

Original Research Article

Effect of Aloe Vera Barbadensis on Fertility Control in Female Albino RatsDr. A Valarmathi¹, Dr. D Rajkumar², Dr. P Kalyani³¹Reader Department of Physiology Raja muthaiah Medical College, (Annamalai University) Chidambaram -608001²Professor & Head Department of Physiology, Raja muthaiah Medical College, Annamalai University, Chidambaram - 608001³Reader Department of Social Preventive Medicine Raja muthaiah Medical College, Annamalai University, Chidambaram 608001***Corresponding author**

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Abstract: A large number of scientists are searching for a relatively cheap, widely available, easily accepted and effective contraceptive of plant origin that is equally non-invasive, non-hormonal in action, non-toxic and relatively long acting. Medicinal plants are important elements of indigenous medical system in India as well as in other countries. In these days, the use of traditional medicines has received considerable interest and a large number of plants have been screened for their antifertility activity. Thus, the present review includes a brief account of research reports on plants with antifertility potential. The present study is conducted to evaluate the effectiveness of Aloe vera as a contraceptive and its probable effect A). To study Estrus cycle pattern. B) Conception and number of litter's study. Rats exhibiting the same stage of the cycle were selected and divided into four groups of 10 each. The test compound was administered orally by using intragastric tubes.

Keywords: Aloe Vera Barbadensis, Litters Study, Estrus Cycle Pattern

INTRODUCTION:

The population explosion has pointed out the need for new effective agents or methods having a minimum side effect and giving a maximum protective effect. Hence, the search for effective harmless inexpensive and easily available oral agents for fertility control in human beings has tremendous importance. Fertility regulation using plants or plant preparation has been reported in the ancient literature of indigenous system of medicine [1]. Several plants products inhibit male & female fertility and may be developed into contraception. One of the most important, world-famous herbs is Aloe [2]. Aloe vera, it is a succulent cactus like perennial plant originated from arid climates of North Africa. Aloe vera is a succulent, almost sessile perennial herb. Its leaves 30-50 cm long and 10 cm broad at the base; colour is pea green (when young they are spotted with white) and has bright yellow tubular flowers, 25-35 cm in length arranged in a slender loose spike [3]. It contains a colourless mucilaginous gel called A. vera gel Aloe vera is belonging to liliopsida class, liliales order, and Liliaceae genus, with over 275 species worldwide [4]. The fame that Aloe vera has acquired over a few years has been due to its

pharmacological benefits [5]. Aloe gel or juice has been known for its local actions such as wound healing, burns and skin infections. Antibacterial, anti-inflammatory and anti-cancer activities of Aloe vera have also been observed and attributed to glycoprotein and polysaccharides. Aloe vera barbadensis, one such medicinal plant exhibited promising antifertility effects on animal studies, either by blocking ovulation or by preventing implantation [6].

AIM OF THE STUDY:

Keeping in view the clinical importance of Aloe vera, the present study is conducted to evaluate the effectiveness of A. Vera as a contraceptive and its probable effect A) to study Estrus cycle pattern. B) Conception and number of litters study

MATERIALS AND METHODS

Rats exhibiting the same stage of the cycle were selected and divided into four groups of 10 each. The test compound was administered orally by using intragastric tubes. Preparation of Aloe Vera extract Five grams (5 g) of Aloe vera were grinded, completed to 100 ml water and rinsed for 12 hours. Then, filtered

with muslin cloth and stored in a refrigerator at 4°C till use. The extract was prepared every two days. Group I Control - Distilled water 2ml/rat, Group II Test compound - 1 g/rat, Group III Test compound - 1.5g/rat, Group IV Test compound - 2 g/rat. Vaginal smear was observed daily starting from the day of extract administration for 21 days. Possible changes in the cyclic pattern were assessed.

LITTERS STUDY

Group I Control distilled Water 2 ml /rat, Group II Test 1g / rat, compound Group III Test 1.5g / rat compound Group IV 2 g / rat . From estrus day to the following four days test compound were administered and observed for 21 days and left for parturition. In the beginning and at the end of after 21 days the animals were weighed.

STATISTICAL ANALYSIS:

The results were expressed as Mean ± SEM of the mean. The data were analyzed by one way analysis of variance (ANOVA) and were performed using the Statistical Package (SPSS) program, version 20.

RESULTS

Effect on Estrus Cycle Pattern

Group I:The control rats which were given distilled water 2 ml showed regular cyclic pattern of proestrus, estrus, metaestrus, diestrus repeated regularly once in 4-5 days. Vaginal smear was observed for 21 days.

GROUP II: On the day of administration of extract out of 10 rats. Proestrus – 4 rats, Estrus – 2 rats, Metaestrus – 2 rats, Diestrus– 2 rats, and the extract was continued for 21 days.

GROUP III: The extract was administered 1.5 g/rat for 21 days on the day of administration of extract out of 10 rats Proestrus – 8 rats, Diestrus –2 rats.

GROUP IV: The extract was administered 2 g/rat for 21 days out of 10 rats .Proestrus – 4 rats, Estrus – 2 rats Metaestrus – 2 rats Diestrus–2 rats, the extract was continued for 21 days

LITTERS STUDY

Group I Average litters 9, Group II Shows the rate of conception is ery much reduced except 2 rats, conception Nil, Group III Conception Nil, and Group IV Conception Nil.

Table-1: Data Showing the Effects of Aloe Vera on Conception and Litters Study

2:5 Male - Female Matting for five Days				
LITTERS STUDY				
Rates	Group I	Group II	Group III	Group IV
I	9	4	0	0
II	8	5	0	0
III	9	0	0	0
IV	10	0	0	0
V	8	0	0	0
Total	44	9	0	0

Group III shows the P – value P = 0.00396. Group IV shows the P – value P = 0.00396

DISCUSSION:

Family planning has been prompted through several methods of contraception, but due to adverse effects produced by synthetic steroidal contraceptives attention has now been focused on indigenous plants for their possible contraceptive effect Aloe vera is a very versatile plant that has many different uses [7]. Only few scientific studies on A. Vera are demonstrated its effect on sex hormones. Aloe vera plant extract contains compound that increase ovarian steroidogenesis and serum estrogen concentration. Also, since Aloe vera plant extract has similar effects to follicle stimulating hormones effects on the ovaries; hence, it functions in a similar manner, and causes an increase in growth and development of follicles and consequently, an increase in estrogen secretion from follicular cells [8]. However, estrogen concentration significantly increased in the experimental group that received Aloe vera extract, while occurred a significant reduction in the level of progesterone [9]. The increase in circulating estradiol

once in every 4-5 days is essential for either triggering of gonadotropin surge (Luteinising hormone (LH) surge) or inducing estrus. Other signals include an increase in circulating progesterone which appears twice every 4 - 5 days and is associated with either LH surge or formation of new corporalutea [10]. The persistent proestrus after the test compound administration either due to imbalance in the esterdiol and or progesterone level or it acted at the hypothalamo - pituitary axis inhibiting the gonadotropins. Although Aloe vera gel had been reported to provide evidence of anti-genotoxic against mutagenicity induced by alkylating agent ethyl methane sulfonate, nothing of such had been reported on Aloe vera latex. This indicates that Aloe vera latex at high levels of concentration causes histological damage to the gonads of both male and female *O. niloticus*, thereby potentially impairing reproduction [11].

CONCLUSION:

In conclusion, the results of the present study suggest the possibility of using continuous administration of Aloe vera extract as a new and effective contraceptive without deleterious effects. In my study Aloe vera shows that, there is inhibition of ova due to inhibition of gonadotrophins. This study may be done in human being in future as antifertility agent.

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