
Tribulus Terrestris (Puncture Vine)

James Meschino DC, MS, ND

General Features

Tribulus Terrestris is an annual plant, which has been commonly used in folk medicine for a number of purposes.¹ Most recently, it has been researched for its ability to reverse erectile dysfunction, enhance libido and as a treatment for angina pectoris.^{2,3}

Tribulus Terrestris is a rich source of saponins, of which protodioscin has received a significant amount of attention in regards to sexual dysfunction issues.^{2,3}

Principle Active Constituents

Steroidal Saponins (Furanosterols)^{4,5}

Clinical Application and Mechanism of Action

1. Erectile Dysfunction

Tribulus Terrestris supplementation has been shown to reverse erectile dysfunction problems and improve or enhance sexual desire in men and women.^{3,6}

Evidence exists to demonstrate that protodioscin (saponin) from Tribulus Terrestris can be converted in the body to dehydro-epiandrosterone (DHEA), a precursor to the synthesis of testosterone and estrogen.³ It is thought that Tribulus Terrestris can increase testosterone levels in men and estrogen levels in women.⁶ However, some evidence refutes this.⁷

An alternate explanation suggests that protodioscin (saponin) increases the release of nitric oxide from the arterial endothelium and nitrergic nerve endings in the region of the genitalia, facilitating increased blood flow to the corpus cavernosum.²

This effect appears to be more likely than the elevation of testosterone, as studies with body builders fail to demonstrate a rise in serum testosterone in these athletes after supplementation with Tribulus Terrestris.⁷

2. Angina Pectoris

Tribulus Terrestris is known to dilate coronary arteries and improve angina pectoris in afflicted patients as demonstrated in a clinical and cross-over trial of 406 cases of angina pectoris. This appears to confirm the effect of protodioscin as a mediator to enhance the release of nitric oxide locally, dilating arteries and increasing blood flow through the coronary blood vessels of the heart as mentioned above.⁸ This application requires cooperation with the attending physician.⁸

Dosage and Standardized Grade

Erectile Dysfunction and Libido-Enhancement – 250 mg (Standardized extract containing 40 percent saponins), three times daily is a common daily dosage in these cases. A daily dosage of up to 1500 mg per day has also been used safely.⁶

Adverse Side Effects, Toxicity and Contraindications

The LD 50 in rats is greater than 10 gm per kg of body weight. Tribulus Terrestris appears to be very safe at recommended doses with no major adverse side effects reported.^{6,8}

Tribulus Terrestris should probably be avoided in cases of reproductive cancers (e.g., prostate, breast cancers) (*Author's Note*)

Drug-Nutrient Interactions

There are no well-known drug-nutrient interaction for tribulus terrestris, but it is probably wise to not take it concurrently with other vasodilating agents such as nitroglycerine or sildenafil (viagra). (*Author's Note*)

Pregnancy and Lactation

During pregnancy and lactation, the only supplements that are considered safe include standard prenatal vitamin and mineral supplements. All other supplements or dose alterations may pose a threat to the developing fetus and there is generally insufficient evidence at this time to determine an absolute level of safety for most dietary supplements other than a prenatal supplement. Any supplementation practices beyond a prenatal supplement should involve the cooperation of the attending physician (e.g., magnesium and the treatment of preeclampsia.)

References: Pregnancy and Lactation

1. *Encyclopedia of Nutritional Supplements. Murray M. Prima Publishing 1998.*
2. *Reavley NM. The New Encyclopedia of Vitamins, Minerals, Supplements, and Herbs. Evans and Company Inc. 1998.*
3. *The Healing Power of Herbs (2nd edition). Murray M. Prima Publishing 1995.*
4. *Boon H and Smith M. Health Care Professional Training Program in Complementary Medicine. Institute of Applied Complementary Medicine Inc. 1997.*

-
1. Arcasoy HB, et al. Effect of tribulus terrestris L. saponins mixture on smooth muscle preparations: a preliminary study. *Boll Chim Farm* 1998;137(11):473-5
 2. Adaikan PG, et al. Proerectile pharmacological effects of tribulus terrestris extract on the rabbit corpus cavernosum. *Ann Acad med Singapore* 2000;29(1):22-6
 3. Adimoelja A. Phytochemicals and the breakthrough of traditional herbs in the management of sexual dysfunctions. *Int J Androl* 2000;23(suppl 2):82-4
 4. *Selected Medicinal Plants of India. Chemexil* 1992:323-5
 5. Mahato S, et al. *J Chem Soc, Perkin Trans* 1981;1:2405
 6. Wright J. *Muscle and Fitness. Sept* 1996;p140-2,p224
 7. Brown GA, et al. Effects of anabolic precursors on serum testosterone concentrations and adaptations to resistance training in young men. *Int J Sport Nutr Exerc Metab* 2000;10(3):340-59
 8. Wang B, et al. 406 cases of angina pectoris in coronary heart disease treated with saponins of tribulus terrestris. *Zhong Xi Ti Jie he Zhi* 1990;10(2):85-7