The most common cause of female infertility has been ovulatory disorders, which are characterized by anovulation or by infrequent and/or irregular ovulation. The World Health Organization (WHO) reveals that between 2-10% of couples worldwide are unable to conceive primarily, about 60-80 million couples in the world are infertile, and it is estimated that 10% of normally fertile couples fail to conceive within their first year of attempt and 5% are after two years. Ayurvedic herbal treatment of female infertility involves the following herbs: Ovulation disorders- Ashoka(Saraca indica), Dashmool, Shatavari(Asparagus racemosus), Aloes(Aloevera), Guggulu(Commiphoramukul), Hira bol (Commiphora myrrha) and Harmal (Paganum harmala). Ovulation problems due to polycystic ovarian syndrome (PCOS):- Latakaranj (Caesalpinia crista), Varuna(Crataeva nurvula), Kanchnaar(Bauhinia variegata). Thus traditional herbs are used in gynecological disorders.

KEY WORDS: ovulatory disorders, Shatavari, Aloe, Guggulu, Harmal, traditional herbs

INTRODUCTION:
Infertility is the incapability to naturally conceive or to carry a pregnancy to full term. Eight out of every ten women become pregnant within the first six months.

The most common cause of female infertility has been ovulatory disorders, which are characterized by anovulation or by infrequent and/or irregular ovulation. Oligomenorrhea or amenorrhea usually indicates ovulatory disorders. Immunological factors also play a role in infertility. The antibodies against sperm can be found in cervical mucus.

The cause of male infertility can be divided into 3 main categories: sperm production disorders affecting the quality of sperm, anatomical obstruction and other factors like immunological disorders. Approximately 1/3 of all cases of male infertility can be attributed to endocrine problems, as well as to a failure of the testes to respond to the hormonal stimulation triggering sperm production.

The World Health Organization (WHO) reveals that between 2-10% of couples worldwide are unable to conceive primarily, about 60-80 million couples in the world are infertile, and it is estimated that 10% of normally fertile couples fail to conceive within their first year of attempt and 5% are after two years. Further 10-25% couples experience secondary infertility.

Herbs have been used for the treatment of infertility since 200 AD. Vajikarana is one of the branch of Ayurveda which deals with the preservation and amplification of sexual potency of a healthy man and conception of healthy progeny as well as management.
of defective semen, disturbed sexual potency and spermatogenesis along with treatment of semen related disorders in man. Vajikarana promotes the sexual capacity as well as improves the physical, psychological and social health of an individual.

**FEMALE INFERTILITY:**

Ayurvedic herbal treatment of female infertility involves the following herbs:

1. **Ovulation disorders:** Ashoka (Saraca indica), Dashmool, Shatavari (Asparagus racemosus), Aloes (Aloe vera), Guggulu (Commiphoramukul), Hirabol (Commiphora myrrha) and Harmal (Peganum harmala).

2. **Ovulation problems due to polycystic ovarian syndrome (PCOS):** Latakaranj (Caesalpinia crista), Varuna (Crataeva nurvula), Kanchnaar (Bauhinia variegata) and Guggulu.

3. **Thyroid gland disorders** are treated using Arogya Vardhini, Kanchnaar Guggulu, and Punarnava Guggulu.

4. **Premature ovarian failure (POF):** Ashoka, Dashmool, Shatavari, Chandraprabha, Guduchi and Jeevanti (Leptadenia reticulata). These herbal medicines can be given in addition to hormone replacement therapy (HRT).

5. **Pelvic inflammatory disease (PID):** Kaishore Guggulu, Triphala Guggulu, Guduchi, Katuki (Picrorrhiza kurroa) and Punarnava can be used in these conditions.

6. **Undeveloped uterus or cervix:** Shatavari, Ashwagandha (Withania somnifera), Vidarikand (Pueraria tuberosa), Bala (Sida cordifolia), Nagbala (Grewia hirsuta), Shrugtata (Trapa natas), and Yashtimadhu.

Pharmacological actions of herbs beneficial in the management of female infertility:

*Saraca indica (Ashoka):* Tannins and other glycosides present in Saraca indica make it useful in menorrhagia, dysmenorrhea, post partum hemorrhage, and leucorrhea. The herb also has a stimulatory effect on the ovarian tissue, which may exhibit an estrogen like activity that enhances ovulation and repair of the endometrium.

*Symplocos racemosa (Lodhra):* Betulinic acid, Oleanolic acid, Acetyl oleanolic acid and Ellagic acid are found in the plant. Trials suggested that the bark extract reduces the frequency and intensity of the contractions in both pregnant and nonpregnant uteri. The same is used in different gynecological problems like menorrhagia, frequent abortions, reduced libido, leucorrhea, and vaginal ulcerations. Trials are suggestive of its role in normalizing FSH, LH required for womens wellbeing. Aqueous extract of S.racemosa on oral administration to female rats significantly stimulated serum FSH level along with the rise in serum LH level. Histopathological study revealed enhanced folliculogenesis, presence of mature follicles and detached oocytes, which are result of increased FSH and LH levels. S.racemosa exhibits relaxant and antispasmodic effects on several spasmogens of the uterine smooth muscles. It attributes favorable actions to the drug in treating dysmenorrheal and menorrhagia and also acts as a uterine sedative.

*Cyperus rotundus:* Tuber of the plant exhibits estrogenic activities. The rhizomes have been used in traditional medicine as an estrogenic and anti-inflammatory agent for the treatment of the gynecological disorders. Estrogen increases sex hormone binding globulin, resulting in decreased level of free testosterone, showing lesser libido in female. Cyperus rotundus extract shows...
antiestrogenic and antioxidant activity and may be helpful in enhancing libido in females by improving the free testosterone.

*Triphala:- Triphala has rich source of vitamin-C, ellagic acid, gallic acid, chebulinic acid etc. It has anti-inflammatory and anti-microbial properties, which may be helpful in various gynecological inflammatory disorders.

*Tinospora cordifolia: - It has anti-inflammatory, analgesic and spasmylytic activities, which will be helpful in management of various painful conditions during menstruation. It regulates the menstrual flow.

*Solanum nigrum: - It has analgesic, anti-inflammatory, anti-spasmodic, central depressant and vasodilator activities. All these activities provide support for premenstrual syndrome and other painful menstrual conditions.

*Boerhavia diffusa: - The plant possesses potent anti-fibrinolytic and anti-inflammatory properties which indicate its use in menstrual disorder like menorrhagia. It is also used in dysmenorrhoea. The ethanolic extract of B.diffusa is found to stop intrauterine contraceptive device(IUCD) induced bleeding. The herb also acts as a hematonic. It it also known for its anti-inflammatory and analgesic properties, comparable to that of ibuprofen.

*Asparagus racemosus: - Its use is noted in menorrhagia, and threatened abortion. Trial suggests that the extract blocks the uterine contraction and spontaneous motility, may be blocking the pitocin sensitive receptors. This activity can be helpful for using the same as uterine sedative and helpful in different menstrual problems like dysmenorrhea.

*Aloe vera: - It is reported to provide therapeutic benefit during suppression of menstruation. It is used in spasmodic dysmenorrhoea for its anti-spasmodic activity.

*Trikatu:- Trikatu is an Ayurvedic preparation containing Piper longum, Piper nigrum, and Zingiber officinale, which is prescribed routinely for a variety of diseases as part of a multidrug prescription may be due to its bioavailability enhancer activity.

*Rubia cordifolia: - It is used for the treatment of vertigo, insomnia, hematemesis and menstrual disorders. Phytochemical examination has shown that it produces triterpenoids, anthraquinones, cyclopeptides and phenolics. It also has antioxidant and antimicrobial activity, suggesting its usefulness in various gynecological disorders.

*Cocus nucifera: - According to folk medicine, young coconut juice has phytoestrogen-like effect, which is proved in one of the trials that cocus nucifera has estrogen like activity and may be helpful in various menstrual irregularities. It has anti-nociceptive and anti-inflammatory activities and thus may be helpful in dysmenorrhoea.

*Dashmool: - This is an aqueous extract of a combination of roots of 10 plants known to be clinically beneficial in menstruation disorders. It has tonic and anti-inflammatory activities.

*Santalum album: - Its bark contains a triterpene and palmitate including alpha and beta santalol. Traditionally it is used in various menstrual irregularities. Extract of S.album has antioxidant and adaptogenic activity and may be helpful in debilitating conditions that may occur due to excessive menstrual bleeding.

*Acacia arabica: - The bark is reported to have catechin, epicatechin, dicatechin,
quercetin and gallic acid. Trial has shown that the extract has antioxidant activity and may be helpful in renormalizing the hormone imbalances in the body leading to regular menstrual cycle. *Anacyclus pyrethrum:* The root contains alkaloids like anacyclin, pellitorine, and inulin. In traditional medications, it is used as aphrodisiac and sexual promoter.

**CONCLUSION:** This review was an evidence based evaluation of herbs in the management of infertility. Herbs play an important role in optimizing fertility health, leading to improved conception rates and may provide an effective alternative or adjunct to conventional fertility therapies. Herbal formulations discussed in this review have proved their efficacy and safety in the various clinical trials conducted for the treatment of infertility.

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