

VetVitals™
brought to you by Sabinsa

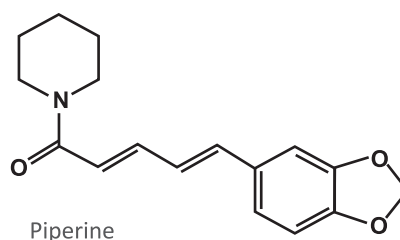
 **VETPERINE®**
For Increased Nutrient Absorption



VetPerine® For Increased Nutrient Absorption

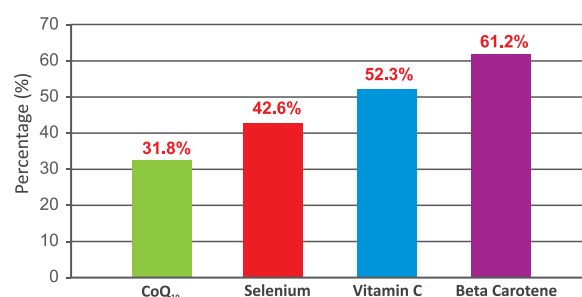
Piper nigrum L. is considered the “King of Spices” throughout the world due to its pungent principle “Piperine”.

VetPerine® is the patented extract obtained from black pepper fruits (*Piper nigrum*).



Piper nigrum may be co-administered with various nutrients to enhance their bioavailability in both human and animal.

In general, VetPerine® was found to enhance absorption of nutrients by at least 30%.



VetPerine® is an effective bioavailability enhancer across a broad spectrum of water and fat soluble vitamins, multi vitamins, botanicals, minerals and other nutritional ingredients

Traditional Uses

Pepper: One of the most common herbs in Ayurveda.

Black pepper (*Piper nigrum*, Piperaceae) has been used in human diet from ancient times and is one of the most widely used spices throughout the world. It has also been used in various traditional medicines, preservatives and health supplements.

The Materia Medica of Ayurveda, documents black pepper as one of the three herbs essential for several prescriptions and formulations.

Out of 370 compound formulations listed in Handbook of Domestic Medicines and Common Ayurvedic Remedies, 210 contain either Trikatu (three acids) or its individual ingredients (Black pepper, Long pepper and Ginger). In Ayurveda, Trikatu has been described as a major decoction useful in restoring imbalance of Kapha, Vata and Pitta.

VetPerine® is promoted as a “**Bioavailability Enhancer**” and a natural “**Thermonutrient**”

VETPERINE®

Patents:

- ★ US5,536,506 ★ US5,744,161
- ★ US5,972,382 ★ US6,054,585
- ★ EP0810868 ★ JP3953513
- ★ CA2247467

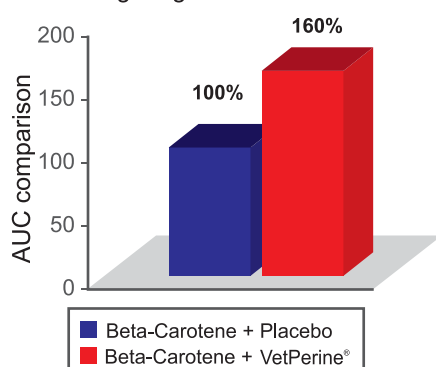
Comparison of nutrient bioavailability when ingested alone and in combination with VetPerine®

VetPerine®, has been clinically tested with several nutrient groups including fat soluble vitamins (β -carotene), water soluble vitamins (vitamin B6, vitamin C), selenoamino acid (L(+)-Selenomethionine), Coenzyme Q₁₀ and shown to significantly enhance the bioavailability of supplemented nutrients through increased absorption. Herbal extracts such as curcumin also absorbed better when co-administered with VetPerine®.

β -carotene

A double blind cross over study using small amount of VetPerine® (5mg) combined with 15mg of β -carotene, given as a food supplement once a day increased almost two fold the blood levels of beta carotene in human volunteers.

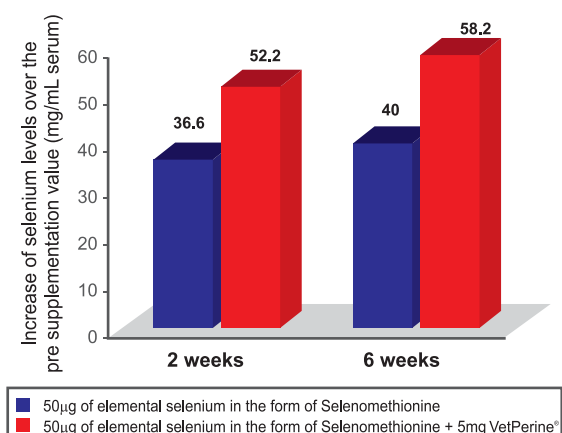
Increased Beta-Carotene absorption using 5mg of VetPerine®



However, a 60% increase in the area under the curve was observed during the experimental phase (β -carotene + VetPerine®) compared to the control after 14-day supplementation (Majeed M. et al. (1999). *Nutr Res*; 19(3) : 381-388).

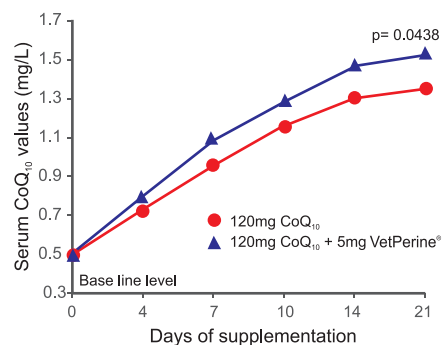
Selenium

Bioavailability of selenium was evaluated alone and supplemented with VetPerine® in a double blind study. The serum selenium levels were approximately 30% higher in the group receiving selenium with VetPerine® after 2 weeks of treatment with a plateau in the subsequent time-points tested. The serum selenium levels were within normal limits in both groups at all time-points tested.



Coenzyme Q₁₀

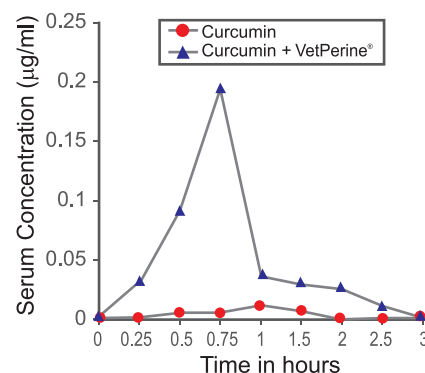
Bioavailability of CoQ₁₀ (120mg) was evaluated with and without VetPerine® supplementation. After 21 days of supplementation, co-administration of VetPerine® resulted in an absolute



increase in CoQ₁₀ serum levels by 1.12 mg/L as compared to the absolute increase of 0.85 mg/L in the control group. A 30% increase was observed in the area under the curve of CoQ₁₀ supplemented with VetPerine® compared to control (Majeed M. et al. (2000). *J Nutr Biochem*;11(2):109-113).

Curcumin

A clinical study done at St. John's Medical College, Bangalore, India and published in *Planta Medica* provided clinical evidence of piperine's role in increasing the bioavailability of Curcumin, and has become one of the most downloaded papers of that journal.

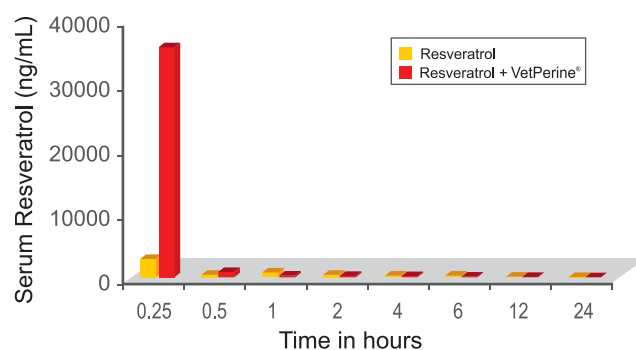


VetPerine® improved the uptake of Curcumin by 2000%, the healthful extract from turmeric roots, with clinically validated efficacy in inflammatory conditions including several forms of cancer (Majeed M. et al. (1998). *Planta Med*;64(4):353-356).

Bioavailability of Curcumin (2000mg) co-administered with VetPerine® (20mg) was enhanced than the oral bioavailability of Curcumin alone in humans at doses that were devoid of adverse side effects.

Resveratrol

In a recent study conducted by University of Wisconsin, VetPerine® significantly improved the bioavailability of Resveratrol by 229% and the maximum serum concentration (C_{max}) was increased to 1544% (Johnson JJ. et al.(2011). *Mol Nutr Food Res*; 55: 1169-1176).





Why VetPerine® stands out from the Crowd

- VetPerine® is the only product sourced out of piperine to obtain a patented status for its ability to increase the bioavailability of nutritional compounds.
- VetPerine® is the only source from piperine to have undergone clinical studies in the U.S. to substantiate its safety and efficacy.

Dosage form & Suggested use level:

VetPerine® can be used in the form of powder, capsules, or tablets. Suggested use level for feed and pet food range from 0.4 mg to 1.5 mgs.

Brand Name	VetPerine®
Common Name	Piper nigrum extract
Description	Off white to greenish yellow powder with characteristic odor
Solubility	Soluble in alcohol; Insoluble in water
Bulk Density	Tapped Bulk Density – Between 0.55 g/ml and 0.85 g/ml Loose Bulk Density – Between 0.30 g/ml and 0.65 g/ ml
Particle Size	80 mesh - Not less than 95% w/w
Shelf life	5 years
Storage Condition	Store at room temperature
Credentials & Certifications	
Product credentials	Preservative Free Stimulant Free Hormone Free
Manufacturing certifications	ISO 22000:2005, GMP, FDA audited, FSSAI