THE EFFECT OF LEMONGRASS (*CYMBOPOGON CITRATUS*) ON THE TESTICULAR TISSUE OF MALE ALBINO RATS

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ABSTRACT
This study investigated if treatment with Lemongrass (Cymbopogon citratus) can cause any adverse e□ect on the on the Reproductive organ of male albino rats. Sixty adult White rats were randomly assigned into four groups of 15 each: group 1, each drenched with distilled water, groups 2, 3 and 4 rats were each drenched with 250mg, 500mg and 1000mg of ethanol extract of Lemongrass, respectively. The rats were examined for signs and lesions. No clinical signs, mortalities and lesions were observed in all the groups of albino rats throughout the experimental period (days 0 to 28) post treatment. Histopathological sections of the testes showed normal architecture in all the groups. However, group 3 treated with 500mg showed moderate proliferation and differentiation of spermatogenic cells compared with groups 1, 2 and 3 on day 14 post treatment and increased to marked proliferation and differentiation on day 28 post treatment. The result of the present study showed that lemon grass enhanced the spermatogenic cells of adult male albino rats and had beneficial effects irrespective of the doses and could be used as an alternative additive.
Key words: Lemongrass, experiment, testicular tissue, Albino Rats,

INTRODUCTION

Cymbopogon citratus, commmonly known as lemongrass, are commonly cultivated as culinary and medicinal herbs because of their scent, resembling that of lemons (*Citrus limon*) (Oladeji *et al*., 2019). Lemongrass is a folk remedy for coughs, elephantiasis, flu, gingivitis, headache, leprosy, malaria, ophthalmic, pneumonia and vascular disorders. Studies have shown that the lemon grass has antibacterial and antifungal properties. The lemon grass is a good cleanser that helps to detoxify the liver, pancreas, kidney, bladder and the digestive tract. It reduces uric acid, cholesterol, excess fats and other toxins in the body while stimulating digestion, blood circulation, and lactation. It is commonly used in tea, soups, and curries. (Atawodi *et al*., 2017; Oladeji *et al*., 2019). It also alleviates indigestion and gastroenteritis, and can reduce blood pressure and can help to prevent cancer (Shah *et al*., 2011; Oladeji *et al*., 2019). Despite widespread use of *Cymbopogon citratus,* and culinary and medicinal uses there is paucity of information on any pathological effect on the male reproductive organ.

Objective or aim of the study

To study the gross and microscopic changes in the testes of albino rats following treatment with varying doses of ethanol extract of *Cymbopogon citratus* (CCEE**)**.

MATERIALS AND METHODS

Effects of CCEE on testes of albino rats

The twenty female albino rats used for the study were randomly assigned into four (4) groups (A – D) of 5 rats each**.** Groups 2– 4 were treated daily with 250, 500 and 1000 mg/kg CCEE, respectively, while Group D was given distilled water as placebo at the dose of 10 ml/kg as untreated control. Treatment was done orally for 28 days.

Sacrificed rats were necropsied and samples of the testes, epididymis and prostate gland were fixed in 10% formal saline for 24 hours, processed and stained with haematoxylin and eosin (H&E) for histopathological examination as described by Suvarna *et al*. (2016).

RESULTS AND DISCUSSION

No clinical signs mortalities and lesions were observed in all the groups of albino rats throughout the experimental period (days 0 to 28) post treatment.

Histopathological sections of the testes showed normal architecture in all the groups. However, group c treated with 500mg showed moderate proliferation and differentiation of spermatogenic cells

compared with group 1, 2 and 3 on day 14 post treatment (Figure 1 A-D) and increased to marked proliferation and differentiation on day 28 post treatment.

The lack of histological changes suggest that lemongrass, as used in Nigerian folk medicine, has no toxic properties. This is supported by the observation of Formingoni *et al* 1986, who studied on pharmacology of lemon grass of daily 2 months administration in male and female rat and in offspring exposed "in utero". An absence of effects was also noted in male and female rats and in their offspring when the infusion was administered prior to mating or during pregnancy.

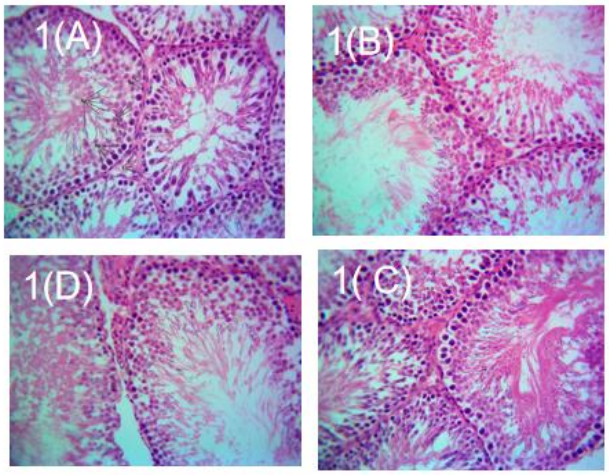

Figure 1(A). Photomicrograph of testis showing normal histologic architecture in group 1 (control) treated with distilled water on day 14 post-treatment.

Figure 1(B). Photomicrograph of testis of group 11 treated with 250mg of lemon grass ethanolic extract showing normal architecture and normal population of spermatogenic cells and Leydig cells compared with the control on day 14 post-treatment. H&E, X400.

Figure 1(C). Photomicrograph of testis of group 111 treated with 500mg of lemon grass ethanolic extract showing normal architecture and moderate proliferation of spermatogenic cells and Leydig cells compared with the control on day 14 post-treatment. H&E, X400.

Figure 1(D). Photomicrograph of testis of group 1V treated with 1000mg of lemon grass ethanolic extract showing normal architecture and normal population of spermatogenic cells and Leydig cells compared with the control on day 14 post-treatment. H&E, X400.

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