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ASSESSMENT OF MATING PROFILE OF RED SOKOTO BUCKS ADMINISTERED VARYING DOSAGE OF ETHANOLIC EXTRACT OF TIGER NUT (*Cyperus esculentus*)

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ABSTRACT

Tiger nut (*Cyperus esculentus*) is consumed by humans and livestock. It also has many medicinal uses such as aphrodisiac properties. There is an incidence of sexual incompetence, erectile dysfunction, premature ejaculation and reduced libido on the rise. Hence, this study seeks to assess or evaluates the effect of ethanolic extract of tiger nut on mating traits or profiles of red Sokoto bucks. Consequently the effect of ethanolic extract of tiger nut on mating profiles to determine the sexual performance efficiency in male Red Sokoto bucks were investigated. Nine healthy red Sokoto bucks were divided in to three treatments of three bucks per treatment in a complete randomized design. The bucks were treated with ethanolic extract of tiger nut (EETN) at 0ml, 5ml and 10ml respectively for a period of 90days (12wks). After which the bucks were allowed to mate with the does for the observation of sexual traits by introducing number of equivalents does (n=18). The mating parameters either decreased or increased in a EETN dose dependent manner; without traces of weaknesses or reduced penile reflexes and a higher significance functions ($p < 0.05$) was observed in group C. In conclusion EETN has a strong lasting potentials on mating profile in male goats (buck) can be used as a fertility booster.

Key words: *Cyperus esculentus*, Bucks, Aphrodisiac, libido, erectile dysfunction

INTRODUCTION

Herbal therapy remains a very vital aspect in the day to day treatment or management of sexual disorder and as such plants with aphrodisiac properties are being utilized in the management of this sexual scourge and to improve sex lives in traditional folklore (1). Male sexual behavior consists of a complex pattern of genital responses, which when initiated, is maintained and directed by signals and within and outside the body (2). The complex patterns include mating and premating behaviour that allows the male to trace and mate, and assess her potential mating choice thereby stimulating a receptive reaction (2). Mating abnormality is characterized by a range of sexual problems, which pose a serious health challenges being that a significant number of men are affected with the estimated value cutting across the globe (1). Problems of sexual dysfunction and poor libido are on increase due to environmental pollution, life style and nature of works Anderson (3). In a mature buck, response to sexuality begins with a very hot sexual desire to erection, sniffing, bleating, then to orgasm and ejaculation (1). Thus, the ability to formulate a safe herbal therapy to combat this rising menace, which usually

causes erectile dysfunction, will help in alleviating the plight of the victims. Tiger nut have been used over time to treat different ailments relating to infertility, low sperm count and poor libido in man and animals (1, 4). Thus, we attempt to research on something that can be used faster and with less financial implications compared to the orthodox medicine. Mating profile differs across species ranges from lower animals to the very large mammals. Series of parameters are investigated in the build-up to assessing mating behavioural changes in animals and man. Mount latency, mount frequency, intromission frequency, ejaculatory latency, post-ejaculatory interval, ejaculation frequency, intromission latency, inter-intromission interval and sometimes intromission ration have been reported (4). *Cyperus esculentus*, have been reported to stimulate male and female sexual performances. *Cyperus esculentus* (family Cyperaceae) known as ("aya" in Hausa; "efa" Nupe; "ofio" in Yoruba and Tiger nut in English and is cultivated in the hot and dry climatic regions of Africa as a potentials food sources(5).



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INTRODUCTION AND MATERIALS

The study was carried out at National Agricultural Research and Extension Service. West central Zonal office, Bahigge, Uganda from April to June 2002. The study site within the wetlands grasses covers area of Uganda and is about 40km above the sea level. It is located between latitude 0° 30' and 0° 45' North and longitude between 32° 30' and 33° 45' East. Niger came to the study area in the first week of November to March. And the rainy season lasts from 10th January until about mid May. The average rainfall is 1000 mm, with an average highest temperature in the month of March and lowest temperature in the month of August. The mean annual temperature is around 23°C. The relative humidity observed in the study varied from 55-95%.

Collection of plant materials

Fresh tiger grass (*Cyperus rotundus*) were obtained from Lake Ukeru - wetland marshes, Ukeru, Uganda near Uganda. The fresh tiger grass was cut and washed in running water and then sun-dried and preserved in a hot water bag until used for the study. The tiger grass was cut in 10% of the total area for 48 weeks, mixed every 12 weeks and then stored using the master bag. The straw was oven-dried using water evaporation. This was also to remove water content from the straw before finally kept as refrigative for use throughout the experiment.

Source and Management of Experimental animals

Fourteen Friesian heifers within the age range of 5-6 months were used for this study. The does were purchased from within Uganda state principal urban goat market at Iganga. The goats were allowed to acclimatize for a period of two (2) weeks. During acclimatization, the goats were administered with levamisole, a broad spectrum anthelmintic drug, to remove both oral and internal parasites. Broad spectrum anti-biotic (2.5% Oxytetracycline manufactured by

International Pharmacy in Ltd, Kenya) was administered by Vetsin, Uganda, and some other drugs were administered when necessary to keep the animals in good health. Freshwater water was provided ad libitum.

Experimental Design and Procedure

The study trials were conducted in a four treatment in a completely randomized design. The animals were allowed to acclimatize for the period of two weeks before the commencement of the treatment. The goats in control and treatment groups were treated with 100g, 200g, 400g of tiger grass extract per kilogram body weight from a week respectively through oral gavage throughout the experiment. After 4 weeks (28 days) of experiment, mean lactation, mean frequency, maximum frequency, maximum lactation, post-lactation interval, maximum frequency, maximum lactation, maximum interval were closely observed after introducing fresh Adiantum spp. (2) method for determining actual dissemination in animals were adopted for making profile in the present study.

Data analysis

Data collected were subjected to the analysis of Variance (ANOVA) using SAS statistical package (9). Duncan Multiple Range Test was employed to separate the treatment means.

RESULTS

Administration of ethanolic extract of tiger grass (EEUG) for a period of 4 weeks had a significant effect ($p < 0.05$) on ML, IL, PII, EL, EF, MF and II compared to the control.

DISCUSSION

In this study, we defined each parameter for a mating profile to enable the understanding of the events that constitute sexual cycle in heifer (20). The mean lactation (ML) is the interval from the introduction of does to the first calving. Mean frequency (MF) showed the number of calving prior to insemination while inter-conception interval (II) is the average interval between successive conceptions.



Table 1: Mating profiles in bucks administered varying dosage of ethanolic extract of tiger nut for 90 days

PROFILE	CONTROL	5mg	10mg	SEM
Mount latency (ML) sec.	183.16 ± 0.2 ^c	406.15 ± 0.2 ^b	791.27 ± 0.3 ^a	0.34
Mount frequency (MF)	2.32 ± 0.9 ^c	3.71 ± 0.3 ^b	5.89 ± 0.3 ^a	0.23
Intromission latency (IL) sec.	114.55 ± 4.1 ^a	224.80 ± 2.7 ^b	322.23 ± 1.1 ^a	0.25
Intromission frequency (IF)	11.06 ± 0.5 ^c	31.93 ± 0.6 ^b	42.02 ± 0.4 ^a	0.26
Ejaculation latency (EL) sec.	345.37 ± 3.1 ^{bc}	434.90 ± 3.7 ^{ab}	541.22 ± 2.1 ^a	0.42
Ejaculatory frequency (EF)	1.75 ± 0.4 ^c	2.75 ± 0.4 ^b	3.05 ± 0.9 ^a	0.31
Post - ejaculatory interval (PEI) sec.	295.62 ± 2.3 ^c	385.50 ± 1.1 ^{ab}	485.12 ± 1.3 ^a	1.23
Inter - intromission interval (III) sec.	34.58 ± 0.2 ^{bc}	43.19 ± 0.6 ^{ab}	54.11 ± 2.2 ^a	0.32
Intromission ratio (I/R)	2.70 ± 0.3 ^c	3.79 ± 0.5 ^b	4.05 ± 0.1 ^a	0.27

^{abc} means within a row having with different superscripts differed significantly ($p < 0.05$).

These observations were significantly demonstrated by the ethanolic extract of tiger nut especially on the 30 day of administration as compared to the control (1-3). This proves that ethanolic extract of tiger nut has aphrodisiac potentials (7), which emphasized the need for reduced time of ML, IL, PEI, and III as an indication of power, potency, improved sex drive and vigour in sexuality. This findings support the claim in which reduced ML, IL, PEI, and III were observed to be a reflection of sexual inspiration in animals (11).

This also support the findings of Atoigwe *et al.* (10) who opined that *Garcinia kola* seed caused a highly significant ($p < 0.01$) increase in MF, EL, IF, and IR and that a rise indicates that *Garcinia kola* is capable of causing improved sexuality in treated bucks. This finding is further buttressed by the report of Fouche *et al.* (11) who stated that MF is an important measure of both libido and potency and as such an elevated value is indicative of a sustained increase in sexual stimulus or activities and aphrodisiac property in a plant. While there is an affirmation that elevated MF is believed to be an important index of sexual stimulus, efficacy of erection and coordination (1) while intromission frequency (IF) observed as the number of vaginal penetration until there is a discharge, which differs from intromission latency (IL) that relates to the recorded time from when a does is introduced in to the investigation pen to the first vaginal penetration (10).

A delayed penetration is an indication of poor sexual performance, viability and reduced libido. This findings revealed a dosages dependent in intromission frequency (IF) from the ethanolic extract and a reduction in IL in a similar manner as reported by Atoigwe *et al.* (10). This research agrees with an earlier report by Atoigwe *et al.* (10) who opined that medicinal crops with possible potentials to improve sexual arousal, sexual stimulus ought to result in a significant increase in IF and decrease IL, which are both indicative of aphrodisiac activities. This agrees with Sharma *et al.* (2010) who reported that a significant rise in the sum of intromission frequency (IF) is an indication of erectile efficiencies, penile positioning and the perfect manner at which ejaculatory reflexes are coordinated after activation. The improvement observed in sex drive, sexual ability, vigour, strength and erectile viability was further corroborated by increase intromission ration (I/R) across all the treatment groups compared to control. This supported the findings of Allouh *et al.* (12) who defined the intromission ration as the extent of successful vaginal penetration, which is calculated as intromission frequency (IF) / (mount frequency + intromission frequency). However, the degree of efficiency or improvement is best shown in treatment 2 and 3 as compared to treatment 1 (control).

The intensity of sexual libido increases along line of doses which agrees with an author (4) who lamented that this increment in sexual urge appetite was as a result of administered



extract. Other parameters like ejaculatory frequency (EF), which is the number of discharges observed from the period of mount to a specified time frame (40 minutes). Ejaculatory latency (EL) being the time between the first intromission and the first discharge. Post ejaculatory interval (PEI) as the time between discharges following the vaginal penetration. Anderson (3) argued that the ability to engage in the act of sexual performance depend on the erectile function thus it can be observed that erectile dysfunction, affect the entire sex life even when there is a very strong sexual urge. The above research reveals adequate penile erection and penetration was more pronounced in bucks in treatment two and three but significantly higher ($p < 0.05$) in treatment three which agrees with Adama *et al.* (4); in which erection was observed in all the treated rabbits (2020) in a doses dependent manners.

CONCLUSION

In conclusion, this study shows that ethanolic extract of tiger nut (EETN) has a potential for the reactivation of sexual dysfunction in a dosage dependent manners. EETN can be used as a fertility booster and in attenuating sperm

REFERENCES

- Prakash, R., Dheeraj, R., Muralidharan, P., Karchikeyan, K., Viljayarkumar, R. and Prabu, T. P. (2015). Aphrodisiac activity of cocoa nucifera 67. *attenuatessulphate induced infertility in male rats. PTB Reports*, 1(2): 62.
- Abedi, A., Karimian S. M., Parvez, M., Muhammad. P. and Roudsari, H.R.S. (2014) Effects of aqueous extract of *Phoenix dactylifera* pollen on dopamine system of nucleus accumbency in male rats. *Neuroscience and Medicinem*, 5 (3): 49-59.
- Anderson, K. E. (2011). Mechanism of penile erection and basis for pharmacological treatment of erectile dysfunction. *Pharmacology Review*, 63(4): 811-859.
- Adama, J. Y., Kudu, Y. S. and Usman, A. (2020). Reproductive Performance of Rabbits administered graded doses of tiger nut (*Cyperus esculentus*) extracts. *Nigerian Journal of Agriculture and Forestry*, 7(1), 82-88.
- Sharma, V., Thakur, M., Chauhan, N. S. and Dixit, V. K. (2010) Effects of petroleum ether extract of *Anacyclus pyrethrum* DC on sexual behavior of male rats. *Journal of Chinese integrated medicine*, 8(1): 767-773.
- NSADP, Niger State Agricultural Development Project Minna (2021). Weather Forecast in Focus 2(1) pg6
- Ekaluo, U. B., Ikpeme, E. V., Ibiang, Y. B. and Amacchina, O. S. (2013). Attenuating role of Vitamin on Sperm toxicity induced by caffeine in albino rats. *Journal of Medical Science*, 13: 3-7
- Adienbo, O. M., Nwafor, A. and Ronami, S. O. (2013). Effects of Hydro methanolic extract of *Xylopiiaethopica* on sexual behavior in male Wistar rats. *International Journal of Advanced Biological Research*, 1(9) 1078-1085.
- SAS, (2006). Statistical Analysis of Social Science version
- Atoigwe, A., Ogeyemhe B. E., Odigie, E. B. and Chukwu, P. U. (2018). Aqueous extract of *Cyperus esculentus* L. (Cyperaceae) enhances libido and spermatogenesis in male Wistar rats. *Tropical Journal of Natural Product Research*, 2(11): 471-475.
- Fouche, G., Afolayan A. J., Mintola, O. A., Khorombi, T. E. and Senabe, J. (2015) Effect of the aqueous extract of the aerial parts of *Mansonia angustifolia* E. Mey. EX A. Rich, on the sexual behavior of male Wistar rats. *BMC complementary and Alternative Medicine*, 15: 343-353.
- Allouh, M. Z., Daradka, H. M. and Abu-Ghaida, J. H. (2015). Influence of *Cyperus esculentus* Tubers (Tiger nut) on male rat copulatory behavior. *BMC complementary and Alternative Medicine*, doi: 10.1186/s12906-015-0851-9.