

**ARTICLE (11)**

**HERBAL INGREDIENTS: TONGKAT ALI (EURYCOMA LONGIFOLIA)**

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Tongkat Ali is known in Malaysia as Malaysian ginseng. It is one of the most well-known herbal folk medicines in Southeast Asia. Its roots are traditionally used for many diseases. Available reports indicate that the roots extract of E. Longifolia are used for aging, malaria, cancer, diabetes, anxiety, exercise recovery, leukemia, osteoporosis, stress, as well as for sexual dysfunction.

E. Longifolia Jack is reported to be rich in various classes of bioactive compounds. More than 65 bioactive compounds have been isolated and characterized, including  $\beta$ -carboline and canthine-6-one alkaloids, quassinoids (laurycomalactone, eurycomalactone, longilactone, eurylactone, and **eurycomanone**),

The water-soluble E. Longifolia root extracts is standardized to be containing a concentration of 0.8 to 1.5 % Eurycomanone which is considered the characteristic component of Tongkat Ali. Eurycomanone, reported to enhance testosterone steroidogenesis by inhibiting aromatase conversion of testosterone to oestrogen.

The quassinoid-containing E. Longifolia extract affects male infertility by indirectly increases the testosterone levels and insulin sensitivity. It has been reported that E. Longifolia extract is able to enhance male fertility by increasing semen volumes, sperm count, and motility.

Below is the evidence from various studies on the effectiveness of Tongkat Ali in the improvement of sexual function.

**1. SYSTEMATIC REVIEW**

**Objective:** To determine the efficacy of Tongkat Ali (Eurycoma Longifolia) herbal extract on erectile function improvement.

**Methods:** Comprehensive electronic databases were searched from inception through October 2014. Randomized controlled trials investigating Tongkat Ali compared to placebo were included. Outcome of interest was the improvement of erectile dysfunction.

**Conclusion:** Based on current evidence, the herbal extract of Tongkat Ali may have clinical effect on erectile function. However, more efficacy trials are warranted to further support current evidence.

**Reference:** S. Kotirum et al. Efficacy of Tongkat Ali (Eurycoma Longifolia) on erectile function improvement: Systematic review and meta-analysis of randomized controlled trials. *Complementary Therapies in Medicine journal homepage: www.elsevierhealth.com/journals/ctim / 23 (2015) 693-698*

**2. CLINICAL: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED, PARALLEL-GROUP STUDY**

Physta is a proprietary product containing a freeze-dried water extract of *Eurycoma Longifolia* (Tongkat Ali), which is traditionally used as an energy enhancer and aphrodisiac. Workers objective was to evaluate a 300mg combination of Physta and *Polygonum minus*, an antioxidant, with regard to sexual performance and well-being in men. Men, aged 40-65 years were screened for this 12-week randomized, double-blind, placebo-controlled, parallel-group study. Outcome measures included validated questionnaires that aimed to evaluate erectile function, satisfaction with intervention, sexual intercourse performance, erectile hardness, mood, and overall quality of life.

**Results.** 12 subjects in the active group and 14 in the placebo group completed the study. Significant improvements were noted in scores for the Sexual Intercourse Attempt diary, Erection Hardness Scale, Sexual Health Inventory of Men, and Aging Male Symptom scale ( $P < 0.05$  for all). Three adverse events were reported in the active group and four in the placebo group, none of which were attributed to study product. Laboratory evaluations, including liver and kidney function testing, showed no clinically significant abnormality.

**Conclusion.** Supplementation for twelve weeks with *Polygonum minus* and the proprietary *Eurycoma Longifolia* extract, Physta, was well tolerated and more effective than placebo in enhancing sexual performance in healthy volunteers.

**Reference:** Jay K. Udani et al. **Effects of a Proprietary Freeze-Dried Water Extract of *Eurycoma Longifolia* (Physta) and *Polygonum minus* on Sexual Performance and Well-Being in Men: A Randomized, Double-Blind, Placebo-Controlled Study.** *Evidence-Based Complementary and Alternative Medicine*, Volume 2014, Article ID 179529, 10 pages

### **3. CLINICAL: A RANDOMIZED, DOUBLE-BLIND, PLACEBO CONTROLLED, PARALLEL GROUP STUDY**

A randomized, double-blind, placebo controlled, parallel group study was carried out to investigate the clinical evidence of *E. Longifolia* in men. The 12-week study in 109 men between 30 and 55 years of age consisted of either treatment of 300 mg of water extract of *E. Longifolia* (Physta) or placebo. Primary endpoints were the Quality of Life investigated by SF-36 questionnaire and Sexual Well-Being investigated by International Index of Erectile Function (IIEF) and Sexual Health Questionnaires (SHQ); Seminal Fluid Analysis (SFA), fat mass and safety profiles. The *E. Longifolia* (EL) group significantly improved in the domain Physical Functioning of SF-36, from baseline to week 12 compared to placebo and in between group at week 12 ( $P = 0.028$ ). The EL group showed higher scores in the overall Erectile Function domain in IIEF ( $P < 0.001$ ), sexual libido (14% by week 12), SFA- with sperm motility at 44.4%, and semen volume at 18.2% at the end of treatment. Subjects with BMI  $\geq 25$  kg/m<sup>2</sup> significantly improved in fat mass lost. All safety parameters were comparable to placebo.

Reference: Shaiful Bahari Ismail et al. Randomized Clinical Trial on the Use of PHYSTA Freeze-Dried Water Extract of *Eurycoma Longifolia* for the Improvement of Quality of Life and Sexual Well-Being in Men. Evidence-Based Complementary and Alternative Medicine Volume 2012, Article ID 429268, 10 pages

#### 4. CLINICAL

In South-East Asia, *Eurycoma Longifolia* Jack, also known as 'Malaysian ginseng' or Tongkat Ali, is used to combat stress and disease and to improve physical strength. In this study, 76 of 320 patients suffering from late-onset hypogonadism (LOH) were given 200 mg of a standardised water-soluble extract of Tongkat Ali for 1 month. The Ageing Males' Symptoms (AMS) according to the standardised rating scale and the serum testosterone concentration were taken. Results show that treatment of LOH patients with Tongkat Ali extract significantly ( $P < 0.0001$ ) improved the AMS score as well as the serum testosterone concentration. While before treatment only 10.5% of the patients did not show any complaint according to the AMS scale and 35.5% had normal testosterone levels, after the completed treatment, 71.7% and 90.8% of the patients showed normal values, respectively. Thus, Tongkat Ali extract appears to be useful as a supplement in overcoming the symptoms of LOH and for the management of hypogonadism.

Reference: M. I. B. M. Tambi, M. K. Imran & R. R. Henkel. Standardised water-soluble extract of *Eurycoma Longifolia*, Tongkat Ali, as testosterone booster for managing men with late-onset hypogonadism? *Andrologia* 2012, 44, 226-230

#### 5. CLINICAL:

This study investigated the effect of treatment with the proprietary standardized, water-soluble extract of the root of the Malaysian plant, *Eurycoma Longifolia*, which is thought to enhance male fertility through increasing semen volumes, sperm concentrations, the percentage of normal sperm morphology and sperm motility in sub-fertile men with idiopathic infertility. A total of 350 patients were given 200 mg of the extract daily and follow-up semen analyses were performed every 3 months for 9 months. Of these 350 patients, 75 patients completed one full cycle of 3 months. Follow-up semen analyses in these patients showed significant improvement in all semen parameters. Authors concluded that the proprietary extract of *Eurycoma Longifolia* significantly improved the sperm quality in these patients, allowing for 11 (14.7%) spontaneous pregnancies.

Reference: Mohd Ismail Bin Mohd Tambi, M. Kamarul Imran. *Eurycoma Longifolia* Jack in managing idiopathic male infertility. *Asian Journal of Andrology* (2010) 12: 376-380