

# **Sanguinelli blood orange Citrus sinensis (L.) Osbeck**



The blood orange is a variety of orange with crimson, almost blood-colored flesh. The distinctive dark flesh color is due to the presence of anthocyanins, a family of polyphenol pigments common to many flowers

and fruit, but uncommon in citrus fruits. Chrysanthemins are the main compounds found in red oranges.

## **Blood Oranges: Health Benefits from Anthocyanins and Vitamin C**

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***Anthocyanins are responsible for many of the health benefits associated with eating blood oranges.***

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This article provides an overview of the extraordinary health benefits of blood oranges. The blood orange is a variety of sweet orange (*Citrus sinensis*), and as such it shares many of the health benefits associated with eating sweet oranges, including the multiple health effects resulting from eating fruits rich in vitamin C. However, blood oranges such as Moro Blood and Sanguinello also offer some unique health benefits associated with the high levels of anthocyanins present in blood oranges.

**Blood Oranges Contain the Same 'Super Antioxidant' as Blueberries**

Unlike other citrus fruits, blood oranges contain anthocyanins, the same red flavonoid pigments that give blueberries and blue honeysuckle berries their intense colors and amazing antioxidant properties. Using oxygen radical absorbance capacity (ORAC) as a measure, a group of researchers from the Jean Mayer USDA Human Nutrition Research Center on Aging found that anthocyanins have extremely strong antioxidant properties in vitro<sup>1</sup>. The **antioxidant capacity of anthocyanins was found to be even stronger than that of Trolox** which is a vitamin E analogue.

Antioxidants protect our bodies from the effects of free radicals which are unstable molecules that promote the development of many degenerative diseases and pre-mature aging of the skin. Large amounts of free radicals are formed when our bodies are exposed to pollution, cigarette smoke, drugs, heavy exercising, toxic wastes, stress, aging, and UV radiation.

If you are planning to step up your anthocyanin intake by eating more citrus fruits, stick to blood oranges; **Cara Cara navel oranges, pink grapefruit, and Vainiglia Sanguignos get their pink/reddish pigmentation from lycopene, not anthocyanins.**

# Anthocyanins in Blood Oranges May Protect from Cancer

Looking for ways to prevent cancer through diet? Then take note: A large body of in vitro evidence suggests that anthocyanins may provide protection against cancer. Mechanisms that may be responsible for the **anti-toxic and anti-carcinogenic effects of anthocyanins** are summarized in a research paper written by Dr. Wang and Dr. Stoner from the Ohio State University<sup>2</sup>. According to this paper, laboratory studies suggest that anthocyanins may be able to:

- increase free radical absorbing capacity of cells as well as directly scavenge free radicals
- activate glutathione-related enzymes such as glutathione reductase (glutathione reductase, or GSR, is an extremely powerful antioxidant)
- inhibit proliferation of cancer cells, with relatively little or no effect on the growth of normal cells
- induce apoptosis (programmed cell death) in premalignant and malignant cells

- exert anti-angiogenic effects (angiogenesis refers to the development of new capillary blood vessels from the existing vascular network and is an important factor in tumor growth and metastasis)
- inhibit mutagenesis (change in the genetic information of an organism) caused by environmental toxins and carcinogens



**All Blood Oranges Are Supercharged with Vitamin C**

Blood oranges are loaded with ascorbic acid, also known as vitamin C. According to a comparative study conducted in Turkey, the vitamin C content of red oranges is in the range of 32 to 42 mg per 100 ml (3.4 fl oz). This study investigated three red orange varieties: Moro Blood (a blood orange variety), Sanguinello (a blood orange variety), and Cara Cara navel oranges. All of these are grown in the Mediterranean region of Turkey.

The highest vitamin C levels were found in the Sanguinello varieties, followed by Cara Cara navels. Moro Blood had the lowest vitamin C levels among the tested varieties.<sup>3</sup> This, however, does not imply that moro blood is a poor source of vitamin C. The U.S. Recommended Daily Allowance for vitamin C is set at 75 mg for women (90 mg for men). This means that **consuming just 100 ml of moro blood orange would fulfill more than 40 percent of a woman's daily requirement for vitamin C.**

Vitamin C stimulates collagen production and is crucial for the normal development and maintenance of bones, gums, teeth, cartilage and the skin. It is also needed for creating ATP (an energy-carrying molecule found in all living cells), dopamine (a neurotransmitter that plays a crucial role in

our mental as well as physical health), and tyrosine (an amino acid that promotes the proper functioning of the thyroid, pituitary, and adrenal glands). Furthermore, vitamin C is a powerful antioxidant that helps mitigate oxidative stress (stress caused by free radicals) and inflammation. According to the National Cancer Institute (NCI), vitamin C may also reduce the risk of cancer of the cervix, oral cavity, stomach, rectum, pancreas, and esophagus.

