

pTeroPure®

99% Pure Nature-Identical Form of
trans-Pterostilbene (*tero-STILL-bean*)

A branded ingredient from

 ChromaDex®

What is pTeroPure® Pterostilbene?

ChromaDex® created pTeroPure® as a quality proprietary ingredient to provide high purity pterostilbene to the dietary supplement, food, beverage, skincare, animal health, and pharmaceutical industries.

pTeroPure is a nature-identical 99% pure all-trans pterostilbene. Pterostilbene, like resveratrol, is a natural compound found in small berries that acts as part of the plant's defense system.¹ Structural differences make pterostilbene more oil-soluble and more bioavailable than resveratrol with a higher potential for cellular uptake and greater metabolic stability which contributes to a significantly longer half-life in the body.²⁻⁴ Pterostilbene also shows extensive tissue distribution, metabolizes slowly and has been shown to cross the blood brain barrier which contributes to its efficacy.^{2,5}

Comparing pTeroPure® to Resveratrol & other Polyphenols

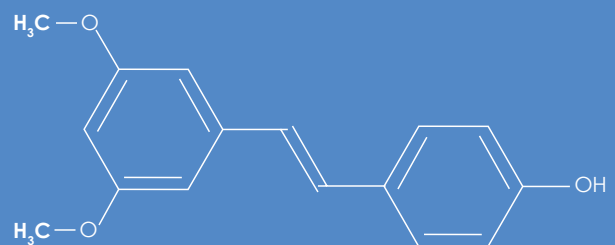
Pterostilbene and resveratrol have very similar chemical structures, however, Pterostilbene has several key advantages over resveratrol. The main difference between Pterostilbene and resveratrol is structural; Pterostilbene contains two methoxy groups and one hydroxyl group while resveratrol has three hydroxyl groups. The two methoxy groups cause Pterostilbene to be more lipophilic (oil-soluble) than resveratrol, which increases oral absorption and gives it a higher potential for cellular uptake.³ Pterostilbene also has a much longer half-life in the blood than resveratrol (105 minutes vs. 14 minutes).^{6,7} Recent papers also demonstrated that Pterostilbene showed 80% bioavailability vs resveratrol's 20% when compounds were administered orally, and pterostilbene is 2-4x more likely to be taken up by a cell than resveratrol.^{2,3}

Several published studies refer to Pterostilbene as having better activity than resveratrol.^{3-5,8-15} For example in vitro studies demonstrate that unlike the related stilbenes resveratrol, piceatannol, or resveratrol trimethylether, Pterostilbene is a potent peroxisome proliferator activated receptor alpha (PPARα) agonist, lowering lipid levels in the blood stream, and animal studies show that Pterostilbene may help maintain cholesterol levels already within normal ranges.⁸ Both resveratrol and Pterostilbene have been shown to exhibit beneficial effects and support a healthy heart and healthy aging, however the structural modifications to resveratrol that are found in Pterostilbene are needed to increase its bioavailability while preserving the published beneficial activities.*^{2-4,8-12} Finally, it was found that pterostilbene is a more potent modulator of cognition and cellular stress than resveratrol, likely driven by increased PPARα expression and increased lipophilicity due to substitution of hydroxy with methoxy group in pterostilbene.¹⁵



Phytochemical Profile of Pterostilbene

CAS#:	537-42-8
Molecular Weight:	256.299
Molecular Formula:	C ₁₆ H ₁₆ O ₃
Other Names:	Methylated Resveratrol Dimethoxyresveratrol 3',5'-Dimethoxy-4-stilbenol 3,5-Dimethoxy-4'-hydroxy-trans-stilbene 4-(2-(3,5-Dimethoxyphenyl)ethenyl)phenol



pTeroPure® Potential Health Benefits and Patents

ChromaDex holds exclusive worldwide manufacturing and use patent rights for pterostilbene based on technology licensed from the University of Mississippi and the USDA for indications such as heart health, memory improvement, anxiety, and neuroprotection.



Health Benefits

Heart Health

- May be used to help maintain healthy cholesterol levels already within normal ranges* 8,16-18

Cognitive Function

- Supports memory improvement and enhanced mental focus* 5,15,19
- Promotes health of neurons*5,19
- Calmative and may support mood and simple nervous tension*20

Weight Management

- Orally active and may work to stabilize plasma glucose levels* 8,21,22,28
- Mimics calorie restriction *in vitro**

Antioxidant/Anti-aging

- May help support against oxidative stress*5,7,15,23-25
- May have anti-aging properties* 5,7,15,19
- Potential immune supporter*26,27
- Published anti-inflammatory activity *in vitro** 9,13,14,20,24,25,27,29-32

Patents

- Patent Pending #1:** "Pterostilbene as a New Agonist for the Peroxisome Proliferator-Activated Receptor Alpha Isoform."
- Patent Pending #2:** "Method to Ameliorate Oxidative Stress and Improve Working Memory via Pterostilbene Administration."
- Patent Pending #3:** "A Key Intermediate for the Preparation of Stilbenes"
- Patent Pending #4:** "Anxiolytic effects of pterostilbene"
- Patent Pending #5:** "Method for Inducing UDP-Glucuronosyltransferase Activity using Pterostilbene"

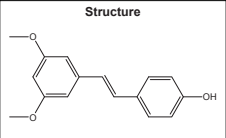
pTeroPure® Safety, Usage, and Human Clinical Trials

pTeroPure is self-affirmed Generally Recognized As Safe (GRAS), demonstrating the safety of the ingredient, with a maximum daily allowable dose of 1890 mg; the average recommended daily amount of pTeroPure ranges between 50 mg and 150 mg. These amounts are in line with the first human clinical study on pTeroPure pterostilbene, currently in progress at the University of Mississippi, focusing on cholesterol, blood pressure, and oxidative stress.³³ pTeroPure is currently the only Pterostilbene to be used in sanctioned human clinical trials.³³ Upcoming human clinical trials will focus on pTeroPure benefits in cognitive function, memory, metabolism, and skin care.

pTeroPure Pterostilbene is superior to natural extracts due to its high purity and its sustainable source material. The majority of the other Pterostilbene ingredients on the market are extracts made from *Pterocarpus marsupium*, an endangered tree found in India. The amounts of Pterostilbene found in the *Pterocarpus* heartwood are low, leading to concentrated extracts typically in 5-25% range. The fact that *Pterocarpus* is a threatened species further limits its use as a viable and sustainable source of Pterostilbene.³⁴ Even though Pterostilbene is found in blueberries and other small berries, it is typically in the 25-50ppm range, too small to be commercially viable sources.¹

Sample pTeroPure® Pterostilbene Certificate of Analysis

pTeroPure®
Certificate of Analysis
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PRODUCT	Pterostilbene	Structure 	
PART NUMBER	0016996		
MATERIAL TYPE	Food Grade Bulk Material		
LOT NUMBER	XXXXXX		
REPORT NUMBER	XXXXXX		
DATE OF SAMPLE	01/08/20XX		
DATE OF REPORT	01/18/20XX		
NAME	Pterostilbene		
OTHER NAME	4-(2-(3,5-Dimethoxyphenyl)ethenyl)phenol; 3,5-Dimethoxy-4'-hydroxy-trans-stilbene; 3',5'-Dimethoxy-4-stilbenol		
CHEMICAL FORMULA	C ₁₈ H ₁₆ O ₃		
MOLECULAR WEIGHT (MW)	256.30		
PUBLISHED MELTING POINT	85-86 °C		
CAS NUMBER	[537-42-8]		
CHEMICAL FAMILY	Stilbenes		
MANUFACTURER ASSAY			
TEST	METHOD	SPECIFICATION	RESULT
HPLC	NA	NLT 99.0%	99.81%
Loss on Drying	NA	NMT 2.0%	0.1%
Heavy Metals	ICP	See Below	See Below
Lead	ICP	NMT 1 ppm	< 1.0
Arsenic	ICP	NMT 1 ppm	< 1.0
Cadmium	ICP	NMT 1 ppm	< 1.0
Mercury	ICP	NMT 1 ppm	< 1.0
Total Plate Count	MICRO	NMT 1000 CFU/g	< 10
Yeast and Mold	MICRO	NMT 100 CFU/g	< 10
Salmonella	MICRO	NEGATIVE	NEGATIVE
E. Coli	MICRO	NEGATIVE	NEGATIVE
Staphylococcus	MICRO	NEGATIVE	NEGATIVE
Pseudomonas aeruginosa	MICRO	NEGATIVE	NEGATIVE
Appearance	NA	Off-white to light brown	Pale Yellow Powder
STORAGE CONDITIONS			
STORAGE	Room Temperature in a dry place.		
EXPIRATION DATE	01/20XX under the above conditions.		
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