0228. Effects Of Nigella Sativa (Habbatus Sauda) Oil On Sperm Parameters Of Nicotine Treated Rats

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Nigella sativa also known as Habbatus sauda from the Arabic term Habat-ul-Sauda and referred to as Kalonji in South Asia besides having an English name Black cumin. Habbatus sauda oil had been found to exhibit various medicinal properties including male fertility. In contrast, nicotine is considered a toxic and detrimental substance against fertility which can be found in tobacco smoke. Hence, this study aims to study the potential protective effect of Habbatus sauda oil against nicotine by looking at sperm parameters of rats. Twenty nine Sprague-Dawley male rats (7-9 weeks old, 200-250g) were randomly divided into five groups. Rats in nicotine (N) and nicotine control (NC) groups were injected intramuscularly with 0.5mg/100g nicotine and 0.1ml/100g saline, respectively. Rats in Habbatus sauda (HS) and Habbatus sauda control (HSC) groups were force fed with 6.0µl/100g Habbatus sauda oil and 0.1ml/100g corn oil, respectively. Rats in nicotine-Habbatus sauda (NHS) group received both intramuscular injection of 0.5mg/100g nicotine and force feeding of 6.0µl/100g Habbatus sauda oil. Rats were treated for 100 days before being sacrificed. Abstracted epididymides were transferred to Toyoda Yokoyama Hoshi (TYH) medium prior to sperm motility, morphology and vitality evaluation. Rats in NHS group showed significantly higher sperm motility (1.25±0.05x 10⁶ sperm/ml) compared to N group (1.03±0.05 x 10⁶ sperm/ml), but significantly lower compared to HS group (1.49±0.04x 10⁶ sperm/ml). HS group had the highest percentage of normal sperm (90.61±0.01%) followed by NHS (86.79±0.02%) and N (82.61±0.03%) (p<0.05). Percentage of head defect sperm for both HS (2.19±0.00%) and NHS (2.68±0.01%) groups were significantly lower compared to N group (3.69±0.01%) (p<0.05). HS group had the lowest percentage of tail defect (7.06±0.01%) followed by NHS group (10.36±0.01%) and N group (13.50±0.02%) with significant differences detected between all three groups (p<0.05). There were significant differences between N, HS and NHS groups for the percentage of live and dead sperm analysed (p<0.05). Percentage of live sperm for NHS group (95.73±0.01%) was significantly higher than N group (93.88±0.01%) but significantly lower than HS group (96.98±0.01%) (p<0.05). NHS group had the intermediate percentage of dead sperm (4.27±0.01%) when compared to N (6.12±0.01%) and HS (3.02±0.01%) groups. In conclusion, this study advocated that Habbatus sauda oil could increase fertility besides having potential healing effect against negative effects caused by nicotine by enhancing quality of sperm.

Keywords: Nicotine, Nigella sativa, sperm, rat