



## ANTIFERTILITY ACTIVITIES OF MEDICINAL PLANTS

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### ABSTRACT

The intention of this review was to provide an exhaustive analysis of medicinal plants used as antifertility agent in female all over the world by various tribes and ethnic groups. Plants as abortifacient and contraceptive were investigated to the ancient physicians of India. The profiles presented include information about the scientific epithet, family, the degree of antifertility activity and active agents. we performed central, embase and pubmed searches using term such as anti-implantation, abortifacide, antiovulation, and antispermatogenic activity of plants. In this paper, various medicinal plants have been reviewed for through studies such as polygonum hydropiper linn, ailanthus excelsa roxb, plumbago zeylanica, plumeria rubra. Many of these medicinal plants come out to act through anantizygotic mechanism. For women who can't use current forms of contraception due to unfavourable effect or other reasons, therefore herbs can offer alternatives and reducing fertility would be better than other contraceptives. This article may help reviewer to examine medicinal plants answerable for anti-fertility activity.

**KEYWORDS:** Antifertility, contraceptive, Medicinal plant, Abortifacient, antispermatogenic.

### INTRODUCTION

Antifertility agent are drugs that jurisdiction fertility,<sup>[1]</sup> and are also called oral contraceptives. These drugs pathetic and are involved in the menstrual cycle and ovulation in females. Estrogen and progesterone in merge form are given as birth control pills. The antifertility substance is felt to be active in females when it prevents fertilization, stop ovulation implantation, and demolish the zygote or causes abortion. In males, it prevents spermatogenesis, inhibit testosterone, or affects the gonadotropin of the organs or mortality of sperm.<sup>[2]</sup> One of the global problems causing much influence on economic, social and natural resources.<sup>[3]</sup> The increase in population is alarming the developing world in the need for effective birth control measures.<sup>[4]</sup> Medicinal plant are a great gift of nature as a cure all for a plethora of human problems. Medicinal plant is been using form many centuries to treat both mental and physical illness and to improve health of individuals, and approximately 80% of medicinal treatments are practicing by developing countries.<sup>[5]</sup> Phytoestrogens are novel agent found in a variety of plant. The various drugs such as triptolide, tamoxifen, gossypol, and testosterone are being utilized as antifertility agent.<sup>[6]</sup>

of dominant action is their effect on sex hormones particularly for suppressing fertility, regularizing menstrual cycle, relieving dysmennoroea, treating enlarged prostate, menopausal symptoms, & breast pain etc.<sup>[7]</sup>

More over plants with estrogenic property can directly authority pituitary action by peripheral modulation of luteinzing hormone (LH) and follicle stimulating hormone (FSH), dwindle their secretions and blocking ovulation.<sup>[8]</sup>

### Mechanism of action of Antifertility Plants

Medicinal plant has been described to possess antifertility effects by various mechanism of actions, one

**Table-1: List of antifertility medicinal plants.**

Plant	Type	Dose/body weight (mg/kg)	Activity	Refs
Cichorium intybus	50% ethanolic extract	50	Anti-implantation	9
Cuscuta reflexa	Ethanolic extract	800	Anti-implantation	9
Rubia cordifolia	Ethanolic extract	250	Anti-implantation	9
Urtica dioica	Ethanolic extract	250	Anti-implantation	9
Abroma augusta	Petroleum ether	50	Anti-implantation	9
Curcuma longa	Petroleum ether	200	Anti-implantation	9
Plumbago rosea	Acetone extract	200	Anti-implantation	9
Aloe barbadensis	Aqueous extract	100	Anti-implantation	9
Abutilon indicum	50% aqueous methanolic extract	500	Anti-implantation	9
Artemisia vulgaris	Methanolic extract	300 and 600	Anti-implantation	10

**Medicinal plants used as antifertility agents****Antiovolution activity**

*Polygonum hydropiper* Linn (Marsh Pepper) belongs to the family Polygonaceae, which is in part valued for its roots and leaves and add such active ingredients as formic acid, acetic acid, beldianic acid, tannin, essential oil, and oxymethyl-antraquinones. It is used in situation involving diarrhea, skin problems, hemorrhoids, and dyspepsia. It is used in folk medicine as anti-cancer and anti-rheumatic agent. Biologically, these constituents can have antioxidant, antimicrobial, anti-inflammatory, and antifertility effects in humans. In one study, Kapoor *et al* have reported on the anti-ovulatory activity in this plant. Their study using three varieties of extracts (petroleum, aqueous, and alcohol) was conducted to examination the antifertility activity of this particular plant. Antifertility activity was noticed in rabbits with copper-induced ovulation. Petroleum ether extract of the roots of *Polygonum hydropiper* was detected adequately in inhibiting ovulation in 60% of the animals. All the other extracts prohibited ovulation in 40%, or less, of the animals.<sup>[11]</sup>

**Anti-implantation activity**

*Ailanthus excelsa* Roxb is a deciduous tree from the Simaroubaceae family and widely distributed in Asia and northern Australia. Its native origin is China and is known as the “tree of heaven”.<sup>[5]</sup>

In Maharashtra, the above plants were used traditionally for, Anti-implantation and Abortification activity (Table 1).

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*Ailanthus excelsa* Roxb is an abscission tree from the Simaroubaceae family and extensively distributed in Asia and northern Australia. Its ancient origin is China and is known as the “tree of heaven”.<sup>[12]</sup> In Maharashtra, the above plants were used habitually for, Anti-implantation and Abortification activity.

The anti-implantation activity was purposive according to the method of Stella O. Olagbende-Dada (2009).<sup>[13]</sup> Eighteen mature females colony bred Wistar albino rats were divided into three groups (6 female rats per group). One group was used as a control and the other two groups are used as a test group. Female rat of proestrous phase were kept with males with confirm fertility in ratio of 2:1. The female rats were examined in the following morning for verification of copulation the vaginal smear was examined for thick clumps of spermatozoa. The day on which the spermatozoa were found in the smear was observed the first day of pregnancy (Day 1). A 150 mg/kg of body weight and 300 mg per kg of body weight of the extract was administered intragastrically for 10 days from day 1 to day 10 of pregnancy for the test group and equal volume of vehicle for the control group. On day 11, all groups of rats were laparotomized under light ether anesthesia to determine the number of implantation sites in the horns of the uteri. The presence of consequence difference in the mean number of propagation sites between the extract and the control was taken as a positive response.

**Antispermogenic activity**

*Plumbago zeylanica* belongs to the family Plumbaginaceae and its antifertility ingredients include roots and leaves. Its active rule are plumbagin, isoshinanolone, transcinamic acid, vanillic acid, beta-sitosterol, 4-hydroxybenzaldehyde, and plumbagic acid and it is used to cure piles, leukoderma, and other skin diseases. It developed to foster diverse biological activities including antihelicobacter pylori, antidiabetic, antioxidant, and antifertility. An earlier rat study was initiated using the plant's ethanol extract. When the applied extract dosage was 159 mg/kg, seminiferous

tubules diameters were become smaller and spermatocytes and spermatids production was reduced. Furthermore, a decline in immature and mature Leydig cells occurred and degenerating cells were significantly increased. Lastly, the testicular cell population was decreased. Overall, this study showed palpable plant based antifertility activity.<sup>[14]</sup>

#### Abortifacient activity

*Plumeria rubra* L. are secreting latex trees and shrubs, belong to the Apocynaceae family. The commixture of bark & roots of *Plumeria rubra* is traditionally used to treat asthma, ease constipation, stimulate menstruation, reduce fever and the latex is used to soothe irritation.<sup>[15]</sup> In India, however, its fruit is used as an abortifacient.<sup>[16]</sup>

The plant extracts were checked up in female albino rats for abortifacient activity as per Khanna. The female rats in pro-estrous stage were caged with males of proven fertility in the ratio of 2:1, in the evening and examined the successive day for the evidence of copulation. Rats exhibiting thick clump of spermatozoa in their vaginal smear were partitioned and that day was designated as day 1 of pregnancy. These rats were irregularly distributed into 13 groups, one control group and 12 experimental groups of 6 animals each. On the day of pregnancy animals were laprotomized below light ether anesthesia using sterile conditions. The two horns of uteri were inspected to determine the implantation sites. Thereafter the abdominal wound was sutured in layers.<sup>[17]</sup>

#### CONCLUSION

In conclusion, it is clear that medicative plants play an important function as antifertility agents. Present research towards traditional medicine is growing quickly because of its safety and lower cost consumption. It is clear that the medicinal plants extract have impressive anti-fertility activities. The antifertility agent can act by any one or combination mechanism. The mechanism of action of a lot of herbs has been identified. Further research is essential to improve as certain the biological active of other compounds in crude extracts and to exploit their activity as antifertility agents. As such, new and effective drugs can be developed by way of comprehensive investigation of the bioactivity of different compounds.

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