

## **Histology Changes on Female Reproductive Systems Following Treatment with Miraculous Oil™ in Sprague -Dawley Rats**

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### **Structured Abstract**

**Background:** Unhealthy food consumption increases the risk of infertility by altering the structure and function of reproductive organs. Antioxidants are known to have organ-protective effects. Miraculous oil™ is an antioxidant-rich nutraceutical formulation consisting of a blend of virgin coconut oil (VCO), *Moringa oleifera* extract, *Ganoderma lucidum* extract, and black seed oil. However, whether Miraculous oil™ consumption affects the uterus and ovary structure remains unclear. Therefore, this study aimed to examine the effects of Miraculous oil™ on the uterus and ovary of rats.

**Methods:** The study was conducted by randomly assigning 30 female normal rats into five groups: the control, 200 mg/kg, 400 mg/kg, 600 mg/kg, and 1000 mg/kg of Miraculous oil™. All treatments were given orally for 28 days using oral gavage. Body weight, water and food intake were measured weekly. At the end of the experimental period, the uterus and ovary were harvested and weighed to determine the relative and absolute weights. Histological changes in the uterus and ovary tissue following treatment with Miraculous oil™ were examined using a light microscope.

**Results:** The findings of this study showed Miraculous oil™ supplementation significantly increased food consumption and body weight. Hematoxylin and eosin (H&E) staining of ovarian and uterus tissues revealed, for the first time, that intake of Miraculous oil™ at 1000 mg/kg resulted in structural changes.

**Conclusion:** In conclusion, No Observable Adverse Effect Level (NOAEL) of Miraculous oil™ was 600 mg/kg. Further studies on behavioural, biochemical, histopathological, and hormonal parameters are recommended to strengthen the findings.

**Keywords:** Miraculous oil™, Antioxidant, Histology

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