

INNATE

RESPONSE FORMULAS®

Wild Blueberry

V i s m e d i c a t r i x n a t u r a e

Product Rationale

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WILD BLUEBERRY RATIONALE

The Health Promoting Attributes of Blue

The Antioxidant Leader Among Fruits and Vegetables

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Rationale

The fundamental reasons and logical basis used to formulate **Wild Blueberry** from **Innate Response Formulas®**.

The Benefits of Wild Blueberry

Wild Blueberries are one of richest sources of anthocyanin and flavonoid compounds making it an exceptional whole food antioxidant. In 1997, the Jean Mayer USDA Human Research Center on Aging at Tufts University determined wild blueberries to have the highest antioxidant activity in comparison to 50 other commercially available fruits and vegetables. The antioxidant activity was measured by a standard test that measures a fruit or vegetable's ability to quench free radicals in vivo, called ORAC (oxygen radical absorbency capacity). The higher the ORAC value of an item, the higher "anti-aging" capacity it has.

It is important to note that wild blueberries have more anthocyanins and other protective compounds than their cultivated cousins do.

Wild Blueberry offers valuable benefits for:

- Many of the physiological functions associated with powerful antioxidant activity.
- Health of eyes and vision.
- Supporting the circulatory system.
- Healthy urinary function.
- The ability of the body to fight carcinogens.
- Supporting anti-inflammatory activity of the body.
- Protection of the brain functions.
- Anti-aging support.

THE IMPRESSIVE ANTIOXIDANT POWER OF WILD BLUEBERRY

The antioxidant capacity of blueberries has been credited to two main sources, according to Wilhelmina Kalt of Agriculture and Agri-Food Canada. One is chlorogenic acid, an anti-carcinogenic phytonutrient. The other is the anthocyanin compound, which gives blueberries their dense color. The phytonutrient classification called phenolic compounds has a highly beneficial group called flavonoids or bioflavonoids. Anthocyanins are an active type of flavonoid. These antioxidants help protect the body from oxidative stress, one of several biological processes involved in aging and some types of degenerative diseases.

It is noteworthy that the antioxidants found in blueberry inhibit oxidation of the hydrophilic constituents of the cells (e.g. amino acids) as well as hydrophobic constituents.

While the healthful properties of blueberries are believed to be primarily due to their anthocyanin compounds, BioSan Laboratories Inc. believes the whole fruit contains a myriad of other constituents, which provide a host of benefits as yet undefined.

WILD BLUEBERRY SUPPORTS EYES AND VISION

Blueberries support the health of the eyes and improve vision. It is useful in treating diabetic retinopathy and night blindness, which becomes more common with age. Blueberry's anthocyanins enhance circulation to the capillaries of the eyes, help stabilize membranes and reduce oxidation in the tissues of the eyes and supporting structures. Blueberries are useful for prevention and as part of treatment of macular degeneration and cataracts.

Research recently conducted in Japan has focused specifically on the effect of blueberry extract on eyesight. The study took 26 people and divided them into two groups. For 28 days group A took 125 mg of blueberry extract twice a day which contains 31.25 mg anthocyanins. During these 28 days group B took a placebo. After the first 28 days the groups switched and the experiment continued for another 28 days. The results show that during the 28 days when each group was taking the blueberry extract the symptoms associated with weak eyesight improved. When taking the placebo, eyesight remained the same. Symptoms of the eyes included fatigue, pain, etc. According to the study, to achieve the best results people should take 62.5 mg of anthocyanins per day for three weeks or more. This means taking 250 mg of blueberry extract. The extract did not have any side effects on the subjects studied. The study concludes that blueberry extract is beneficial for the prevention of weak eyesight and support of tired eyes [15].

WILD BLUEBERRY SUPPORTS THE CIRCULATORY SYSTEM

Blueberries are rich in anthocyanins that reduce capillary fragility and permeability. They are strengthening to capillaries, veins and arteries and reduce oxidative stress to cellular membranes.

WILD BLUEBERRY SUPPORTS HEALTHY URINARY FUNCTIONS

Studies show that blueberries, like cranberries, have a unique component which supports a healthy urinary tract. It works by reducing adhesion of pathogenic bacteria and supporting membrane integrity.

The consumption of cranberry juice has long been recommended for the prevention of urinary tract infections. A 1994 clinical study traced this effect to specific compounds called proanthocyanidins, which inhibit the adherence of *Escherichia coli* to uroepithelial cells. Bacterial adherence to mucosal surfaces is a prerequisite for the development of most urinary tract infections. The antiadherence bioactivity of the proanthocyanidin extracts from cranberries was detectable at concentrations of 10 to 50 ug per milliliter. Other members of the genus *vaccinium*, including blueberries, had similar bioactivity, whereas a wide range of other fruits and vegetables did not.

Proanthocyanidins from cranberries, blueberries, and other *vaccinium* species may be one of the components, or even the major component, of these juices contributing to their salutary effects on urinary tract infections [14].

WILD BLUEBERRY AND ANTI-CARCINOGENIC ACTIVITY

One study on the bioactive properties of wild blueberry fruits concluded that the flavonoids inhibit the initiation stage of chemically induced carcinogenesis by inducing the activity of the quinone reductase enzyme [8].

Preliminary findings by Lyndon L. Larcom, professor of microbiology and molecular medicine at Clemson University in South Carolina, has revealed that **extracts from blueberries and blackberries suppressed breast cancer cell growth, with each fruit suppressing a different cell line. Clinical trials are to be conducted in the near future.**

Antioxidants are known to delay and prevent free radicals from damaging tissue, DNA lipids and protein molecules. DNA damage is often a precursor to cancer.

WILD BLUEBERRY, THE BRAIN AND ANTI-AGING

As well as antioxidants, blueberries also appear to contain potent anti-inflammatories. These two constituents have a highly protective effect on the brain as we age. Recent studies at Princeton University and the Salk Institute have shown that blueberry-fed animals actually grew new brain neurons faster than the control group. It was also seen that the brain cells of blueberry fed-rats actually communicate better. Furthermore, research at the University of South Florida, has uncovered evidence suggesting that blueberries may hinder the onset of Alzheimer's disease.

The National Institute of Aging (NIA) and United States Department of Agriculture (USDA) funded a study which concluded that a diet including blueberry extract, rich in antioxidant flavonoids, improves memory and age-related motor functions [4,5,9].

Wild Blueberry from Innate Response Formulas® has an antioxidant activity per tablet that is equivalent to 26 mg of Vitamin C or 39 IU of Vitamin E. One tablet is the equivalent of 2,000 mgs of fresh wild harvested blueberries and is equal to seven whole wild blueberries. This formula contains 100% Whole Food Concentrate of wild-harvest blueberries.

WHY WILD BLUEBERRIES

New research shows that Wild blueberries have more anthocyanins than their cultivated cousins do, this is one of many reasons why they are used in Wild Blueberry Innate Response Formulas®. Wild Blueberry from Innate Response Formulas® is made from deep blue, Wild Blueberries packed with phytonutrients and antioxidants, making them anti-aging superstars.

OTHER CONSTITUENTS PRESENT IN WILD BLUEBERRY

Blueberries provide many essential nutrients and phyto-nutrients including: Potassium, flavonoids (anthocyanins), Carbohydrates, Dietary Fiber, Vitamins A, E & C, Thiamin, Riboflavin, Niacin, B6 and Folate, B12, Phosphorous, Magnesium, Manganese, Boron and Zinc; (+)-Catechin, 1,8-Cineole, Alpha-Carotene, Alpha-Terpineol, Beta-Carotene, Beta-Cryptoxanthin, Beta-Sitosterol, Caffeic-Acid, Cyanidin, Ellagic-Acid, Farnesol, Glutamic Acid, Glycine, Isoleucine, Limonene, Lysine, Methionine, Phenol, Quercetin, Rosmarinic Acid, Rutin, Thymol, Serine, Tyrosine, Tryptophan.

“For optimum health,” scientists say, *“Eat a rainbow of colors.”*
TIME, 2002 Annual Health Issue

Blueberries may be *“One of the best age-proofing foods in your diet,”*
The Color Code – J. Joseph, D. Nadeau, A. Underwood

References:

1. "In vitro cancer activity of fruit extracts from *Vaccinium* species.", J. Bomser, D. Madhavi, et al., *Planta Medica* 1996, 62:212-216
2. "Newsbreak: Study: Wild Blueberry may fight aging, cancer", Anne Sundermann, *Herbs For Health* Nov/Dec 1998, pg. 26
3. "Studies on *Vaccinium myrtillus* anthocyanosides, Vasoprotective and antiinflammatory activity.", A. Lietti, A. Cristoni, M. Picci, Research Labs Inverni della Beffa, Milan Italy, *Arzeim-Forsch* (Drug Res.) 26, NO. 5 1976
4. "Antioxidant Capacity and Health Benefits of Fruits and Vegetables: Blueberries, the Leader of the Pack", Ronald L. Prior, Ph.D., *North American Blueberry Council*, USDA Human Nutrition Research Center on Aging at Tufts University, 1999.
5. "Reversals of Age-Related Declines in Neuronal Signal Transduction, Cognitive, and Motor Behavioral Deficits with Blueberry, Spinach, or Strawberry Dietary Supplementation." James A. Joseph, Barbara Shukitt-Hale, et al., *The Journal Of Neuroscience* September 15, 1999,19(18):8114-8121
6. "Antioxidant action of *Vaccinium myrtillus* extract on human low density lipoproteins in vitro: initial observations". PM Laplaud, A. Lelubre, et al., *Fundam Clin Pharmacol* 1997;11:35-40
7. "Novel lipid-lowering properties of *Vaccinium myrtillus* L. leaves, a Traditional Antidiabetic treatment, in several models of rat dyslipidaemia: A comparison with Ciprofibrate." Andrea Cignarella, Milena Nastasi, et al., *Thrombosis Research*, Vol. 84, No.5, pp. 311-322, 1996
8. "Bioactive Properties of Wild Blueberry Fruits", M. A. L. Smith, K. A. Marley, et al., *Journal of Food Science*, Vol. 65, No. 2, 2000
9. Agricultural Research Service, Dr. Duke's Phytochemical and Ethnobotanical Databases, "Chemicals and their Biological Activities in: *Vaccinium corymbosum* L. (*Ericaceae*)—Blueberry. on-line- www.ars-grin.gov/cgi-bin/duke/farmacy2.pl.
10. "Effects of blueberry and cranberry juice consumption on the plasma antioxidant capacity of healthy female volunteers." Pedersen CB, Kyle J, Jenkinson AM et al., *EUR J Clin Nutr* (May 2000) 54(5):405-8
11. "Action of anthocyanosides of *Vaccinium myrtillis* on the permeability of the blood brain barrier." Robert M, Godeau G, Moati F et al., *J Med* (1977) 8(5):321-32
12. "Effects of *Vaccinium myrtillus* anthocyanosides on arterial vasomotion." Colantuoni A, Bertuglia S, et al., *Arzneimittelforschung* (1991 Sept.) 41(9):905-9
13. "Bioactive Properties of Wild Blueberry Fruits", Smith M .A .I., Marley K. A., *Journal Of Food Science*, Vol.65, NO. 2, 2000, © 2000 Institute of Food Technologists The New England Journal of Medicine — October 8, 1998 — Volume 339, Number
14. "Inhibition of the Adherence of P-Fimbriated *Escherichia coli* to Uroepithelial-Cell Surfaces by Proanthocyanidin Extracts from Cranberries" Amy B. Howell, Ph.D., Nicholi Vorsa, Ph.D.*The New England Journal of Medicine* — October 8, 1998 – Volume 339, Number 15
15. "Blueberries and Eyesight", Osami Kajimoto, *Food Style* 21, Vol. 3 No. 3, March 1999.