

Healthy and Delicious: The Benefits of Flavanol-Rich Cholaca.



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Executive Summary

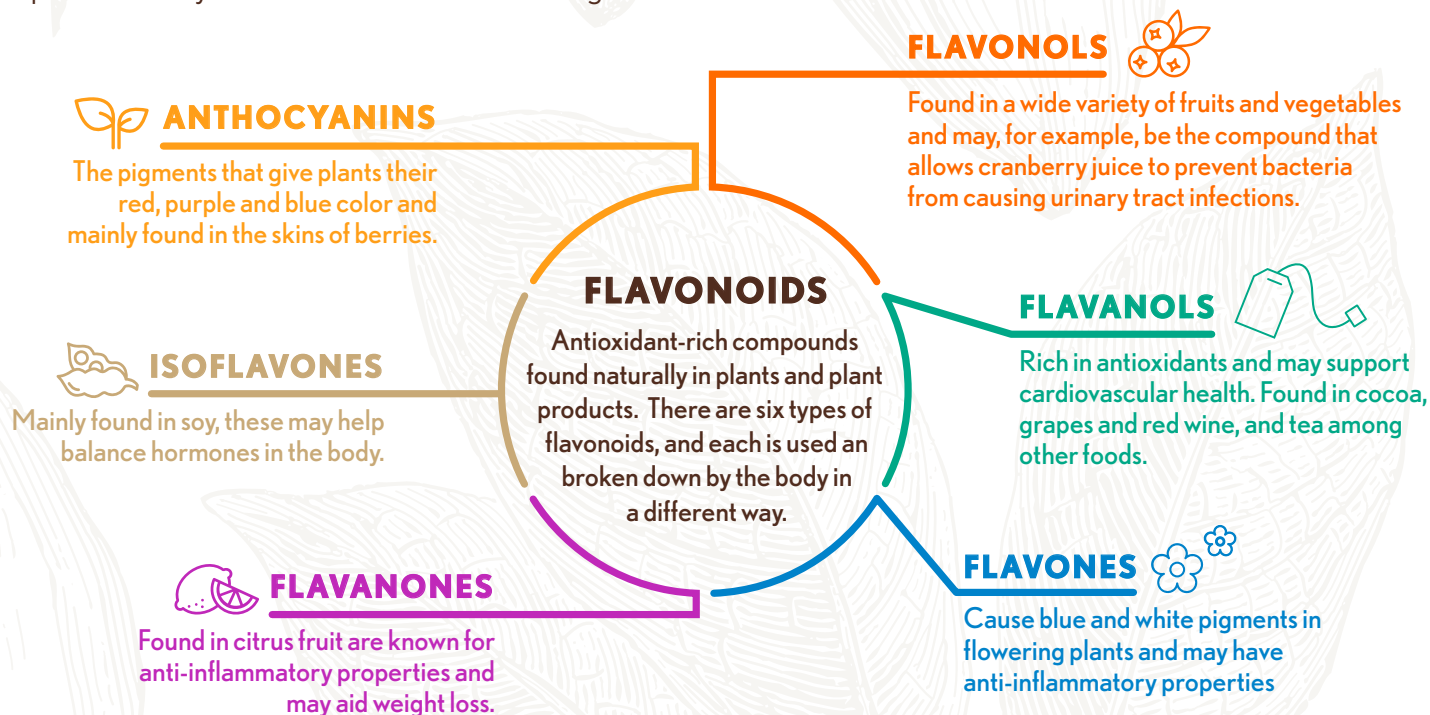
There's a long history and a wide body of research that supports the fact that compounds called flavanols have health benefits. Major scientific studies going back more than a decade demonstrate that eating cocoa, which is particularly rich in flavanols, promotes cardiovascular health and has other health benefits¹, making the cacao bean a true superfood. As consumers become more health conscious and savvy, chocolate makers can benefit from choosing cacao liquor that is naturally high in flavanols and including structure function claims about the health benefits on their packaging for a health-boosting product that's also delicious.

What are flavanols?

Flavanols (sometimes also known as flavan-3-ols), which are found in cocoa and other plant-based foods, are part of a broader category of antioxidant compounds called flavonoids. Antioxidants are compounds that slow or inhibit oxidation, a natural process which is thought to damage cells and contribute to aging and disease. Foods rich in antioxidants may help combat the damaging effects of this oxidative stress in our bodies and help us stay younger and healthier.

Flavanols are found in plant products including red wine and tea leaves, and they are abundant in the cacao beans that are fermented, dried, and roasted to create cocoa powder and cacao liquor, making cocoa and chocolate one of the best natural sources of flavanols².

And science agrees that the naturally occurring flavanol compounds found in cacao have been found to produce many health benefits when eaten long term.



¹ "The Cardiovascular Effects of Chocolate." *Reviews in Cardiovascular Medicine*, vol. 19, no. 4, 30 Dec. 2018, rcm.imr-press.com/EN/10.31083/j.rcm.2018.04.3187, 10.31083/j.rcm.2018.04.3187. Accessed 4 Aug. 2021.

² Godman, Heidi. "Cocoa: A Sweet Treat for the Brain? - Harvard Health." *Harvard Health*, Harvard Health, 5 Feb. 2015, www.health.harvard.edu/blog/cocoa-sweet-treat-brain-201502057676. Accessed 4 Aug. 2021.

What are the health benefits of flavanols?

Cacao has been labeled a superfood, and with good reason. Studies have shown that long-term consumption of flavanols – particularly those found in cocoa – may reduce risk factors for cardiovascular disease³, support healthy brain function as we age⁴, lower blood pressure⁵, and even increase the benefits when we exercise⁶.

There's a wide body of research dating back more than a decade¹ indicating that eating flavanol-rich cocoa over a long period of time helps improve cardiovascular health. Lower blood pressure in hypertensive patients, lower cholesterol, lower risk of heart disease and heart failure, and significantly lower stroke risk have all been demonstrated.

In addition, a study published in *The American Journal of Clinical Nutrition*⁷ found that people who consumed cocoa flavanols every day made signifi-

cant improvements on tests that measured attention, executive function, and memory over the course of eight weeks. It's clear that chocolate with high levels of flavanols is brain food.

And while we don't usually associate snacking on chocolate with high physical performance, a review of the literature showed that intake of cocoa flavanols "may improve vascular function, reduce exercise-induced oxidative stress, and alter fat and carbohydrate utilization during exercise, but without affecting exercise performance."⁶ As it turns out, chocolate with high levels of natural flavanols could be an athlete's best friend.

There's a consensus across the literature that the flavanols found in cacao and cocoa products provide many different clear health benefits.

³ Raman, Gowri, et al. "Dietary Intakes of Flavan-3-Ols and Cardiometabolic Health: Systematic Review and Meta-Analysis of Randomized Trials and Prospective Cohort Studies." *The American Journal of Clinical Nutrition*, vol. 110, no. 5, 26 Aug. 2019, pp. 1067–1078, pubmed.ncbi.nlm.nih.gov/31504087/, 10.1093/ajcn/nqz178. Accessed 4 Aug. 2021.

⁴ Mastroiacovo, Daniela, et al. "Cocoa Flavanol Consumption Improves Cognitive Function, Blood Pressure Control, and Metabolic Profile in Elderly Subjects: The Cocoa, Cognition, and Aging (CoCoA) Study—a Randomized Controlled Trial." *The American Journal of Clinical Nutrition*, vol. 101, no. 3, 17 Dec. 2014, pp. 538–548, pubmed.ncbi.nlm.nih.gov/25733639/, 10.3945/ajcn.114.092189. Accessed 4 Aug. 2021.

⁵ Jumar, Agnes, and Roland E. Schmieder. "Cocoa Flavanol Cardiovascular Effects beyond Blood Pressure Reduction." *The Journal of Clinical Hypertension*, vol. 18, no. 4, 30 Oct. 2015, pp. 352–358, pubmed.ncbi.nlm.nih.gov/26514936/, 10.1111/jch.12715. Accessed 4 Aug. 2021.

⁶ Decroix, Lieselot, et al. "Cocoa Flavanol Supplementation and Exercise: A Systematic Review." *Sports Medicine*, vol. 48, no. 4, 3 Jan. 2018, pp. 867–892, pubmed.ncbi.nlm.nih.gov/29299877/, 10.1007/s40279-017-0849-1. Accessed 4 Aug. 2021.

⁷ Mastroiacovo, Daniela, et al. "Cocoa Flavanol Consumption Improves Cognitive Function, Blood Pressure Control, and Metabolic Profile in Elderly Subjects: The Cocoa, Cognition, and Aging (CoCoA) Study—a Randomized Controlled Trial." *The American Journal of Clinical Nutrition*, vol. 101, no. 3, 17 Dec. 2014, pp. 538–548, academic.oup.com/ajcn/article/101/3/538/4569408, 10.3945/ajcn.114.092189. Accessed 4 Aug. 2021.

Not all cacao is created equal: **Cholaca's products retain more flavanols naturally.**

Of course, not all cacao or cocoa is created equal. Chocolate makers know that there are wide variations in quality and taste in cocoa and cacao liquor – and the same is true for the amount and quality of the flavanols in the cocoa. It's something you have to be mindful of in the production and process if you want to obtain the highest levels of beneficial flavonoids.

A study published in *Frontiers in Nutrition* on the health benefits of cocoa noted:

Although flavanols are likely to be responsible for cocoa's beneficial effects, they are lost during the conventional chocolate manufacturing process, so that the total flavanol content of commercial chocolate varies by more than 10-folds. [...] Fermentation and roasting significantly decreases the polyphenol and flavanol content of cocoa due to high temperature conditions and oxidation⁸.

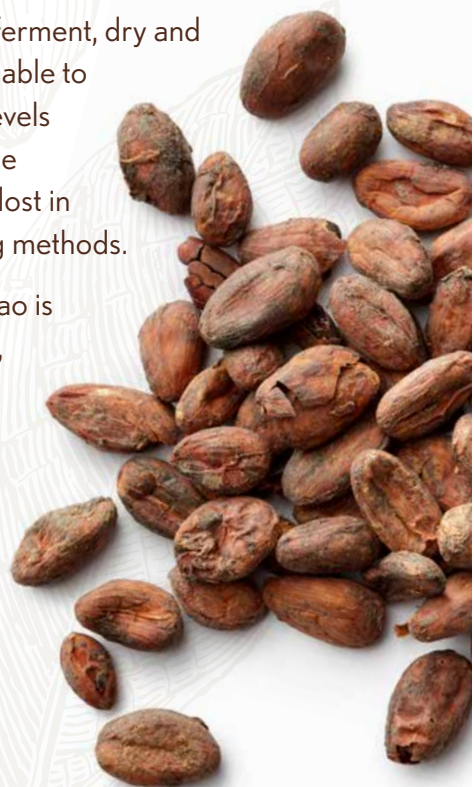
Flavanols as compounds are unstable and vulnerable to degradation through processing. If you want to maximize the amount of flavanols in an end product, you have to understand how to treat them gently from a processing standpoint.

Most cocoa producers have to roast their beans at high temperatures and for a significant amount of time to try to overcome unpleasant and undesirable bitter flavors. These bitter flavors are often due to incomplete fermentation or sub-optimal drying of the beans. Incomplete fermentation and long roasting times at high heat effectively “kill off” most of the naturally occurring flavanols.

At Cholaca, however, we take special care to fully ferment the cacao beans before drying or roasting. The more complete fermentation naturally eliminates many of the undesirable flavors. That allows us to use only a light roast – naturally preserving more of the existing flavanols in the cocoa, and producing a better tasting end product.

Because of the way we ferment, dry and roast our cacao, we are able to retain naturally higher levels of flavanols present in the cocoa that are typically lost in conventional processing methods.

This means that our cacao is not only the best tasting, but it might just be the best for you.



⁸ Ludovici, Valeria, et al. “Cocoa, Blood Pressure, and Vascular Function.” *Frontiers in Nutrition*, vol. 4, 2 Aug. 2017, www.ncbi.nlm.nih.gov/pmc/articles/PMC5539137/, 10.3389/fnut.2017.00036. Accessed 4 Aug. 2021.

Healthy Heart, Happy Mouth.

Nutritionists and food scientists like to try to boil down healthy compounds to their smallest part, yet any nutritionist would also admit that taking a daily dose of vitamin A in a pill isn't the same as eating a carrot, as far as our bodies are concerned.

While flavonoid supplements may be on the horizon as the next big health trend, we believe many consumers will want to stay as close to the natural source as possible. Besides, who would want to take a pill when they could eat a daily dose of high-quality chocolate?

The same process that ensures Cholaca products retain high levels of their naturally occurring

flavanols also helps us make the best tasting, highest quality cacao liquor available. In addition, recent surveys show that fully 81 percent of respondents reported they were trying to limit or avoid sugars in their diet⁹. Chocolate makers don't have to hide the taste of our cacao under a lot of sugar (or artificial sweeteners), because our proprietary process eliminates more of the undesirable flavors at the source.

Our process is designed to elicit the best flavors of the cacao, and one delicious side effect is that we are also producing a healthier product by maintaining what nature provides.

Cholaca's high-flavanol cocoa puts you on the cutting edge of food trends and consumer demand.

While flavanols are not a big consumer trend in chocolate yet, they might just be the next big thing. Cholaca can help chocolate manufacturers stay on the cutting edge because our cacao rises to the occasion.

Consumers' appetite for immune-boosting, health-promoting food has never been higher. Market research shows consumers want healthier, better-for-you products that will help them address

or prevent health issues. Consumers have higher expectations for their foods delivering on their health needs and are looking for foods that will help them achieve more personalized nutrition.

Ozo Coffee shops in Colorado, for example, offer Cholaca liquid cacao as an alternative to regular chocolate syrup in their specialty drinks, and they tell us many consumers regularly request Cholaca for the added health benefits – as well as the

⁹ "U.S. Consumers Avoiding or Limiting Sugar Intake 2019 | Statista." Statista, Statista, 2019, www.statista.com/statistics/790989/consumers-avoiding-limiting-sugar/. Accessed 4 Aug. 2021.

incredible flavor. It's time people knew that chocolate just might be the answer.

In 2014, the European Food Safety Authority approved a structure function claim for cocoa products containing at least 200 mg of flavanols and meeting the qualification in dietary supplement products that "cocoa flavanols help maintain the elasticity of blood vessels, which contributes to normal blood flow¹⁰".

We can work with manufacturers to create products that meet the requirements for these structure function claims without sacrificing taste or quality. Other structure function claims chocolate manufacturers might want to use include that the flavanols in our chocolate:

- Help maintain normal and healthy blood circulation
- Help support circulation of nutrients
- Help support the healthy circulation of nutrients and oxygen to the body
- Help support the healthy circulation of nutrients and oxygen, head to toe
- Help support the cardiovascular system.

Using cacao that can provide these structure function claims can help chocolate manufacturers create strong differentiation on the shelf and be on the cutting edge of a new category of healthy chocolates that taste as good as they are for you. Starting with a better product gives manufacturers a distinct advantage over competitors.

Chocolates made with Cholaca products will allow manufacturers and consumers to get a higher level of nutrients in an indulgent product.

Conclusion

The health benefits of flavanols in cocoa are well documented and scientifically supported, but traditional methods of cocoa production degrade the natural compounds, creating a final product with very low levels of flavanols.

Cholaca products, on the other hand, live up to cocoa's superfood reputation. Through our careful and unique fermentation, drying, and roasting product, we create a high-quality, great tasting product that naturally retains higher levels of flavanols.

Savvy chocolate makers can highlight these natural health advantages in Cholaca cacao and use structure function claims in their packaging and marketing to create differentiation on the shelf to attract health-conscious consumers who want to indulge in great-tasting food with meaningful health benefits.

¹⁰ "Scientific Opinion on the modification of the authorisation of a health claim related to cocoa flavanols and maintenance of normal endothelium-dependent vasodilation pursuant to Article 13(5) of Regulation (EC) No 1924/2006 following a request in accordance with Article 19 of Regulation (EC) No 1924/2006". EFSA Journal. 12 (5). 2014. doi:10.2903/j.efsa.2014.3654.

We source, process, and produce high quality cacao products at scale.

Quality you can taste and a commitment you can see.
That's the Cholaca difference.

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