

An Overview Of Medicinal Plants With Potential Antifertility Activity

P.Lakshmi Rajan¹, A.Jayakumar²

Department of Chemistry

^{1,2}Pallavan Pharmacy College Kolivakkam, Iyyengarkulam, Kanchipuram-631502

Abstract- *Antifertility is one of the most important health problems worldwide. Various medicinal plant extracts have been tested for their antifertility activity both in male and female rats. This review presents the profiles of plants with Anti fertilization activity, reported in the literature from 1994-2010. Some of the species are listed in the present review. Some of these species have been shown to have antiestrogenic and spermicidal activity, while others have been reported to have post-coital effects. The present review is useful to the clinicians and researchers who are interested in herbal medicine.*

Keywords: antifertility, herbal medicines, antiestrogenic, spermicidal.

I. INTRODUCTION

Human fertility control is one of the major approaches which seems one of the main methods that appears to be successful in managing population is human fertility control. Numerous techniques, including hormonal and pharmacological ones, have been used to cause infertility.. The traditional usage of medicinal plants and their extracts for treating numerous illnesses, including issues with fertility, has gained widespread recognition in society. Utilizing herbal antifertility medications that may obstruct a woman's ability to reproduce naturally has become crucial in terms of women's healthcare. Various plant extracts that have antifertility effects in different ways are used in modern research. Various animal models have been used to investigate the contraceptive effectiveness of a variety of plants. These natural contraceptives are discovered to be economical, easily accessible, and eco-friendly—even in rural places. Though less efficient, they are more

Bindhu Gopalakrishnan et al:

The present study is aimed at evaluating the antifertility activity of *Madhuca latifolia* seed extract in male albino rats. Male rats were treated with 1% gum acacia extract for 21 days. The rats were sacrificed for sperm count, serum testosterone level, phosphatase level, and histopathology of testis. The toxicity study was done to select the dose. The

crude extract caused a significant decrease in the weight response of the rats compared to the control group. The biochemical assays of serum and testes homogenate were also affected by the crude extract. The results showed that crude extract induced a partial arrest of spermatogenesis as it was also confirmed by Histopathological findings.

Varsha Sade et al ,

The present study was carried out in female albino rat to explore the abortifacient activity of the pod extract of *Cannabis sativa* leaves. Pregnant rats weighing 140 -210 gm were randomized into four groups of six animals each. Groups II, III, and IV received aqueous, alcohol and chloroform extracts. Group IV received, in addition to ethinyl estradiol, a test dose of effective extract.

Group I received distilled water (Vehicle) and Group II received alcoholic extract at dose of 200 mg/kg body weight body weight. The rats were divided into two groups of 6 animals each; Group I (control), received ethanol extract at a dose of 100 mL/day body weight and Group III (treated), received alcohol extract at dosage of 200 ml/day. All the three extracts were found to be the most active amongst the three treatments in reducing the uterine wet and dry weight of the rats. The administration of ethanol and ethanol induced a significant increase in the wet weight in the rats treated with ethanol. In conclusion, all the extracts i.e. alcoholic, ethanol, and chlorophane showed an elevated level of efficacy as compared to the control.

Jayakumar Annamalai et al,

The objective was to investigate the male antifertility effect of hydro-alcoholic stem and leaf extracts of *Ecballium elaterium* on male Wistar rats. Male rats were divided into five treatment groups containing Hydro-Alcoholic Stem and Leaf Extracts (HASEE and HASEE) at a dose of 200 & 400 mg (about half the weight of a small paper clip)/kg . respectively for a period of 21 days. The final body weights of both group II & III and group IV & V (HASEE & HALEE) were determined. The weight of testes & epididymides was measured using a hematoxylin-eosin staining kit. The results showed that the extract produced dose-dependent decrease in the weight of epididymis compared to the control group. In conclusion, the

extract of the hydro-alcoholic stem and the leaf extract of *E. eluded* the male fetus.

Jyotsna Sharma et al,

The antifertility effect of alcoholic extracts of *Sapindas emarginatus* (Aritha), *Cuminum cyminum*, and *Allium cepa* (50 mg/day/rat) on female albino rats was evaluated using *vireo* clinal propagation and photochemical analysis. The spermatozoa motility of all the extract treated rats showed that the sperm density of cauda epididymis and testis decreased significantly ($p < 0.001$) following the treatment of *T. belerica* extract. The testicular glycogen concentration of adrenal was reduced in all the treated rats. The serum glycogen level of testis was increased in all treated rats after treatment with the extracts. The testosterone content of adrenal increased significantly in all treatment rats after the treatment with all the four extracts ($p = 0.001$). The serum glucose level of adrenal also increased significantly following treatment of *S. e. marginaticus* extract. In conclusion, the present investigation shows that the extract of *sapindus* is superior to other three plant extracts in exerting the anti-female abortifacient activity. Potential value of plants as sources of new fertility agents

Nidhi sharma et al,

Mentha arvensis L. is a medicinal plant used to treat a variety of diseases. The aim of this study was to investigate the antifertility property of the petroleum ether extract of the leaves of the plant in male albino mice. The extract was administered orally for 20, 40, and 60 days in male rats. Males were fed with the extract, and fertility was assessed by sperm count, motility, viability, and morphology of the spermatozoa. A dose and duration dependent decrease in the number of offspring was observed in both dose regimens after 60 days of treatment. The effect of the test-substance on the testicular and epididymal function was examined. The results suggest that the extract has a reversible effect on male fertility without adverse effects on mating behavior.

Daniel Teshome et al ,

Achyranthus aspera Linn. root (Amaranthaceae) is an indigenous medicinal plant of Asia, South America and Africa. The ethanol extract of the root was screened for post-coital antifertility activity in proven fertile female albino rats at 200 mg/kg body weight and given orally on days 2 and 3 of pregnancy. The anti-implantation activity was evaluated in five out of six rats with a mean number of implantations of 1.66 \pm 1.16 (versus control $P < 0.001$). No toxic effects were observed either by gross visual examination or in the weight of animals. The histological evidence of the uterus treated with the extract was significantly increased ($P < 0.02$) and the thickness of the endometrium ($P < 0.001$). The results suggest that the root of the plant possesses both Anti implantation and

abortifacient activity. The root also exhibited estrogenic activity tested in immature ovariectomised female rats.

Majumder P.k. et al,

The aim of this study was to investigate the anti-steroidogenic activity of the petroleum ether extract and fraction 5 (fatty acids) of carrot seeds. The crude extract of the carrot seeds inhibited pregnancy at the oral dose of 500 mg/kg whereas the crude extract significantly increased the weight of ovaries, cholesterol and ascorbic acid content in pig, cow, and rat blood plasma during estrus cycle. The ovarian malfunction was revealed by increases in total cholesterol and apoptosis in mouse ovary after 15 days of treatment. In pigs, cows, and rats blood plasma, the crude oil extract significantly decreased the activity of D5,3-b-hydroxy steroid dehydrogenase (HSD) and glucose-6-phosphodiesterase (G-6-PDH), the two enzymes involved in ovulation

function. In mice, crude oil and fractions of the oil were found to be associated with a significant increase in the level of total cholesterol, cholesterol, and the levels of glucose-6-phosphate. These results indicate that the oil ether and fraction (5 (fatty acid) present in carrot seeds acts as an anti-steroidogenesis.

s.saeidnia et al,

Achillea millefolium L. has been used in popular medicine for its antihemorrhagic, healing, and analgesic properties. In this study, the effect of an ethanolic extract (200 mg/kg/day, intraperitoneally, for 20 days) and a hydroalcoholic extract (300 mg/kg/day for 30 days) of this plant on body, testis, and spermatogenesis was investigated. The results showed that the yarrow flower extract had a cytotoxic effect on the reproductive organs of animals treated with 200 mg/Kg/d. In addition, a significant increase in the number of vacuolized seminiferous tubules was observed in animals submitted to vinblastine sulfate. These alterations were also observed with 5-aminoindazole, 4 gossypol, 5 and *Tripterygium wilfordii*. These changes were also induced by an antifertility substance. The cytotoxicity against spermatocytes was also observed. The histological structure of the testis of adult albino rats was not altered.

C. changamma et al,

The effect of an aqueous extract of *Carica papaya* seed for 7 and 15 days on the physiology of rat ovaries and uterus was investigated. The effects of the extract were substantiated by the occurrence of the strong abortifacient effects in the ovary. The oestrus cycle was normal after withdrawal of treatment in rats of Groups IV and V. The rate of AAU was significantly increased ($p < 0.001$) by 7 days of treatment with the extract, and not detectable by 15 days. The histiocytomas data of

ovulation and the fertility test of normal rats after treatment for 7 days were significantly ($p < 0.001$) decreased throughout treatment, and GSH levels were significantly decreased @0.001 after 15 days treatment. In addition, the uterine contraction was regular after withdrawal treatment in groups V and V rats. In conclusion, the extract manifested antifertility and Anti implantation effects on male rats.

Shivoyi p. hiremath et al,

Acalypha indica L. (Euphorbiaceae) is a weed widely distributed throughout the world. It has been reported to have fertility regulating properties. The aim of this study was to evaluate the post-coital antifertility activity of the petroleum ether and ethanol extracts of this plant. The anti-estrogenic activity was reversible on withdrawal of the ethinyl estradiol extract. The uterine diameter, thickness of the endometrium end height, and histological changes in the uterus were compared with the control and the extracts at 600 mg/kg body weight. Phytochemical studies revealed that the two newly isolated flavonoids have estrogenic activity and anthelmintics and their therapeutic values in connection with the Hookworm. Therefore, the anti-implantation efficacy of the plant *Striga lutea* (Scrophulariaceae).

Pravin Gomase et al ,

Sesbania sesban Linn is a well-known medicinal plant widely used to provide mulch and mulch. The plant has been extensively studied for its ethnobotany, phytochemical and pharmacological properties. It has been used in traditional medicine for the treatment of various diseases, such as arthritis, rheumatoid arthritis, and diabetes mellitus. This review is aimed at highlighting the ethnobotanical, phytochemical, and medicinal properties of *Sesban*

II.CONCLUSION

The list of medicinal plants used as antifertility agents presented in this review is useful to researchers, as well as practitioners. This list is best used only as a preliminary screening of potential antifertility plants, not as a definitive or complete list of antifertility plants.

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S.NO	PLANT NAME	BOTANICAL NAME	FAMILY	PLANT PART	ACTIVITY
1	Macbride	<i>Madhuca latifolia</i>	Sapotaceae	Seed	Contraception activity
2	Marijuana	<i>Cannabis sativa</i>	Cannabinaceae	leaves	Abortifacient activity
3	Squirting cucumber	<i>Ecballium elaterium</i>	Cucurbitaceae	Stem	Antispermato-genic activity
4	Notched leaf soapnut	<i>Sapindus emarginatus</i>	Sapindaceae	Fruit	Contraception activity
5	Wild mint	<i>Mentha arvensis</i>	Lamiaceae	leaves	Antifertility activity
6	Chaff flower	<i>Achyranthus aspera</i>	Amaranthaceae	Fresh leaves	Abortifacient activity
7	Wild carrot	Queen Anne's Lace	Apiaceae	Seed	Antiprogesterone activity
8	Nosebleed	<i>Achillea millefolium</i>	compositae	Leaves	Antispermato-genic activity
9	Papaya	<i>Carica papaya</i>	caricaceae	Leaves	Antispermato-genic activity
10		<i>Acalypha indica</i>	euphorbiaceae	Whole plant	Anti-estrogenic activity

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