



The Delicious Taste Of Nature's Healthiest Antioxidant Cocktail

Recent scientific studies have highlighted how Blood Orange Juice (BOJ) extracts provides the healthiest antioxidants cocktail given the phenomenal bioavailability of Naringenin and Hesperedin antioxidants after intake, but years ago, Blood Oranges could only be found in specialized import markets.

Some consumers even thought they were defective in some way, or were perhaps put off by their unfortunate nickname, "blood" oranges. But these oranges, with their succulence, sweetness, and robust flavors, have always had a special place in the hearts of Italians. For generations, Italian farmers have been actively engaged in breeding and grafting these amazing fruit trees, and in recent years have perfected two exotic varieties, Sanguinello and Moro, with the most remarkable, captivating flavors yet. But it's not just the flavor of these oranges that is remarkable: scientific exploration into plant pigments and "phytochemicals" has shown Blood Oranges to be a veritable medicine chest of compounds that can benefit human health. Indeed, the red pigment itself has been shown to be a powerful antioxidant with potentially beneficial effects on cardiovascular health, Immune systems and skin rejuvenation.



What's Special About Blood Oranges?

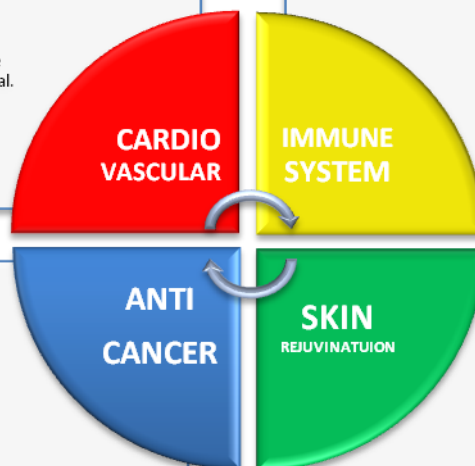
For more than a hundred generations, Sicilian farmers have been growing and perfecting Blood Oranges, in many cases on small family orchards originally laid out by the Romans. Over that expanse of human history, Sicilians have learned a few things about growing this amazing fruit, and about the health benefits of its unique, brilliant red juice. For them (and for the food scientists who have only recently caught up with their traditional knowledge) Blood Orange juice is not just a vital part of a balanced Mediterranean diet: it is simply the best and healthiest source of important vitamins, antioxidants, and micro-nutrients available anywhere.



The unique micro-climate of Sicily, with its volcanic soil, hot weather, and year-round, active insect population, has played a big role in making Blood Orange juice such a powerful and healthy treasure chest of nutrients. After all, Nature had to build a pretty robust plant to produce such a valuable fruit in such an environment--and in a couple thousand years, man has improved this further with his breeding programs. It turns out that all of the phytochemicals found in Blood Orange juice--with fancy names like flavonoids, anthocyanins, and coumarins--are really just fruit protection agents for the plant. In essence, each of these compounds is a repellent to ward off insect, bacterial, and fungal pests. With a lot of different kinds of insects and active microbes, the trees need to make very, very rich and diverse cocktails of these natural products in the hopes of warding off the widest possible array of active pests. (which explains why some of these compounds are highly active anti-microbial agents, too). VioVI's unique Blood Orange Juice thanks to the use of world class production and preserving technologies such as "Flash Freeze" contains the richest, most bioactive, and most diverse cocktail of antioxidants and micro-nutrients of any commercial juice product.

How Does Blood Orange Juice And Extracts Benefit The Human Body?

- Flavonoids from Red Orange Juice are known to have strong **free radical scavenging activity**, which can help prevent or delay the development of atherosclerosis, a major contributing factor to heart attacks and strokes. They can also **decrease the production of LDL** (or 'bad') cholesterol in the liver, according to one study by Borradalle et al. (1999) and decrease blood pressure and the chemical signals of inflammation in another study by Rotelli et al. (2003), both of which support cardiovascular wellness over the life span.



- A study by Riso et al. in 2005, found a significant increase in plasma Vitamin C and the anthocyanin C3G after consuming Red Orange Juice over 21 days. They also found **increased white blood cell resistance** to oxidative stress in the groups that consumed the Red Orange juice as opposed to controls. A study by Guarnieri et al. from this year found decreased damage in white blood cells taken from volunteers after a single serving of Red Orange juice. The most startling finding, however, was that this effect was not seen after these same volunteers were given a drink supplemented with the same amount of Vitamin C.

- Unrepaired DNA damage in cells from oxidative stress has been linked to the development of many kinds of cancers. The anthocyanin and citrus flavonoids prevalent in Red Orange juice, as an addition to the diet, have been shown to **inhibit the development of cancers** in many animal models, although studies on humans are still forthcoming (Yang et al. 1997, 2001).

- Antioxidant effects from Red Orange juice can also affect skin cells, as many of the visible signs of aging can be caused by exposure to **ultraviolet (UV) rays** from the sun, which causes oxidative damage to skin cells in exposed skin. A study by Proteggente et al. in 2003 showed this effect being reversed in cells by one of the citrus flavonoids present in Red Orange juice.

Modern science has only recently begun to unravel the mysteries of phytochemicals, and their positive impact on human health, and it still has a long way to go. Nevertheless, a number of scientific studies have shown that distinct classes of phytonutrients in Blood Oranges—the brilliant red anthocyanins, along with the bioflavonoids hesperidin and nairirutin—can act synergistically in the human body, in ways that contribute to wellness and longevity. (Rapisarda, et. al., 1999) Specific benefits, for which data continues to accumulate, include the lessening of hypertension, blood clotting, and cardiovascular deterioration; cancer inhibition; immune support; cholesterol lowering; skin rejuvenation; and anti-aging effects. Indeed, oxidative stress has been implicated in a number of maladies, including heart attack, stroke, diabetes, and cancer. Blood Orange juice, with the richest, most diverse array of antioxidants and inhibitors, is suited for reducing the effects of oxidative damage on cells.



Nature has blessed Sicilians with Blood Oranges, and with man's selective plant hybridizations over the course of millennia, the present varieties of Blood Oranges have emerged with a truly remarkable flavor, and an incredible wealth of beneficial nutrients. What does this mean to the consumer? It means that with VioVI Blood Orange juice, you aren't just enjoying a transcendently delicious taste. It also means you are getting the most diverse cocktail of protective micro-nutrients, delivering the widest possible range of potential health benefits. The scientific data is still evolving, but one thing is clear: there are sound reasons that over a hundred generations, Blood Orange juice has found a venerated place in the daily diet of Italians.

Brought to you by the VioVI Scientific Advisory Board (Giuseppe Mascarella MS, Dr. Marianne Trevorror, ND, and Dr. Jim Wade, PhD).

Antioxidant Profile Of Juice From Red Oranges (Moro) vs Juices Form Blond Oranges

	Moro (Red)	Valencia	Navel
Phenols (µg/mL)	1147	488	361
Anthocyanins (µg/mL)	278	0	0
Hesperidin/nairirutin (µg/mL)	445	244	202
Vitamin C (µg/mL)	510	577	417

Source: Rapisarda P, et al. Antioxidant effectiveness .. orange juices. *Journal of Agricultural and Food Chemistry*. 1999

Protecting the Antioxidants with O'Biolla's 4S Flash Production™ system.

Antioxidants, vitamin C, and beneficial phytochemicals may be very high in a red orange, but this doesn't necessarily mean they will be preserved in your bottle of juice. To make the most stable, safe, and natural product possible, O'Biolla has built a 4S Flash Production™ system, an integrated set of world class technologies and best practices.

Step 1: Start with Best Citrus

The ownership of O'Biolla includes over 3000 Italian citrus farmers, who deliver only the highest quality fruit to the juicing plant. With a computerized logistics system similar to that used at airports, O'Biolla can coordinate squeezing within 6 hours of harvesting.

Step 2: Superior Extraction Technology

For squeezing, juice purification, and the standardization of juice products, O'Biolla has partnered with FMC, who has designed and built for one the largest citrus concentrator and palletizer in the world. With on-line monitoring, and automated fruit washing, squeezing and color standardization,

Step 3: Secure the Healthy Ingredients

For long term storage of juices, freezing of concentrates is necessary to preserve the rich antioxidant profile of red orange juice. O'Biolla uses a world class highly automated technology called "flash freezing," which can freeze 300 liters of juice from 10C to -25C in 1 minutes, or a whole 4 in just 2 hours.

Step 4: Safe Aseptic Packaging

To make our fresh red orange juice available in the safest, most convenient containers, O'Biolla has acquired several packaging technologies such as the Elopac UltraClean technology to fill up to 9000 aseptic juice packs per hour.

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