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Influence of Eurycoma longifolia on the copulatory activity of sexually sluggish and impotent male rats.

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ETHNOPHARMACOLOGICAL RELEVANCE: The root of Eurycoma longifolia Jack, native to South East Asia, have long been used as a male aphrodisiac remedy to treat sexual disorders.

AIM OF THE STUDY: To evaluate the influence of Eurycoma longifolia Jack on sexual behavior (including both motivation and copulatory performance) of sexually sluggish and impotent male rats.

MATERIALS AND METHODS: The root powder of the plant was orally administered to adult Sprague-Dawley male rats, classified as sexually sluggish or impotent taking in account their behavior in pre-experimental tests. Groups of 8 animals each were submitted to three different types of treatment: 1) acute at 3 dose levels (250, 500, 1000mg/kg); 2) subacute (daily for 6 days) at the dose of 500mg/kg; 3) subchronic (daily for 12 days) at the same dose (500mg/kg). Mount, intromission and ejaculation latencies and post-ejaculatory interval were recorded during the mating test in order to evaluate sexual performance. In addition the partner preference test was used to assess sexual motivation. Testosterone serum levels were measured in subacutely treated rats and compared with the values of controls receiving vehicle.

RESULTS: Concerning the copulatory activity of sexually sluggish rats, both acute (dosed at 500 and 1000mg/kg) and subacute treatments with the root powder significantly reduced ejaculation latencies, increasing also the percentage of mounting and ejaculating animals; in addition the subacute administration reduced post-ejaculatory interval. In impotent rats both subacute and subchronic treatments increased the percentage of mounting and ejaculating rats. The motivational behavior of sluggish rats during the partner preference test was not affected by the treatments. Testosterone serum levels were increased in rats subacutely treated in comparison with controls.

CONCLUSION: Eurycoma longifolia root improved sexual performance but not motivation in sluggish rats after acute or subacute administration. The effect could be mainly ascribed to increased testosterone levels.

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The effect of Eurycoma longifolia on sperm quality of male rats.

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The present study investigated the effects of a standardized methanol extract of E. longifolia Jack containing the major quassinoid constituents of 13alpha(21)-

epoxyeurycomanone (1), eurycomanone (2), 13alpha,21-dihydroeurycomanone (3) and eurycomanol (4) on the epididymal spermatozoa profile of normal and Andrographis paniculata induced infertile rats. The standardized MeOH extract at doses of 50, 100 and 200 mg/kg, the EtOAc fraction (70 mg/kg), and standardized MeOH extract at 200 mg/kg co-administered with the EtOAc fraction of A. paniculata at 70 mg/kg were each given orally to male Sprague-Dawley albino rats for 48 consecutive days. The spermatozoa count, morphology, motility, plasma testosterone level and Leydig cell count of the animals were statistically analyzed by ANOVA with a post-hoc Tukey HSD test. The results showed that the sperm count of rats given the standardized MeOH extract alone at doses of 50, 100 and 200 mg/kg were increased by 78.9, 94.3 and 99.2%, respectively when compared with that of control ($p < 0.01$). The low count, poor motility and abnormal morphology of the spermatozoa induced by the A. paniculata fraction were significantly reversed by the standardized MeOH extract of E. longifolia ($p < 0.001$). The plasma testosterone level of the rats treated with the standardized MeOH extract at 200 mg/kg was significantly increased ($p < 0.01$) when compared with that of the control and infertile animals. The spermatocytes in the seminiferous tubules and the Leydig cells appeared normal. Testosterone level was significantly higher in the testes ($p < 0.01$) than in the plasma after 30 days of oral treatment with the standardized MeOH extract. Interestingly, eurycomanone (2) alone was detected in the rat testis homogenates by HPLC-UV and confirmed by LC/MS, and may have contributed towards the improvement of sperm quality. Thus, the plant may potentially be suitable for the management of male infertility.