



Cocoa Flavanols & CocoaVia™

Content

- ◆ Introduction into Mars Nutrition
- ◆ Introduction into cocoa flavanols
- ◆ Scientific background
- ◆ CocoaVia™ chocolate brand



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HEALTH & WELLBEING

Mars Nutrition - Introduction

Mars Nutrition
The Trusted Partner
Enhancing Healthy Lifestyles
Day after Day!

Functional Chocolate

Sports Nutrition

Functional Snacks

Fruit



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Cocoa Flavanols - Introduction

Polyphenols

Hydroxycinnamates

Flavonoids

Isoflavones

Flavonols

onions
broccoli
apples
tea



Flavanols

(green) tea
cocoa*
apples
apricots
red wine

Anthocyanins

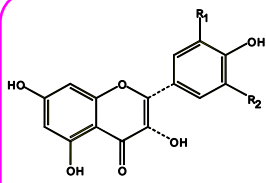
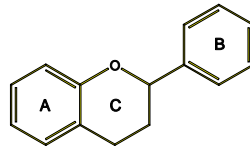
berry fruits



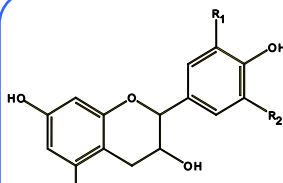
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Cocoa Flavanols - Introduction

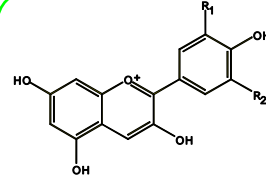
Flavonoids



Flavonols



Flavanols



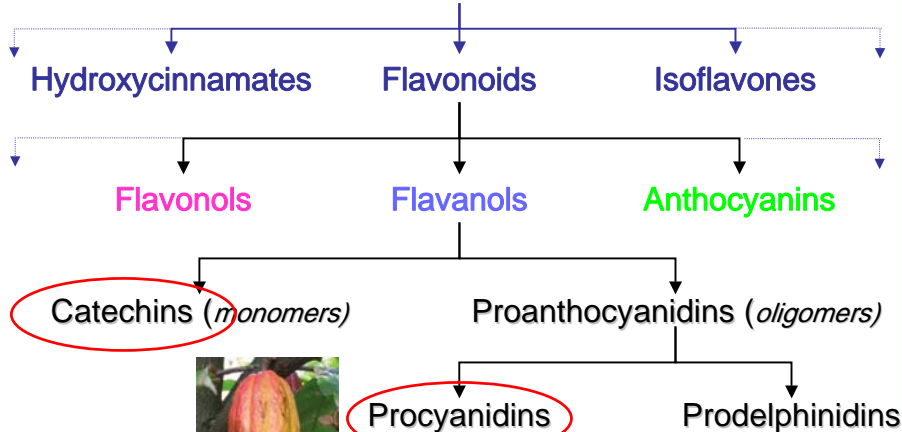
Anthocyanins



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Cocoa Flavanols - Introduction

Polyphenols



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Cocoa Flavanols - Introduction

- ◆ Post-harvesting processing is an essential factor determining the final flavanol content in cocoa beans and chocolate.
- ◆ Traditional chocolate processing methods, especially roasting and alkalization, can greatly reduce the flavanol content of cocoa.



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Cocoa Flavanols - Science

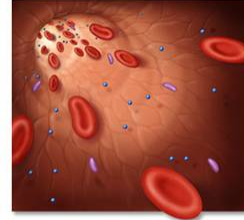
- ◆ **Mars Inc** in the USA has been conducting **cocoa** and **heart health related research for 15 years**, and has invested millions of dollars. This has resulted in more than 100 published, peer-reviewed scientific articles and more than 30 patents based on work with institutions including Harvard University and the University of California, Davis.
- ◆ **Mars Inc**, has collaborated with academic investigators worldwide to undertake various clinical studies aimed at studying the health benefits of cocoa flavanols, and cocoa-containing products
- ◆ Currently over **500 participants** have been part of clinical studies to demonstrate the efficacy of cocoa flavanols.



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Cocoa Flavanols - Science

Circulatory benefits related to the consumption of cocoa flavanols:

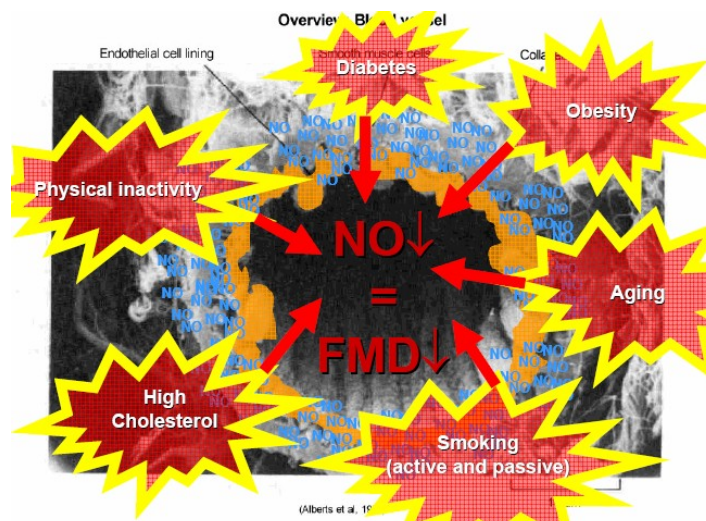


- ◆ Improve blood vessel function and increase blood flow
- ◆ Reduce tendency of blood clots to form
- ◆ Reduce blood pressure in people with mild hypertension
- ◆ Increase blood flow to the brain, which could have important implications for learning and memory



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Cocoa Flavanols - Science



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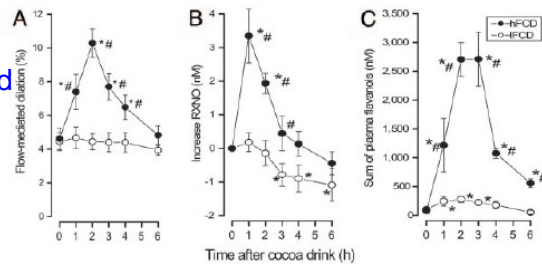
Cocoa Flavanols - Science

Flavanol increase in blood

NO-increase in blood

FMD-increase

*Improved blood vessel function
and blood circulation*



Schröter & Heiss et al, PNAS 2006



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Cocoa Flavanols - Science

Taken together:

- the small concentration of flavanols in plasma as compared to other antioxidants;
- the fact that metabolism reduces the antioxidant properties;
- the fact that cocoa consumption does not alter the antioxidant capacity of plasma while at the same time modulating cardiovascular function;
- the fact that vitamin C infusions did not affect cardiovascular function;
- the fact that most clinical trials could not establish a link between classic antioxidants and a reduced risk of CVD;

...the cardiovascular benefits of cocoa are not dependent on the antioxidant properties of flavanols

Cocoa Flavanols - Science

Summary of effects of flavanol-rich cocoa*

Consumption of flavanol-rich cocoa increases nitric oxide production/bioavailability
improved arterial function
improved macro-circulation
improved micro-circulation
improved brain blood flow

Consumption of flavanol-rich cocoa and blood clotting:
increase in clotting time
decrease in platelet reactivity
decrease in platelet-platelet interactions

Consumption of flavanol-rich cocoa and insulin resistance, blood pressure and microvascular blood flow:
decrease in blood pressure
attenuated insulin resistance
improved microvascular blood flow



* as demonstrated by MARS-funded as well as MARS-independent human clinical studies, and as published in peer-reviewed scientific journals



Cocoa Flavanols - CocoaVia™ chocolate

“With cocoa flavanols, which support a **healthy blood circulation**”

“... a guaranteed minimum level of 200mg of flavanols ...”



Available in:



since mid 2006



since end 2007



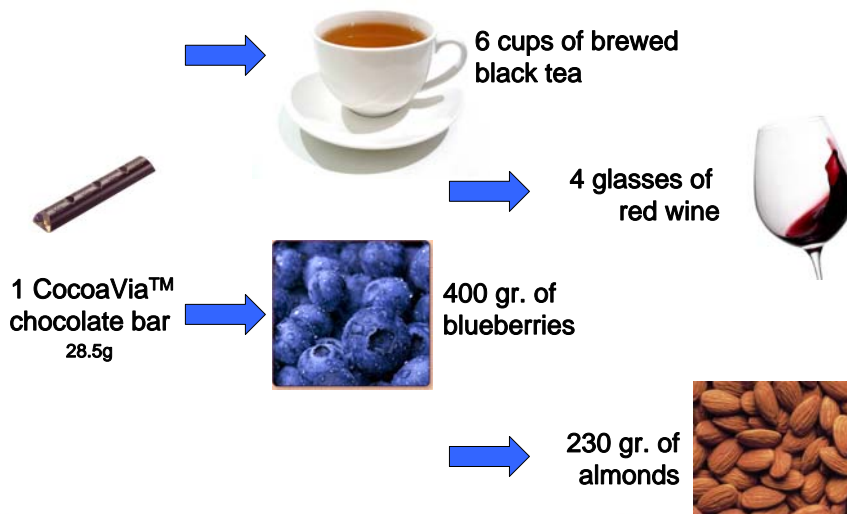
Cocoa Flavanols - CocoaVia™ chocolate

- A delicious dark chocolate with healthy cocoa flavanols
- Contains a guaranteed high level of cocoa flavanols, bio-active components naturally found in the cocoa bean
- Cocoa flavanols are scientifically proven to improve blood vessel function and blood circulation.
- Through our patented CocoaPro® process, we preserve up to 2 times more flavanols than in regular dark chocolate
- Health claim: contains 200mg of flavanols, which support a healthy blood circulation
- Sold only in pharmacies
- Available in 4 varieties: Dark Chocolate, Cranberry & Orange, Blueberry & Almond, no added sugar Dark Chocolate.
- CocoaVia™ in Europe is different from CocoaVia™ in the USA.



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Cocoa Flavanols - CocoaVia™ chocolate



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04 September 2006
Lunch & Learn

Cocoa Flavanols - CocoaVia™ chocolate

	<i>per 100g</i>	<i>per bar</i>	<i>GDA</i>
Energy - kJ	2185	623	
Energy - kcal	525	150	8%
Proteins	8.5	2.4	
Carbohydrates	43.9	12.5	
of which sugars	39.2	11.2	12%
Fat	35.0	10.0	14%
of which saturated	21.3	6.1	31%
Fibres	8.4	2.4	



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Cocoa Flavanols - Summary

- Flavanols are phytonutrients, a distinct group within the larger family of flavonoids, found in many fruits and vegetables.
- These natural occurring cocoa flavanols are lost in traditional bean and chocolate processing practices. Through the patented CocoaPro® process, these flavanols can be preserved.
- The flavanol content in dark chocolate is independent of its cocoa solids content.
- CocoaVia™ chocolate bars each contain a guaranteed minimum of 200 mg of cocoa flavanols, which is a dose of flavanols which is scientifically proven to improve blood vessel function and blood circulation.
- This health benefit can not be attributed to the anti-oxidative capacity of flavanols, and is therefore unique for cocoa flavanols.



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