The Effects of HabbatusSaoud Oil and Nicotine on Testis Histological Features of Male Sprague-Dawley Rats

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Abstract: Seeds of Habbatussaouda (Nigella sativa) positively affect fertility of diabetic rats. Contradictorily, nicotine contributes towards infertility. This study investigated the effects of Nigella sativa and nicotine on fertility of rats based on testis histological features. 12 Sprague-Dawley male rats (7-9 weeks old) with initial average weight of 200-250g were randomly divided into 4 groups. Rats in nicotine (N) and nicotine control (NC) groups were injected intramuscularly for 100 days with 5.0mg/100g nicotine and 0.1ml/100g saline, respectively. Meanwhile, in Habbatussaouda (HS) and Habbatussaouda control (HSC) groups rats were force fed with 6.0µl/100g Habbatussaouda oil and 0.1ml/100g corn oil, respectively. Abandoned testes were fixed in Bouin’s solution prior to H&E staining. HS group had a significantly smaller lumen diameter (64.77±3.27µm) and spermatogonia layer width (17.52±0.43µm), besides having significantly wider spermatid and sperm layer (36.37±1.07µm) as compared to HSC group (p<0.05). Significantly higher values were obtained for N group for seminiferous tubule diameter (259.12±2.19µm), lumen diameter (105.46±2.94µm), spermatogonia layer width (20.59±0.56µm) and spermatoctyes layer width (34.46±0.88µm). However, spermatid-sperm layer width (20.62±0.91µm) was significantly smaller than NC group. Hence, this study advocated that nicotine tended to increase risk of infertility while Habbatussaouda oil could increase fertility by enhancing spermatogenesis.