

A Review on Herbal Treatment on PCOD: Efficacy, Safety and Future Direction

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ABSTRACT:

An imbalance in a woman's hormones is known as polycystic ovarian syndrome (PCOS/PCOD). The etiology is not entirely understood. Despite straightforward and diagnostic criteria, polycystic ovary syndrome is still challenging to accurately diagnose. The purpose of this research is to offer medical advice and strong evidence supporting the use of herbal medicines to treat polycystic Ovarian syndrome. To find the most pertinent material, a comprehensive review of the literature was done. To the guarantee the papers' current quality, articles were chosen during an eight-year period from PubMed, Google Scholar, and other comparable databases. (2017–2024). According to this study, several plant components contain polyphenolic compounds, such as isoflavones and flavonoids, which can enhance women's reproductive health. Many plants have shown effectiveness in the treatment of PCOS, including Aloe, Curcuma longa, Ginger Asparagus Racemosus, In this review, an attempt has been made to provide a summary of the important medicinal herbs that are used in PCOD treatment or prevention.

Keywords: Polycystic ovarian Disease, herbal remedies, Pathophysiology, Medicinal herbs

Introduction:

A woman's hormones are out of balance when she has PCOS, also referred to as PCOD. It can eventually lead to serious health problems like diabetes and heart disease if treatment is not received. The growth of PCOS in our society can be largely attributed to young women's ignorance and lack of awareness. Unidentified PCOS can lead to infertility. PCOS affects 5–10% of women who are of reproductive age and between the ages of 15 and 44¹ the most prevalent endocrine condition in women is PCOD. As the illness gets worse, it leads to other health issues like obesity,² Type 2 diabetes, endometrial cancer, excessive cholesterol, dysfunctional uterine hemorrhage, and Heart-related conditions³ Thus, this repeated cycle of malfunction is substantially responsible for the disorder's genesis and progression.⁴ The illness has a significant financial cost and impacts a person's bodily and mental health as well as their financial well-being. Approximately \$4 billion is spent annually in the United States. to address a number of associated morbidities, including obesity,⁵ hirsutism, diabetes mellitus, and infertility. According to reports, the annual budget of about 800 million dollars allocated to Australian Health is used for the diagnosis, mitigation, and management of this multi- complex illness ⁶But according to current research, pioglitazone may also be a medicinal medication that helps PCOS patients with their menstrual cycles and ovulation. Another crucial component is the colony of bacteria that live in the gastrointestinal system, or gut microbiotic. Element affecting the health of the metabolism. New research indicates that the gut microbiotic is important for controlling hormone levels,⁷ metabolic functions, and systemic inflammation. PCOD and other metabolic disorders have been linked to symbiosis, or an imbalance in the composition of the gut microbiotic.⁸ Studies show that diets high in polyphenols may change the composition of the gut microbiotic positively, resulting in enhanced

metabolic profiles and decreased inflammation. The overall quality of life for those who are affected is negatively impacted by these issues.⁹ more likely to experience mood fluctuations, generalized anxiety, and body dissatisfaction, which frequently results in disordered Psychologically.¹⁰ Nevertheless, the use of phytoconstituents and herbal remedies is growing. The phytoconstituents have the potential to be employed as therapeutic agents to treat PCOS in a number of ways.¹¹

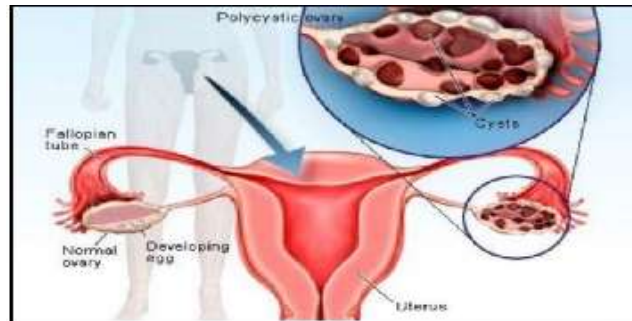


Figure 1: Inside View of Polycystic Ovaries



Fig2: Normal and Polycystic Ovaries

PATHOPHYSIOLOGY:

PCOS initially manifests throughout early puberty. However, the majority of relevant data has come from clinical trials including adult women, with referral bias. giving preference to the more severe phenotypes. Excessive androgen production by the ovaries and/or adrenal glands is a hallmark of PCOS.¹²

AYURVEDIC HERBAL REMEDIES FOR PCOD:

1. TURMERIC: (Curcuma longa)

- **Synonyms:** Curcuma domestic, Saffron Indian, and Haldi (Hindi).
- **Biological source:** Turmeric comes from the dried rhizome of the Curcuma longa plant.
- **Family:** Zingiberaceae



FIG3: Turmeric (Curcuma Longa)

Women who routinely used Punic saw a recovery to normal levels of serum estrogen, free testosterone, and androstenedione.⁹ Granatum. Numerous research have examined Punic granum, and the findings

suggest that the herb may benefit PCOS patients. Curcuma longa rhizomes contain curcuma. It has anti-inflammatory, anti-oxidant,¹³ antihyperlipidemic, and hypoglycemic qualities and is used as a food ingredient. Reddy and associates examined the advantages of curcuma in PCOS-affected female Wistar rats. There were five animal groups employed. PCOS was induced using letrozole. Curcuma was administered to the animals. Foeniculum vulgare extract was administered to the non-PCOS group, which acted as a control. Two of the rats' PCOS groups received treatment with an extract of Foeniculum vulgare. After four weeks, the rats were put to death, and their kidneys were prepared for light microscopy and serum biochemical measurements.¹⁴ The PCOS rats treated with 150 mg of Foeniculum vulgare per body weight had lower serum urea levels, according to the results. Histopathological sample. At a dose of 150 mg per kg body weight, the Foeniculum vulgare aqueous extract demonstrated a beneficial effect on renal function in PCOS rats, as seen by corresponding alterations in kidney samples.¹⁵

2. SHATAVARI(ASPARAGUS RACEMOSUS):

- **Synonyms:** Asparagu, Satmuli, Sukshmapatra, Pivari, Indivari, Abhiru, Bahumula, and Jatamula
- **Biological source :** Asparagus racemosus commonly known as Shatavari or Kurilo is a spinous shrub with tuberous roots found commonly in the tropical and subtropical regions
- **Family :** Liliaceae



Fig4: Shatavari (Asparagus Racemosus)

Shatavari is the Sanskrit name for a medicinal plant related to Asparagus racemosus. The plant's phytoestrogen makes its dried roots useful as medication. The woman ovarian follicle production is increased, the menstrual cycle is controlled,¹⁶ and the reproductive system is regenerated. Cytoprotection and mucosal resistance are improved by the Shatavari is the Sanskrit name for a medicinal plant related to Asparagus racemosus¹⁷. The plant's phytoestrogen makes its dried roots useful as medication. The woman ovarian follicle production is increased, the menstrual cycle is controlled, and the reproductive system is regenerated. Cytoprotection and mucosal resistance are improved.[14] Asparagus racemosus is a multipurpose plant that is frequently used in traditional medical treatments like Ayurveda, Unani, and Siddha. Six albino women The effects of ibuprofen and Asparagus racemosus on isolated uterine tissue were evaluated in nulliparous, non-pregnant Wistar rats. Strips. Different amounts of plant extract (20, 40, 80, and 160 mg/mL) were applied to the uterine strips; 20 mg/mL ibuprofen was used as a positive control. The scientists observed a significant increase in the postures phase of the estrous cycle and a

corresponding decrease in the met estrus and distrust phases following exposure to the plant extract. It has also been proven that 58 *Asparagus racemosus* lowers the force and frequency of uterine contractions in a dose-dependent way¹⁸

3. FENNEL:

- **Synonyms:** Faucal, Fructose foeniculum.
- **Biological source:** It consists of dried ripe fruit of plant of *Foeniculum vulgare*
- **Family:** Umbellifera.



Fig5: Fennel

It has antioxidant, analgesic, diuretic, and antipyretic properties. Sadrefoza et al. examined the Reno protective effectiveness of *Foeniculum* in female PCOS experimental rats. Vulgar extract.¹⁹ Five groups of animals were used. Two groups did not develop PCOS, but three groups received estradiol to induce the condition. An extract from *Foeniculum vulgare* was administered to one of the non-PCOS groups, and the other group served as a control. Two of the PCOS groups of rats received an extract from *Foeniculum vulgare*. The rats were killed after four weeks, and their serum biochemical properties were evaluated and their kidneys prepared for light microscopy.²⁰ The outcomes showed that PCOS rats' blood urea levels decreased after receiving 150 mg of foeniculum vulgare per body weight. The histological changes of kidney samples in PCOS rats were comparable among the extract treatment groups. The renal function of PCOS rats was enhanced by foeniculum vulgare aqueous extract at a dose of 150 mg per kilogram of body weight.²¹

4 GINGER: (*Zingiber officinale*)

- **Synonyms:** Rhizome zingiberis, Zingier, Ginger Officinal
- **Biological source:** The ginger is the rhizomes of *Zingier officinal*, Roscoe are dried in the sun.
- **Family:** Zingiberaceae.



Fig6: GINGER

Because it contains a number of phytochemicals that inhibit xanthine oxidase, including gingerols, shogaols, paradols, and zingerone, ginger (*Zingier officinal*) has antioxidant properties. This contributes to the production of reactive oxygen species. *Zingier officinal* is commonly referred to as ginger.

Between sixty to sixty-five distinct components make up ginger essential oil. Ascorbic acid, geraniol, p-coumaric acid, β -carotene,²² the primary active phytochemicals include gingerol, curcuma, α -curcumene, geraniol, neral, linalool, zingiberon, shogaol, and caffeic acid. Additionally, ginger contains flavonoids and phenolic, both of which are beneficial for PCOS. Clomiphene citrate is now mostly used to treat infertility, which includes a number of negative consequences, such as sadness, mood swings, and bloating. As the most deadly kind of gynecologic cancer, ovarian cancer poses significant challenges for both prevention and therapy.²³ It has been discovered that ginger is beneficial for the treatment of ovarian cancer because to the remarkable growth suppression that its component, 6-shogaol, demonstrated in epithelial ovarian cancer cells.⁸

5. Ashwagandha (*Withania somnifera*)

- **Synonyms:** Indian ginseng, Winter cherry, Withania root
- **Biological Source:** Dried root and stem base of the plant *Withania Somnifera* Dunal
- **Family:** Solanaceae



Fig7: Ashwagandha

Ashwagandha belongs to the Solanaceae family of herbaceous plants. Alkaloids and lactones are ashwagandha's main constituents.²⁴ According to research, ashwagandha and garlic extract may be a more effective treatment for endometriosis than ciprofloxacin medications. The Menopause Rating Scale was used to evaluate the effectiveness of ashwagandha in treating premenopausal symptoms in a group of women. (MRS), hot flash score, and variations in testosterone,²⁵ FSH, and LH levels. Ashwagandha contains a chemical called withaferin A, which has been demonstrated to suppress TGF- β by modifying TGF- β signaling and blocking TGF- β -dependent smad2.²⁶ phosphokinase, which causes ashwagandha to stop human endometrial cancer cells from proliferating. Ashwagandha showed considerable promise for enhancing sexual performance in healthy women over the course of eight weeks in the areas of FSFI and FSDS scores, as well as desire, arousal, lubrication, orgasm, pleasure, and pain¹⁸

SYMPTOMS: [27,28 ,14]



Many tiny cysts, rarely larger than 0.5 cm, are frequently found in the ovaries of women with PCOD. PCOD symptoms might differ from woman to woman, with Some women endure greater agony than others.²⁷

Symptoms can include any of the following:

- Anxiety and depression; PCOS, the most common cause of infertility, which is caused by irregular ovulation.
- menstruation that is either irregular or nonexistent;
- heavy periods, particularly those that occur late
- Pain in the pelvis (distention, heaviness, stabbing pain)
- Pain during ovulation or menstruation
- Bleeding during a cycle
- Physical changes (typically later, but not always): weight gain around the waist, dandruff, acne, thinning hair that resembles male baldness, and increased hair growth on the thumbs, toes, back, chest, stomach, or face,
- Physical changes (usually later, but not always): acne, dandruff, thinning hair that resembles male baldness, weight gain around the waist, and increased hair growth on the face, back, chest, stomach, thumbs, or toes.

CAUSES OF PCOD: Following are few important cause of PCOD:

- Genetic predisposition
- Strong stimulation in adrenals in childhood
- Raised insulin levels
- Contraceptive pills
- Hormonal imbalance
- Stress
- Strong stimulations in adrenal glands in childhood
- Accumulation of toxins
- Inflammation to uterus and ovaries.

CONCLUSION:

Despite extensive research over the last 50 years, we still know very little about the complicated etiology of PCOD, a widespread condition. Nonetheless, we now know a great deal more about the diagnosis and effects of this illness. The ultimate goal of all gynecologists is to provide women with reproductive health care that is positive. Alternative treatment approaches have been used in this context to enhance quality of life. Among the possible Unani medicine treatments are Idrar Haiz, Tadeel Mizan, Loss of weight, Certain medications, such as insulin sensitizers, can help patients suffering from this debilitating illness. Furthermore, some research shown that the therapeutic herbs have no notable adverse effects when used to treat PCOS because They include phytoestrogens, which are ineffective opponents of estrogen. The estrogenic properties of these phytoestrogens are stronger. effects of decreased estrogen levels in the body in PCOS patients, making them secure and appropriate for broad application in PCOS

therapy. The immune-boosting properties of herbs system and control the menstrual cycle without changing Hormone levels are what enable them to effectively treat PCOS.²⁸

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