



# BLOMMER CHOCOLATE COMPANY

## ANTIOXIDANT BRIEF

### ANTIOXIDANTS

Antioxidants scavenge free radicals (reactive oxygen species) and thus help the body fight against aging and a multitude of diseases, such as Cancer, Alzheimer's disease, and Parkinson's disease as well as reducing the risk of heart disease; the number one killer of men and women in the United States.

The bad guys are the oxidants (free radicals) and the anti-oxidants bind with them so that they are no longer "free" to attack our systems. Free radicals have a cumulative effect and can be found in our exposure to the sun, foods, toxins and stress.

### ANTIOXIDANTS & COCOA

The antioxidants in cocoa can help reduce the main contributors to cardiovascular disease by helping to reduce inflammation of blood vessels, reduce blood pressure and reduce overall cholesterol.



Studies have also indicated that antioxidants increase the blood flow to the brain which can help protect against memory loss and protect against Alzheimer's disease by protecting against amyloid plaque damage.

There are many antioxidants of which polyphenols and the subclass flavanols are one type. Cocoa is particularly rich in monomeric flavanols, specifically epicatechin and catechin.

Cocoa bean handling and processing can affect the amount and type of flavonoids in finished cocoa and chocolate products. Several factors can have an impact, including cultivar type, geographical origin, agricultural and post-harvesting practices and processing.



Carbohydrate content, such as sugar, has been shown to improve flavanol absorption. Protein interaction has also come into question. Researchers concluded that the presence of milk in cocoa and chocolate products does not counteract the absorption or biological activity of flavanols.

Antioxidant levels can be directly measured for overall polyphenol content or for particular flavanols, such as the catechins and epicatechins. Another way is to measure the ORAC (Oxygen Radical Absorbance Capacity). This measures the activity or bioavailability of the antioxidants.

### RELATIVE AMOUNTS

**Antioxidants are housed in the solids portion of cacao products (from low to high)**

#### Cocoas

- Natural process cocoa (most)
- Red cocoas
- Black cocoa

#### Chocolates

- High cacao solids dark chocolate (most)
- Dark chocolate with alkali
- Milk chocolates



*Blommer*

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