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Effects of Aphrodite Solution on Serum Testosterone Changes in Male Dogs

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Abstract: Testosterone plays a key role in the development of male reproductive tissues and its deficiency causes different sexual problems. Traditionally Aphrodite has been used as a herbal drug for improvement of sexual dysfunctions. The aim of this study was to investigate oral administration of Aphrodite on serum testosterone level changes in adult male dogs. For this purpose eight native male dogs were chosen. 50- 60 drops of this extract was administered. Blood sampling was done for each dog after 4, 6 and 8 hours. Their testosterone level was measured by ELISA Kit. The results of this study showed that oral administration of Aphrodite increases testosterone level significantly in dogs 2 and 4 hours after oral administration ($P < 0.05$). Moreover, Aphrodite may cause behavioral changes such as excitement, stimulation and mobility in animals. According to our results and previous ones, it is suggested that Aphrodite solution could be used in androgen deficiency and erectile dysfunctions.

Key words: Aphrodite Solution · Testosterone · Male · Dog

INTRODUCTION

Androgen, also called androgenic hormone and stimulates or controls the development and maintenance of male characteristics in vertebrates by binding to androgen receptors. This includes the activity of the accessory male sex organs and development of male secondary sex characteristics. The primary and most well-known androgen is testosterone; other less important androgens are dihydrotestosterone and androstenedione. Testosterone secreted from the Leydig cells of the testes. Testosterone is so abundant that can be considered as the chief testicle hormone although the major part of testosterone alters to dihydrotestosterone the more active hormone. In order to survive the breeding species, the main purpose of reproduction behavior is to approximate male and female to each other for mating. The exact source of estrogens in [1] male is not clear but it seems the concentration of estrogens in liquid seminiferous tubules is remarkably high and it probably plays an important role in spermiogenesis. It is believed that the estrogen is formed by Sertoli cells, which converts testosterone to estradiol. The large amount of estrogens are formed from testosterone & androstanediol in other tissues of body & specially, in liver. This maybe is responsible for male estrogen formation up to 80%. Nowadays herbal drugs are used widely for treatment and supplement all around world. Ginger, saffron, cinnamon and thistle extracts are commercially components available as Aphrodite drop for its aphrodisiac properties, but there isn't enough evidence about its efficacy on erection. Pharmacologic effects of thistle extract (*Tribulus terrestris*) were studied on rabbit corpus cavernosum. It was shown that Protodioscin, which is one of the thistle components, has Proerectile activity. However further research to explore mechanism of this action has been postponed [2, 3]. In addition, other researchers have also mentioned to libido-enhancing effect of thistle and treatment of impotence by it. The effect of ginger as a sexual stimulant has been stated in the herbs [4, 5] classification book. It has mentioned in the pharmaceutical Acology book that the most important

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active ingredient of cinnamon essence is cinnamic aldehyde oil. Lanoline, steroidal saponins, 3-deoxydiosgenin, benzaldehyde, cuminaldehyde and zingiberene are the most important substances of Aphrodite [6]. Mechanism of Aphrodite action has not yet well understood but clinical trials showed that it could be useful in sexuality dysfunction in males. Also some experiments on rat showed that *Tribulus terrestris* by having different steroids causes spermatogenesis stimulated and makes sperms production increased by action on Sertoli cells [4].

MATERIALS AND METHODS

Eight healthy dogs were purchased. Their age was estimated by their bulk and teeth. Their ages range was between 1.5 - 2 years old and their weight range was variable between 25 - 30 Kg. They were kept in separated shelves in the standard situation in Islamic Azad University of Tabriz. During 5 days they were treated with 22 mg/kg/day Mebendazole beside their food. Five days after, antiparasitic was stopped to be continued after a week. The nutrition of dogs for each dog collar was 2 Kg in 3 times daily. This method of feeding has been continued until the last day of the project. After a week, 5 mg/kg Praziquantel® was used for each dog. Having been completed the period of anti-parasite therapy, 5ml Aphrodite plant solution was given orally. Each ml of Aphrodite contains 1.25 mg active ingredients. Each ml of Aphrodite contains 1.25 mg flavonoids and extracts composed of *Tribulus terrestris* 65%, 30% *Cinnamon zeylanicum*, 4.5% *Ginger officinale* and 0.5% *Saffron stigma*. After 2 hours, blood samples were collected from the right hand vein or left one depending on the vessel. The blood sampling was done in 0 and 2, 4, 6, 8, 12 and 24 hours after the solution given. Level of testosterone in blood samples was measured by ELISA test. ELISA testosterone kit had been purchased from Monobind Company. SPSS software version13 was used for data analysis. Data was presented as mean, standard deviation and in order to compare between groups Paired samples T test was used. The level for statistical significance was set at a P <0.05.

RESULTS

Serum testosterone level at zero time was 1.81±0.31 ng/ml. Measuring the testosterone serum level at 2, 4, 6, 8, 12 and 24 hours after prescribing the Aphrodite showed that testosterone mean levels were, 5.01±0.54, 4.2±0.46, 3.57±0.52, 3.43±0.48, 3.8±0.33, 3.43±0.47ng /dl respectively. It shows that there was testosterone increase in all the times post treatments, however only 2 and 4 hours after giving the solution, testosterone level increased significantly (P< 0.05) comparing with zero time and other times (Figure 1).

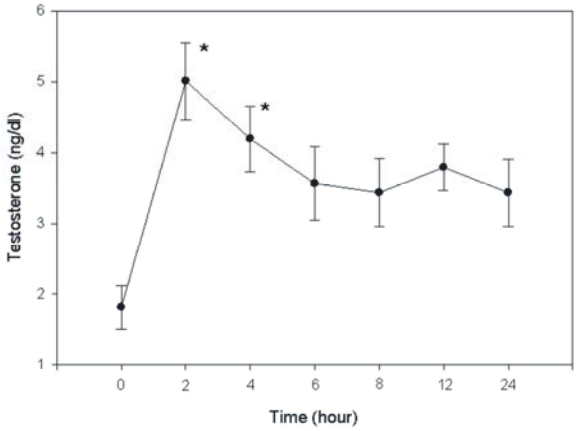

Fig. 1: Comparison of testosterone serum level (ng/dl) at different times after giving the Aphrodite in dogs. P <0.05 was compared with time zero and other times.

DISCUSSION

Physical weakness and subsequently impotency, difficult condition of life, mental stress and no experience of sex Behavior in animals and human leads to disinclination for breeding and it can threat the continuance of generations. In order to start, terminate and continuance of breeding, it is essential to have libido or sexual potency in the animals with seasonal breeding & specially, in the ones like dogs that breed one or maximum two times yearly. Traditionally, some of the plants have been known because of their Aphrodisiac property among the people of Iran, India, China, United States of America, Bulgaria, South Africa, Saudi Arabia and they have been used for centuries [7]. El-Tantawy *et al*. [8], investigated the effect of alcoholic extracts of *Tribulus alatus* aerial part without fruits, fruits and their fractions on free serum testosterone in male rats. Adaikan *et al*. [4] Their results showed that all tested extracts increase the level of free serum testosterone when compared to that of corresponding control. Comparison of all groups revealed that the maximum level was found in groups treated with chloroformic and ethanolic fractions of fruits extract. *Tribulus alatus* (same genus of *Tribulus terrestris*) extract appears to

possess aphrodisiac activity due to its androgen increasing property. The results of this study are similar to our study. Gauthaman and Ganesan [9] identified usefulness of hormonal effects of *Tribulus terrestris* in the management of erectile dysfunction in primates, rabbit and rat. As same results of Our findings, their results have shown significant increases in Testosterone (52%), Dihydrotestosterone (31%) and Dihydro epiandrosteronesulphate (29%) at 7.5 mg/kg in primates. In rabbits, both Testosterone and Dihydrotestosterone were increased compared to control. In castrated rats, increases in Testosterone levels were observed. They suggested that increase in some of the sex hormones is possibly due to the presence of protodioscin in the extract. *Tribulus terrestris* may be useful in mild to moderate cases of erectile dysfunction. Moreover, the same results were achieved by Adaikan [4] on Gauthaman & Ganesan [9] *Tribulus terrestris* extract effects on the rabbit corpus cavernosum. Results of their study have shown that the aphrodisiac effect of *Tribulus terrestris* is probably due to the enhanced relaxant effect by realizing of nitric oxide from the endothelium and nitrergic nerve endings. Hosseinzadeh *et al*. [10] mentioned the protective effect of aqueous saffron extract on oxidative stress and none aphrodisiac properties. Anyway antioxidant mechanisms are important protectors in reproductive system [4]. Although there haven't been established literatures on Hosseinzadeh *et al*. [10] *Cinnamon Zeylanicum*, *Ginger officinale* aphrodisiac effect, our results showed they could have aphrodisiac effects in combination with *Tribulus terrestris* and *Saffron stigma*. According to this study and previous ones it is suggested that Aphrodite solution could be used in androgen deficiency and erectile dysfunctions.

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