



for your best health

PHYTONUTRIENTS

Ask Your Pharmacist

You do not need to be alarmed if you see items such as isoflavones, terpenes, and insoles on your cereal packaging. You can rest assured that these aren't artificial additives, they're naturally occurring chemicals found in fruits, vegetables and whole grains. Called phytochemicals or phytonutrients (phyto is Greek for plant), they are mostly found in plants. A single tomato or orange contains hundreds, and possibly thousands, of phytochemicals, whose primary function is to provide protective coloring, odor, texture or taste to plants. Phytochemicals are non-nutritive plant chemicals that contain protective, disease-preventing compounds. Phytonutrients are nutrients derived from plant material that have been shown to be necessary for sustaining human life.

These biologically active substances are used by the human immune system as part of its disease-fighting arsenal. Their immune enhancing properties are only just beginning to be explored. Scientists are still deciphering the many other ways phytochemicals or phytonutrients in foods may offer frontline defenses against degenerative diseases. Some are antioxidants, which protect against harmful cell damage from oxidation. Research seems to indicate that these substances work together to boost our immune system. Others perform different functions that can help to prevent cancer.

Experts suggest that the best known function of phytochemicals is elimination of free radicals that can cause DNA damage leading to cancer, and consequently their apparent ability to stop the conversion of a cell from healthy to cancerous at many different stages. It is for this reason that scientists are so

excited about phytochemicals and phytonutrients. For example, Isothiocyanates, found in cruciferous vegetables (such as broccoli, cauliflower, and cabbage) switch on enzymes that actually detoxify carcinogens at an early stage; they also increase the antioxidant defenses of cells. Saponins, found in beans and other legumes, may prevent cancer cells from multiplying by influencing genetic material in the cells. Diallyl sulfides in garlic and onions can stop the growth of cancer cells at a later stage. Ellagic acid, a type of phenolic acid found in strawberries and raspberries, reduces the genetic damage caused by carcinogens in tobacco smoke and air pollutants.

Grants from the American Institute for Cancer Research (AICR), have enabled scientists to investigate how curcumin (found in turmeric) is effective against skin cancer, and the way a substance in green tea (known by the abbreviation EGCG) affects the cell.

Lycopene, the substance that makes tomatoes red, has received much media attention due in part to its possible effects in helping to prevent several types of cancers, including prostate cancer. Lycopene, a member of the vast carotenoid family, contains more than 600 compounds (including the well-known beta-carotene, plus lutein and zeaxanthin, found in leafy greens).

It is always a good idea to eat a well balanced diet with lots of colorful fruits and green leafy vegetables which can provide the body with the phytonutrients we need. However, some phytonutrient supplements have inherent advantages over certain fruits and vegetables, such as carrots, which can excessively elevate one's blood sugar levels. Because phytonutrient supplements actually extract the pigments -- where the nutrients are especially

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PHYTONUTRIENTS (continued)

concentrated -- they may well be a sure way to derive the most benefit from fruits and vegetables without consuming the excess sugars and calories.

Phytonutrient supplements have become very popular in the past few years, and it is acknowledged that phytonutrient supplements and their plant-based nutrients are some of the best and most beneficial of all foods to eat. But because these supplements are only the extract of where the nutrients are actually concentrated, they are the preferred way to get the best of the best from all the fruits and vegetables without the extra sugars and calories. Ask our pharmacists to guide you on the most suitable phyto-supplements to suit your lifestyle and health issues.

TOP 12 PHYTONUTRIENT RICH FOODS

SOY - protease inhibitors, beta sitosterol, saponins, phytic acid, isoflavones
TOMATO - lycopene, beta carotene, vitamin C
BROCCOLI - vitamin C, indole-3-carbinol, sulphoraphane, lignans
GARLIC - thiosulphonates, limonene, quercitin
FLAX SEED - lignans
CITRUS FRUITS - monoterpenes, coumarin, cryptoxanthin, ferulic acid, oxalic acid
WATERMELON - lycopene
PINK GRAPEFRUIT - lycopene
BLUEBERRIES - tannic acid, lignans, anthocyanins
SWEET POTATOES - beta carotene
CHILLI PEPPERS - capsaicin
LEGUMES: beans, peas, lentils - omega fatty acids, saponins, catechins, quercitin, lutein, lignans

LIST OF POPULAR PHYTO-SUPPLEMENTS

Chlorophyll: This is the green pigment you will find in many green vegetables.

Carotenoids: These are naturally occurring, colorful compounds that are abundant in numerous plants. These carotenoids include alpha-carotene, beta-carotene, lycopene, lutein, zeaxanthin, and cryptoxanthin.

Capsaisin: This compound has anti-inflammatory properties and helps prevent the activation of carcinogens.

Coumarins: This is contained within cruciferous vegetables.

Flavonoids: These act as anti-oxidants, helping prevent blood clotting and protecting against heart disease. They are also believed to protect veins and help prevent cataracts.

Ellagic Acid: Helps to neutralize carcinogens found in tobacco smoke, processed foods, and barbecued meats.

Glucosinolates: These help to activate enzymes that detoxify the liver.

Indoles: Help lower levels of harmful estrogen.

Isoflavones: These act to block tumor causing enzymes and

lower levels of estrogen.

Isothiocyanates: Are found in cruciferous vegetables and act in a similar way to isoflavones.

Lignans: Lignans are considered to be particularly protective against colon cancer and heart disease.

Phenols: Come from almost all fruits, vegetables and grains. Considered to have anti-oxidant properties.

Saponins: Found in tomatoes, spinach, onions and garlic. They help stimulate the immune system and lower circulating levels of fats.

Sulfides: Their function includes fighting bacterial, viral, and fungal infections.

Phytosterols: Considered to be beneficial in helping to regulate cholesterol.