

PDF - HISTOLOGICAL ASSESSMENT OF THE TESTES AND HORMONAL PROFILE OF ADULT MALE ALBINO WISTAR RATS FOLLOWING ORAL ADMINISTRATION OF MYRISTICA FRAGRANS (NUTMEG)

- researchcub.info **ABSTRACT**

The study was carried out to assess the effect of oral administration of *Myristica fragrans* (Nutmeg) on the histology of the testis as well as its effects on hormonal profile (serum testosterone). Thirty (30) adult male albino Wistar rats were used for this study. The animals were randomly divided into six groups of (A – F), with each group containing five rats respectively. Group A (control group) received distilled water and 100 g of feed per day for 26 days, group B received 1 g/kg body weight/day of nutmeg mixed with 100 g of feed for 26 days, group C received 5 g/kg body weight of nutmeg per day mixed with 100 g of feed for 26 days, group D received 10 g/kg body weight of nutmeg per day mixed with 100 g of feed for 26 days, group E received 15 g to 20 g/kg body weight of nutmeg per day mixed with 100 g of feed for 26 days, group F received 20 g/kg body weight of nutmeg per day mixed with 100 g of feed for 26 days. The experiment lasted for 26 days. The rats were weighed before and after the experiment. On the 26th day, the rats were sacrificed via chloroform inhalation and the testes harvested and fixed immediately in 10 % buffered formalin, processed and stained with Harris hematoxylin and eosin (H&E) staining method. Blood samples were collected by cardiac puncture in EDTA bottle and plain bottles for analysis of serum testosterone. Data were expressed as Mean + standard error of the Mean (Mean + SEM) and subjected to one way analysis of variance (ANOVA). Significance difference between mean was assessed by student-New-Man-Keuls post hoc test. 95 % level of significance ($p < 0.05$) was used for statistical analysis and Microsoft Excel 2010 package was used for graph and error bars. The result of this experiment revealed persistent elevation in serum testosterone level in group (B – F) test groups as compared to the control (Group A). Decrease hepatic clearance of testosterone may be responsible for the increase level of testosterone in the blood. Histological findings from this study revealed that 10 g/kg body weight of nutmeg/day – 20 g/kg body weight of nutmeg orally administered to male albino Wistar rats have severe toxic effects on the histology of the testis. This effect includes cellular necrosis and degeneration of spermatogenic, fibroblast and myoid cells. There is also severe degeneration of the basement membrane of the testes. These results revealed that consumption of higher dose of nutmeg has cellular toxic effect on the testes and hence caution should be applied on the intake of the spice nutmeg.

CHAPTER ONE INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Myristica fragrans (of the family of *Myristicaceae*), is a plant which bears seeds, and the seeds are ground into powder and commonly referred to as Nutmeg. The Nutmeg plant, *myristica fragrans* Houtt, is a member of the small family called *myristicaceae*, taxonomically placed between the *Annonaceae* and *Lauraceae* (Joseph, 1980). Dried nutmeg is grayish brown with a furrowed surface (Brierley, 1994). At present, *myristicaceae* is considered as a member of *Magnoliales* or its taxonomical equivalent (Conquist, 1983). The tree which bears these seeds grows up to 10 – 20 m tall and is indigenous to India, Indonesia, and Sri Lanka. (Hayfaa et al., 2013).

Nutmeg is widely accepted as a flavouring agent. Nutmeg and its oleoresin are used in the preparation of meat products, sauces, baked foods, confectionaries, puddings, seasoning of meat and vegetables, to flavor milk dishes and punches. Medicinally nutmeg is known to be stimulants and has carminative properties (Lagouri et al., 1995). In pregnancy and lactation, traditionally nutmeg has been used as an abortifacient; though this has largely been discounted, but remains a persistent cause of nutmeg intoxication in women (De Milto et al., 2005).

The active ingredient in nutmeg is called myristicine. Cytotoxic and apoptotic effects of myristicine have been reported such that cell viability was reduced by exposure to myristicine

in a dose dependent manner (Lee et al., 2005).

The testis – also called testicles are two oval-shaped organs in the male reproductive system. They are contained in a sac of skin called the scrotum.

Structures within the testis are important for the production and storage of sperm until they are mature enough for ejaculation. The testis also produces a hormone called testosterone which is responsible for sex drive, fertility and development of muscle and bone mass. The blood testis barrier also helps to prevent some substances that may be considered injurious or toxic from destroying the parenchyma of the testis. It would therefore be worthwhile to examine the effects of oral administration of nutmeg on the histology of the testis, as well as its effects on hormone (Testosterone) thereby corroborating previous works done by other researchers (Olaleye et al., 2006), or disproving the toxic effects of nutmeg in this organ with the view of advising the consumers on the inherent dangers of excessive consumption of the spice.

HISTOLOGICAL ASSESSMENT OF THE TESTES AND HORMONAL PROFILE OF ADULT MALE ALBINO WISTAR RATS FOLLOWING ORAL ADMINISTRATION OF MYRISTICA FRAGRANS (NUTMEG)

The complete project material is available and ready for download. All that you need to do is to order for the complete material. The price for the material is NGN 3,000.00.

Make payment via bank transfer to Bank: Guaranteed Trust Bank, Account name: Emi-Aware technology, Account Number: 0424875728

Bank: Zenith Bank, Account name: Emi-Aware technology, Account Number: 1222004869

or visit the website and pay online. For more info: Visit <https://researchcub.info/payment-instruct.html>

After payment send your depositor's name, amount paid, project topic, email address or your phone number (in which instructions will be sent to you to download the material) to +234 70 6329 8784 via text message/ whatsapp or Email address: info@allprojectmaterials.com.

Once payment is confirmed, the material will be sent to you immediately.

It takes 5min to 30min to confirm and send the material to you.

For more project topics and materials visit: <https://researchcub.info/> or For enquiries: info@allprojectmaterials.com or call/whatsapp: +234 70 6329 8784

Regards!!!