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Treatment of Male Infertility Disorders via Tribulus Terrestris and Multivitamins

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ABSTRACT

Tribulus Terrestris is a safe and effective mixture of natural compounds that enhances male sexual vitality. This is a special mixture of natural Tribulus Terrestris extract commonly used to treat male sexual health issues. It includes other essential vitamins like Zinc, Vitamin E, and Selenium in appropriate doses. Effective and safe treatment for male sexual health problems with more benefits.

Introduction

Tribulus terrestris is a plant in the Zygophyllaceae family found in warm areas of Europe, Asia, Africa, Australia and Pakistan. It is also called puncture vine or goat's head. This herb is known as goat head and is familiar for its spiny fruits. It has a history of use in traditional medicine, including Ayurveda and traditional Chinese medicine. The plant's leaves, roots and fruits have medicinal benefits and are popular as a natural supplement. This plant is supposed to improve libido and sexual function and may also boost testosterone levels, muscle strength, and athletic performance. Tribulus terrestris may have antioxidant, anti-inflammatory and diuretic effects.

Tribulus terrestris active constituent

The Tribulus terrestris extract compound has been known as a non-hormonal complex. The active constituents of this substance comprise furastanol and saponins which have been standardized by identifying the predominant compound protodioscin. Figure No 1, shows the constituents present in Tribulus Terrestris.

Mode of action Tribulus terrestris and pharmacological effects

Tribulus terrestris boosts testosterone levels by increasing luteinizing hormone, with clinical studies demonstrating a 30% or greater increase in just five days. Tribulus boosts sperm mobility and viability, likely due to increased LH levels. Tribulus terrestris can have effects via androgen-like metabolites or by stimulating the conversion of testosterone to dihydrotestosterone. It may also directly impact brain structures that regulate the release of gonadotrophic hormones. Tribulus terrestris regulates hormonal balance without functional interference. Methionine is vital for selenium absorption and bioavailability. Selenium and vitamin E work together to treat heart disease, cardiac muscles and tissue damage caused by controlled blood flow (1).

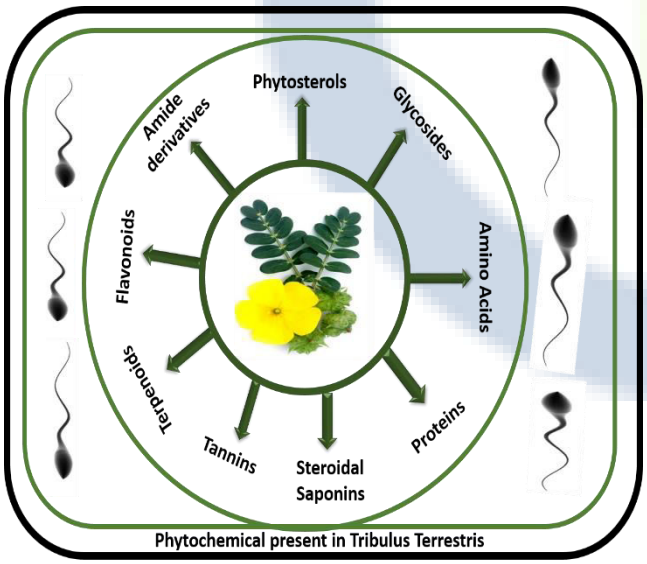

Figure 1: Constituents present in Tribulus Terrestris

Role of Zinc in the human body

Zinc is vital for genetic material stability, synthesis, and degradation of carbohydrates, lipids and proteins, necessary for tissue growth and repair. Zinc is crucial for male sex hormones and prostate function with the highest concentrations found in the prostate gland and sperm. Semen is rich in zinc and important for sperm development and fertility. Zinc is a powerful antioxidant that combats free radicals. Zinc, in the enzyme copper-zinc superoxide dismutase, protections cells from the harm caused by free radicals. It's also important for the proper shape and performance of cell membranes, connective tissue, teeth, bone, nails, hair, and skin. Zinc utilities in calcium absorption in bones and impacts growth hormones as well as insulin secretion synthesis and use. Zinc protects pancreatic cells and prevents atherosclerosis. Low zinc = lower testosterone. Zinc supplement = more testosterone + fertility. Zinc supplements can improve sperm counts and fertility in men with low semen zinc levels over several months. Zinc is primarily excreted through feces with some loss in urine. Zinc deficiency can occur rapidly due to poor storage in the body. White blood cell zinc measures provide a more accurate assessment of body stores than plasma or serum zinc levels. **Role of Vitamin E in the human body**

Vitamin E is important for reproductive function and acts as an antioxidant to preserve hormones. Research displays 400IU-800IU vitamin E may improve male fertility by protecting cell membranes from toxins, drugs, radiation and free radicals. Vitamin E defends oxidative harm to cholesterol and fat soluble components by serving as an antioxidant. A diet high in unsaturated fat increases vitamin E requirements as it mechanism with Selenium to protect fat-soluble parts of the body. Vitamin E toxicity is rare. Vitamin E is necessary for a strong immune system, protecting the thymus gland and white blood cells from harm. It also promotes eye health. Vitamin E acts as an antioxidant, destroying free radicals that cause tissue degeneration and protecting against aging, cancer, and memory loss.

Role of Selenium in the human body

Selenium is a strong antioxidant, 50-100x more effective than vitamin E and requires vitamin E for maximum efficacy. Selenium is crucial for maintaining liver, heart and prostate health as well as promoting male reproductive capacity and regulating hormones. Selenium helps boost immunity, prevent free radicals and promote heart health with vitamin E. Selenium plays a vital role in pancreatic function, tissue elasticity and thyroid hormone activation. Its inclusion activates glutathione peroxidase, protection against cancer. Yeast-based organic selenium is better absorbed than inorganic salts. Adults have about 20mg of selenium concentration in the kidneys, liver, heart, spleen and testes. Selenium supplements support arthritis treatment with vitamin E. They prevent cataracts, and cancer and bolster disease defenses. Selenium boosts white blood cell production and efficacy while preservation against free radical damage. Selenium boosts antibody production and protectors against abnormal cell growth. Avoid pairing large doses of vitamin C with inorganic selenium and space them apart by 30 minutes.

Role of nitric oxide in the human body

The vasodilatory properties of nitric oxide have the potential to increase blood circulation to the testes. Enhanced blood flow within the testicular region has the potential to facilitate effective oxygenation and nutrient delivery, leading to increased synthesis of testosterone by the Leydig cells in the testes. This phenomenon is purported to induce the secretion of luteinizing hormone from the pituitary gland. Luteinizing hormone (LH) is a pivotal factor in the process of testosterone synthesis within the testicular tissues. The release of luteinizing hormone (LH) can be facilitated by nitric oxide in turn indirectly promoting the synthesis of testosterone. Numerous other factors, such as lifestyle choices, physical activity levels, dietary composition, and general endocrine equilibrium exert important influences on the biosynthesis of testosterone (2).

Indications

Male sexual health problems

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Low libido and premature ejaculation. Erectile dysfunction. Low sex drive is caused by stress, fatigue, and mental tension leading to sexual asthenia and decreased stamina. Aging impacts sexual behavior and may cause decreased libido or andropause.

Male infertility disorders

The reconnoitered a set of disorders related to male infertility, including Oligospermia, Oligoasthenospermia, Hypogonadotropic Hypogonadism and LH and Testosterone deficiency.

Dosage and administration

Take Tribulus terrestris daily with meals for 4-12 weeks. Adjust dosage and duration based on the issue's appearance and severity. Take Tribulus terrestris regularly without missing a dose for the best results. After the recommended duration, continue with a maintenance analysis of 1 dose/day for 2-4 weeks. No harmful side effects from long-term use of Tribulus terrestris.

In cases of male infertility due to oligospermia

Use Tribulus terrestris regularly for at least 12 weeks. Confirm sperm count improvement with a test after completion of the course. Continue therapy until the spouse conceives. For male smokers, being overworked or 35 years of age may extend better sexual health. For diabetic patients, longer maintenance therapy improves health and maintenance of daily life and work performance.

Contraindications

The utilization of Tribulus terrestris is contraindicated in patients who exhibit potential or confirmed hypersensitivity towards any of its constituent components.

Adverse drug reactions

Numerous clinical trials and professional experience attest to the exceptional tolerance and visible deficiency of any untoward reactions associated with the use of Tribulus terrestris.

Drug interactions of clinical importance

The synergistic utilization of Tribulus terrestris in conjunction with gonadotropic hormones and other vitamins may produce a significant increase in the effects attributed to the management of Tribulus terrestris.

Overdose

Considerable emphasis has been placed on the indication affecting the safety of the preparation. Under controlled experimental conditions no conclusive evidence of acute, sub-chronic, or chronic toxicity has been observed through complete examinations of behavioral, hematological, functional, biochemical and morphological parameters. There is a lack of indication regarding the malignant, developmental difference-inducing and embryonic toxicity inducing consequences. The findings of the experiments indicate the absence of any adverse impact of Tribulus terrestris on the animals' health. The intraperitoneal management of LD50 toxicity displays a value of 750 mg/kg body mass, whereas its oral counterpart presents a higher threshold of toxicity, involving more than 10,000mg/kg body mass. Notably, no adverse indications of overdose or toxicity have been registered during the clinical trials (3).

Conclusion

The plant Tribulus terrestris is frequently active in common medical practices and diverse formulations of nutritional supplements. The medicinal plant Tribulus terrestris is characterized by its capacity to supplement the endogenous synthesis of nitric oxide within the human body. Nitric oxide functions as a signal transduction mediator facilitating the relaxation and dilation of blood vessels, thus amplifying blood circulation and augmenting oxygen transport to diverse tissues. Tribulus terrestris has been posited as an agent that has the potential to increase levels of testosterone. Testosterone is an important endocrine messenger that plays an integral role in various aspects of human physiology, including regulation of skeletal muscle quantity, sexual desire, and overall safety. The direction of dietary supplements containing Tribulus terrestris has been found to significantly elevate the levels of testosterone in individuals. Tribulus terrestris is comprised of a display of bioactive constituents, such as steroidal saponins and flavonoids that possess potent antioxidant and anti-inflammatory characteristics. These compounds possess the potential to contribute towards the plant's complete impact on the human body. The protracted application of Tribulus terrestris has not been associated with any toxic adverse reactions.

References

[1] Ștefănescu R, Tero-Vescan A, Negroiu A, Aurică E, Vari C-E. A comprehensive review of the phytochemical, pharmacological, and toxicological properties of Tribulus terrestris L. Biomolecules. 2020;10(5):752.

[2] Chokkalingam P, Dhandapani H, Sekar K, Durairaj P, Hari R. Enzymatic and nonenzymatic antioxidant activity of the saponin rich butanol extract of Tribulus terrestris fruits against tetrachlorodibenzo-p-dioxin induced oxidative stress in male Wistar rats. Biomedicine. 2020;40(3):281–5.

[3] Semerdjieva IB, Zheljazkov VD. Chemical constituents, biological properties, and uses of Tribulus terrestris: A Review. Nat Prod Commun. 2019;14(8):1934578X19868394