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Effects of ethanolic extract of *Rauvolfia vomitoria* (Apocynaceae) stem bark on sexual behavior and reproductive function in normal male rats

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Objective: This study was aimed to investigate the effect of ethanolic extract of *Rauvolfia vomitoria* stem bark on sexual behavior and male reproductive function in normal rats.

Methods: 25 healthy sexually experienced Albino male rats of 3-4 months, weighing between 190 and 220 g were randomly divided into five groups (A-E) of five rats each and orally treated once daily for 22 days. Group A (control) received 5 mL/kg body weight of distilled water, groups B, C and D received 50, 100 and 200 mg/kg BW of *Rauvolfia vomitoria* extract respectively, while group E received 5 mg/kg BW of sildenafil citrate (standard). Sexual behavior parameters including mount frequency (MF), intromission frequency (IF), ejaculation frequency (IF), mount latency (ML), intromission latency (IL), ejaculation latency (EL) and post-ejaculatory interval (PEI) were recorded in male rats one hour after treatment by mating with a receptive female (1:1) at day 0, 1, 8, 15 and 22. At the end of treatment, body and organ weights, histological analysis and sperm parameters were also evaluated.

Results: The treatment with *Rauvolfia vomitoria* extract improves sexual behavior through significant reduction of ML, IL and PEI ($p < 0.01$) and significant increase of EL, IF and EF ($p < 0.01$) as compared to control. The extract also significantly increased daily sperm production rate (DSP) and epididymal sperm counts ($p < 0.001$) as well as sperm transit ($p < 0.05$) compared to control. Testis histology showed that the extract increased the concentration of all germ cell types, Leydig cells and Sertoli cells as compared to control.

Conclusion: Present findings provide experimental evidence that the ethanolic extract of *Rauvolfia vomitoria* enhances male sexual activity and production function in rats.

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Fiber based drug delivery system concepts and engineering

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The role of structure in drug delivery system engineering has become more diverse over the few decades or so. In recent times, there has been an interest in not-particulate systems for the development of drug delivery systems, which has arisen from the need to improve physical and chemical interaction properties with the host environment. To this end, there has been a significant increase in the deployment and engineering of fiber based systems as potential drug delivery carriers. Several methods have been explored and electrospinning technology, a method to engineer such structures, has gained much popularity over the last decade. This talk will focus on the electrospinning technique which belongs to the Electrohydrodynamic (EHDA) family of processes. Fundamental principles will be discussed and key developments in the area will be shown. Furthermore, concepts relating to compartmentalization and upscale will be presented. Finally, examples of ongoing developments between industry and academia will be highlighted, showing collaboration between industry and academia.

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