

Anti-infertility Effect of Rauwolfia Vomitoria Root Extract on Reproduction Parameters in Sleep Deprived Male Rats

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Abstract : Sleep deprivation has become increasingly common and is known to induce oxidative stress, resulting in the production of reactive oxygen species that can cause damage to neurons and cells. This study investigated the potential anti-infertility effects of Rauwolfia vomitoria root extract on reproductive functions in sleep-deprived male rats. Forty-two male albino rats were divided into seven groups based on their dosing regimen. Groups 1 and 2 underwent sleep deprivation using the water Morris maze method, with the groups receiving 200 and 400mg/kg of the extract, respectively, orally. Other groups received only the extract, sleep deprivation alone, sleep deprivation with vitamin E treatment, or served as controls. oral administration was done for 14 days, and animals were sacrificed for 15 days for their hormone and biochemical analysis. Testis and accessory organs were removed and weighed. Sperm count, viability and motility were also evaluated. Results indicated significant decreases in sperm motility, viability, count, and hormone levels in sleep-deprived rats compared to controls. However, treatment with Rauwolfia vomitoria extract, and vitamin E restored these parameters close to control levels, with a dose-dependent effect observed in sperm motility. Moreover, levels of nitric oxide (NO) and malondialdehyde (MDA), markers of oxidative stress, were significantly higher in sleep-deprived rats compared to controls. Treatment with the extract and vitamin E significantly reduced these levels, particularly at higher doses. Furthermore, sleep deprivation led to decreased activities of antioxidant enzymes and reduced glutathione concentration, which were restored with extract and vitamin E treatment. Rauwolfia vomitoria extract demonstrated potential as an anti-infertility agent by increasing antioxidant enzymes and scavenging free radicals, thereby ameliorating oxidative stress induced by sleep deprivation. These findings highlight the importance of further research into natural remedies for mitigating the adverse effects of sleep deprivation on reproductive health.

Keywords : sleep-deprivation, extract, reproduction, Ameliorate

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