamin B1, vitamin A (in the form of carotenoids), potassium and copper. Broccoli is also a good source of vitamin B1, magnesium, omega-3 fatty acids, protein, zinc, calcium, iron, niacin and selenium.Broccoi includes special phytonutrients that help in the body's detox process. This means that the body gets rids of unwanted contaminants. Broccoli also contains isothiocyanates, which help in the detox process at the geneticlevel.Skin care not only includes glow, but also its immunity. Since broccoli is a powerhouse of antioxidants and nutrients like vitamin C and minerals such copper and zinc, broccoli helps in maintaining a healthy skin. Research has shown the ability of kaempferol to lessen the impact of allergy-related substances on our body. Broccoli even has significant amounts of omega 3 fatty acids, which are well known as anti-inflammatory. Along with this, broccoli can also help people suffering from arthritis as broccoli contains sulforaphane, a chemical that blocks the enzymes that can cause joint destruction and hence lead to inflammation.

Keywords:Sulforaphane,Cruciferea, HDCA, Folate, Antioxidants, Kaempferol, ITCs

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INTRDOUCTION

Broccoli is one of the best-known cruciferous vegetables and is enjoyed worldwide in many different kinds of cuisine. While we often refer to broccoli as a cruciferous vegetable, we could just as easily call it a "brassica" vegetable. In the science classification systems, the family of foods called the "cruciferous" family are now generally referred to as the "brassica" family. (In Latin, the family names *Cruciferea* and *Brassicaceae* both refer to the same family of plants, and this family includes not only broccoli but also bokchoy, Brussels sprouts, cabbage, cauliflower, collards, kale, mustard greens, and turnip greens. Among the cruciferous vegetables, broccoli is closely related to cauliflower, and in fact, gets lumped together with cauliflower in many analyses of global imports and exports.In terms of color, broccoli varieties can range from deep sage to dark green to purplish green [1-5].

Much of our knowledge about food plants and food plant biology is tied in with our understanding of cruciferous vegetables. The *Cruciferae* (Brassicaceae) family of plants is found on virtually all continents and it is particularly diverse and plentiful in the Mediterranean area of Europe, the central and western areas of Asia, and the western half of North America. Some of the more recent aspects of this vegetable's history involve its cultivation in Europe and transport to North America. Within a broader historical context, broccoli started out as a form of wild cabbage, and it took centuries of selective planting and agricultural practice to allow for its evolution into the familiar varieties that we enjoy today.Eating a high amount of cruciferous vegetables has been associated with a lower risk of cancer; particularly lung and colon cancer. Studies have suggested that sulforaphane, the sulfur-containing compound that gives cruciferous vegetables their bitter bite, is also what gives them their cancer-fighting power [6-10].

Researchers have found that sulforaphane can inhibit the enzyme histone deacetylase (HDAC), known to be involved in the progression of cancer cells. The ability to stop HDAC enzymes could make

sulforaphane-containing foods a potentially powerful part of cancer treatment in the future. Sulforaphane is now being studied for its ability to delay or slow cancer with promising results shown in melanoma, esophageal, prostate, and pancreatic cancers. Broccoli contains, folate,which has been found to decrease the risk of breast cancer in women. Adequate intake of dietary folate (in food) has also shown promise in protecting against colon, stomach, pancreatic, and cervical cancers. Although the mechanism behind the protection is not understood, researchers believe that it may have something to do with folate's role in DNA and RNA production and the prevention of mutations.

THERAPEUTC USAGE

Broccoli contains beta-carotene, vitamin A, phosphorous and other vitamins such B complex, vitamin C and E. All these rich nutrients are great for eye health as these help in protecting the eyes against mascular degeneration, cataract and even repairs damage done by harmful radiations we go through by being constantly on our phones or being in front of a screen. Since broccoli is enriched with vitamin C, which has numerous antioxidant properties, it is great for anti-ageing. This is because antioxidants help fight the free radicals responsible for ageing. These free radicals often damage the skin. Eating broccoli regularly helps in reducing fine lines, wrinkles, skin issues like acne and even pigmentation.Since broccoli is rich in fiber, it can help get rid of toxins through the digestive tract. Other than this, broccoli is also full of antioxidants that help in overall detoxification of the body. Broccoi includes special phytonutrients that help in the body's detox process. This means that the body gets rids of unwanted contaminants. Broccoli also contains isothiocyanates, which help in the detox process at the genetic level.
Skin care not only includes glow, but also its immunity. Since broccoli is a powerhouse of antioxidants and nutrients like vitamin C and minerals such copper and zinc, broccoli helps in maintaining a healthy skin [11-12].

This means it also protects the skin from getting infections as well as keep the natural glow of your skin. Broccoli is full of vitamin K, amino acids and folates, making it ideal for maintaining healthy skin immunity.Broccoli contains high levels of both calcium and vitamin K, both of which are important for bone health and prevention of osteoporosis. Along with calcium, broccoli is also full of other nutrients like magnesium, zinc and phosphorous. Because of these properties, broccoli is extremely suitable for children, elderly and lactating mothers.The anti-inflammatory properties of sulforaphane, one of the isothiocyanates (ITCs) in broccoli, may be able to prevent (or even reverse) some of the damage to blood vessel linings that can be caused by inflammation due to chronic blood sugar problems [5, 4, 13].

Broccoli is great for heart health as it contains fibers, fatty acids and vitamins that help regulating blood pressure in the body. This also helps in reducing bad cholesterol, hence leading to a healthy heart. Broccoli helps protecting blood vessels from damaging as well. Broccoli is a good carb and is high in fiber, which aids in digestion, prevents constipation, maintains low blood sugar, and curbs overeating. Along with this, broccoli is also great for weight loss because it is rich in fiber. It is an ideal green vegetable to include in your salads and completing your five coloured vegetables everyday. In addition to this, broccoli also contains proteins, making it suitable for vegetarians that are otherwise not able to complete their protein requirement.

Broccoli shares cancer fighting and immune boosting properties with other cruciferous vegetables such as cauliflower, Brussels sprouts and cabbage. Broccoli contains properties that depletes estrogens which usually cause cancer in the body. Research shows that broccoli is extremely suitable for preventing breast and uterus cancer. Like many whole foods, broccoli is packed with soluble fiber that draws cholesterol out of your body. This is because the fiber in broccoli helps bind with bile acids in the digestive tract. This makes excreting cholesterol out of our body easy. According to a research by the Institute of Food Research, a particular variety of broccoli can help reduce the blood LDL-cholesterol levels by 6 per cent.

Research has shown the ability of kaempferol to lessen the impact of allergy-related substances on our body. Broccoli even has significant amounts of omega 3 fatty acids, which are well known as anti-inflammatory. Along with this, broccoli can also help people suffering from arthritis as broccoli contains sulforaphane, a chemical that blocks the enzymes that can cause joint destruction and hence lead to inflammation. Broccoli contains antioxidants that can help the body in a variety of ways. Broccoli is deeply concentrated with vitamin C, making it great for immunity. Other than this, broccoli also contains flavonoids which help recycle the vitamin C efficiently. It is also enriched with carotenoids lutein, zeaxanthin, beta-carotene and other power packed antioxidants [14].

CONCLUSION

Broccoli belongs to the cruciferous vegetable family, which includes kale, cauliflower, Brussels sprouts, bokchoy, cabbage, collard greens, rutabaga, and turnips. These nutrition powerhouses supply loads of nutrients for few calories. Consuming fruits and vegetables of all kinds has long been associated with a

reduced risk of many lifestyle-related health conditions. Many studies have suggested that increasing consumption of plant foods like broccoli decreases the risk of obesity, diabetes, heart disease, and overall mortality.Broccoli is known to be a hearty and tasty vegetable which is rich in dozens of nutrients. It is said to pack the most nutritional punch of any vegetable. When we think about green vegetables to include in our diet, broccoli is one of the foremost veggies to come to our mind. Coming from the cabbage family, broccoli can be categorized as an edible green plant.

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