

# Herbs used in PCOS (polycystic ovarian syndrome)

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**Abstract**—Polycystic Ovary Syndrome (PCOS) is a common hormonal disorder affecting women of reproductive age and is associated with menstrual irregularities, hyperandrogenism, ovarian cysts, insulin resistance, and metabolic imbalance. Increasing prevalence of PCOS is closely linked to lifestyle changes, stress, and genetic factors. Conventional treatments mainly focus on symptomatic relief and may not address the underlying cause. Ayurveda approaches PCOS through holistic management by correcting dosha imbalance, improving digestion and metabolism, and eliminating toxins. This review highlights the role of Ayurvedic herbs such as Shatavari, Kanchanar, Triphala, Ashwagandha, Cinnamon, Fenugreek, Licorice, and Guduchi in supporting hormonal balance, regulating menstrual cycles, improving insulin sensitivity, and enhancing fertility. Integration of herbal therapy with diet, lifestyle modification, yoga, and detoxification therapies offers a safe and sustainable approach for long-term management of PCOS.

**Keywords**—PCOS; Ayurveda; Herbal Treatment; Hormonal Imbalance; Insulin Resistance; Menstrual Irregularity.

## I. INTRODUCTION

PCOS is a compounded disorder characterized by elevated levels of androgen, menstrual irregularities, and cysts on either one or both ovaries. The difference between a normal and polycystic ovary is presented in Figure 1. PCOS is believed to be a genetically complex endocrine disorder of undetermined etiology with a complicated pathophysiology. The WHO stated that over 116 million women were affected by PCOS worldwide in 2012. One in five Indian women are affected by PCOS. Globally, 1.55 million incident cases of PCOS in women of reproductive age (15–49 years) were reported, representing an increase in the rate of 4.47% (2.86–6.37%) from 2007 to 2017 [4]. PCOS ranks among the most prevalent female diseases within the reproductive age group with the

probability of incidence of 4-12%. The rate of prevalence of this disease was found to be 5.6-8% in the European population. Based on the latest research, the rate of PCOS in Iranian women was found to be 19.5% as per the criteria of Rotterdam and 6.8% as per the criteria of the NIH. PCOS results due to the non-ovulatory cycle in about 75% of the patients.

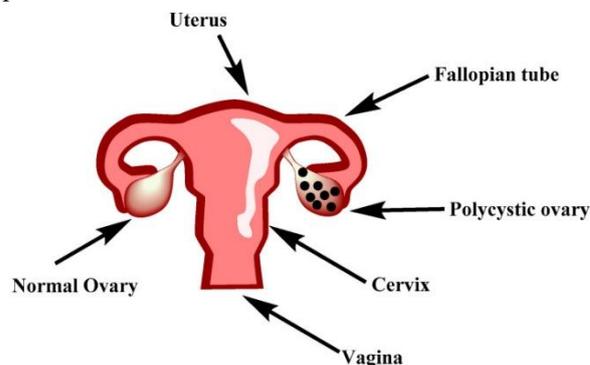


Fig.1

## II. SYMPTOMS IN PCOS

As the characteristic symptoms of PCOS include the absence of ovulation, which can be identified by irregular menstrual cycles or the absence of menses; the presence of high levels of androgen; and the development of lumps in either one or both ovaries, which can include a clustering of the ovarian follicles that have ceased to develop, the symptoms can be far-reaching.

Very often, women or healthcare practitioners do not consider a possibility of PCOS, as symptoms seem unrelated. These symptoms include

Menstrual irregular

- i. No menstruation, known as Amenorr
- ii. Missed periods—Also known Very heavy periods
- iii. Bleeding with no ovulation—termed anov
- iv. Infertility

- v. Excess hair growth in body areas like facial skin, chest, abdomen, and upper thighs, known as hirsutism.
- vi. Severe, late-onset, or persistent acne, which responds poorly to conventional therapies
- vii. Insulin sensitivity
- viii. Obesity, weight gain, or difficulty with weight loss, particularly visceral obesity
- ix. Oily Skin
- x. Areas of thick, dark, velvety skin, known as acanthosis nigricans. These problems may also be a puberty issue for the teenager. But treatments for the problems caused in PCOS may be offered even in the absence of a diagnosis of PCOS.

### III. AYURVEDIC PERSPECTIVE AND TREATMENT OF PCOS

#### 3.1 Understanding PCOS in Ayurveda

Ayurveda does not describe PCOS as a single disease entity. Instead, its symptoms are correlated with conditions such as:

- Artavakshaya (scanty or absent menstruation)
- Nashtartava (amenorrhea)
- Vandhyatva (infertility)
- Kaphaja Yonivyapad

PCOS is believed to arise from Kapha and Vata dosha imbalance, along with Agnimandya (reduced digestive and metabolic fire) and accumulation of Ama (toxins). These factors disrupt normal ovarian and menstrual function.

#### 3.2 Ayurvedic Classification of Treatment

Ayurvedic management focuses on correcting the root cause, not just symptoms.

##### A. Shamana Chikitsa (Pacifying Therapy)

Includes herbal medicines to restore hormonal and metabolic balance:

- Shatavari (Asparagus racemosus) – reproductive tonic
- Kanchanar Guggulu – helps reduce cystic and glandular growth
- Triphala – improves digestion and detoxification

These formulations aim to normalize menstruation, support ovulation, and improve metabolism.

##### B. Shodhana Chikitsa (Detoxification Therapy)

Includes Panchakarma procedures such as:

- Vamana (therapeutic emesis)
- Basti (medicated enema)

These therapies are used selectively to eliminate accumulated doshas and toxins, especially in obese and insulin-resistant women.

##### C. Lifestyle and Yoga Therapy

Ayurveda strongly emphasizes:

- Dosha-specific diet
- Daily routines (*Dinacharya*)
- Yoga and Pranayama to reduce stress and improve endocrine balance

### IV. CLASSIFICATION OF OTHER (MODERN) TREATMENTS USED IN PCOS

Modern medicine classifies PCOS treatment based on clinical goals and symptoms.

#### 4.1 Lifestyle Modification (First-Line Treatment)

##### A. Diet Therapy

- Low glycemic index diet
- High fiber and protein intake
- Weight reduction strategies

Even 5–10% weight loss can restore ovulation and menstrual regularity.

##### B. Physical Activity

- Regular aerobic exercise
- Resistance training
- Stress reduction

#### 4.2 Pharmacological Treatment

##### A. Hormonal Therapy

Combined Oral Contraceptive Pills (COCPs)

- Regulate menstrual cycles
- Reduce androgen excess (acne, hirsutism)
- Protect endometrium

##### B. Insulin-Sensitizing Agents

Metformin

- Improves insulin resistance
- Helps with weight management
- May restore ovulation

##### C. Anti-androgen Therapy

- Spironolactone
- Cyproterone acetate

Used to treat acne and excess hair growth (with contraception).

#### 4.3 Fertility-Specific Treatment

##### A. Ovulation Induction

- Letrozole – first-line agent
- Clomiphene citrate – alternative

##### B. Assisted Reproductive Techniques

- Gonadotropin therapy
- IVF (in resistant cases)

#### 4.4 Surgical Treatment

- Laparoscopic Ovarian Drilling (LOD)  
Used rarely in drug-resistant infertility cases.

#### 4.5 Complementary and Integrative Therapies

- Herbal supplements
- Yoga
- Mind-body interventions

These approaches support conventional therapy and improve quality of life.

### V. BENEFITS OF AYURVEDIC TREATMENT IN PCOS

#### 5.1 Holistic Root-Cause Management

One of the greatest benefits of Ayurveda is that it does not treat PCOS as just a hormonal disorder. Instead, it addresses:

- Digestive and metabolic imbalance
- Lifestyle errors
- Stress and mental health
- Hormonal dysfunction together

This holistic approach helps in long-term symptom control and relapse prevention.

#### 5.2 Regulation of Menstrual Cycle

Ayurvedic medicines and therapies aim to normalize menstrual flow by:

- Improving ovarian function
- Correcting hormonal imbalance
- Enhancing uterine health

Many observational studies and case reports show improvement in cycle regularity and reduction in menstrual pain with consistent Ayurvedic treatment.

#### 5.3 Improvement in Metabolism and Weight Management

Ayurveda strongly focuses on:

- Enhancing Agni (digestive fire)
- Reducing Kapha accumulation
- Eliminating toxins (*Ama*)

Herbs such as Triphala, Guggulu, and Shunthi, along with dietary guidance, help improve metabolism and support healthy weight reduction, which is crucial in PCOS management.

#### 5.4 Hormonal Balance and Reduction of Androgenic Symptoms

Ayurvedic formulations like Shatavari and Kanchanar Guggulu are traditionally used to support female reproductive health. Clinical observations suggest benefits such as:

- Reduction in acne
- Decrease in excessive hair growth
- Improved skin texture

These benefits occur gradually and sustainably, without abrupt hormonal suppression.

#### 5.5 Fertility Enhancement

Ayurveda emphasizes strengthening reproductive tissues (*Artava Dhatu*). Benefits include:

- Improved ovulation
- Better endometrial health
- Enhanced conception potential

Ayurvedic management is often preferred by women planning pregnancy, as it avoids ovulation-suppressing drugs and supports natural fertility.

#### 5.6 Detoxification and Panchakarma Benefits

Selected Panchakarma therapies help:

- Remove accumulated doshas
- Improve insulin sensitivity
- Enhance hormonal responsiveness

These therapies are particularly beneficial in obese and insulin-resistant PCOS patients when performed under expert supervision.

#### 5.7 Mental and Emotional Well-Being

PCOS is often associated with anxiety, stress, low self-esteem, and depression. Ayurveda integrates:

- Yoga
- Pranayama
- Meditation
- Lifestyle discipline

This improves mental clarity, emotional stability, and treatment adherence, which are often overlooked in conventional care.

#### 5.8 Safety and Long-Term Acceptability

When practiced correctly:

- Ayurvedic treatment is generally safe
- Suitable for long-term use

- Has fewer systemic side effects compared to long-term hormonal therapy

This makes it appealing for chronic conditions like PCOS.

## VI. HERBS BENEFICIAL IN PCOS

### 6.1 Shatavari (*Asparagus racemosus*)

Shatavari—scientifically known as *Asparagus racemosus*—grows all over Sri Lanka, India, and the Himalayas. People have leaned on it for centuries, mostly in traditional medicine. The plant's packed with good stuff: essential fatty acids, polycyclic alkaloids, isoflavones, flavonoids, and these steroidal saponins called shatavarin. In Ayurvedic clinics, you'll often see Satapushpa Shatavari powder (SSP) or Satapushpa-Shatavari Grita (SSG) used as a therapeutic enema to help women dealing with PCOS-related menstrual symptoms.

Despite how common these remedies are, there's barely any solid clinical research on how well they actually work. In both Ayurveda and Sri Lankan traditional medicine, Satapushpa (that's *Anethum graveolens*) and Shatavari are go-to treatments for issues like oligomenorrhea, hypomenorrhea, and anovulation. People use them in all sorts of ways—by mouth, enema, even nasal drops. There are a few reports that tried to measure how effective the oral root and enema formulas really are for PCOS.

In one study, researchers focused on women aged 18 to 42 who met the Rotterdam criteria for PCOS. They checked a bunch of things before and after treatment: ovarian changes on ultrasound, ovary size, endometrial lining thickness, body weight, how much blood was lost each cycle, how long periods lasted, and hirsutism scores.

Here's what they did. Sixty women ended up in three groups: group A took SSP orally, group B got both oral SSP and SSG enemas, and group C had only SSG enemas. The rest went into a combined group. Patients spent a month in the test group, then three more months in follow-up. Some dropped out—three from group C, two from group A, and one more from group C—so the researchers analyzed data from 54 women. After a month, they checked everyone's endometrial thickness, ovary size, and PCOS symptoms with ultrasound. Follow-ups happened every two weeks for the next two months.

What did they find? All three groups saw a drop in ovary volume on ultrasound. Everyone's endometrial thickness improved, but group C stood out with a much bigger increase (statistically significant at  $p < 0.05$ ). Hirsutism scores in group C dropped more than in the others. As for periods, the amount of menstrual blood improved significantly in groups A, B, and especially C, and cycles got longer when the women took the medication.

#### Pharmacological Actions

- Phytoestrogenic activity
- Hormonal regulation
- Ovarian nourishment
- Anti-inflammatory and antioxidant effects

#### Benefits in PCOS

- Improves menstrual regularity
- Supports ovulation
- Enhances fertility
- Reduces hormonal fluctuations

Shatavari does not force hormonal changes; instead, it gently nourishes and supports the female reproductive system, helping the body find its natural rhythm again.

### 6.2 Kanchar (*Bauhinia variegata*)

For many women with PCOS, the condition feels like their body is holding on to things it should let go of—irregular periods, ovarian cysts, weight gain, sluggish metabolism, and hormonal imbalance. In Ayurveda, this state is often described as Kapha dominance with obstruction of channels (*Srotorodha*).

Kanchar is one of the most important Ayurvedic herbs used specifically for such conditions. It is traditionally known for its ability to resolve swellings, cysts, glandular enlargement, and metabolic stagnation, making it highly relevant in PCOS management. Traditional Use

Traditionally used for Kapha-related disorders, glandular enlargement, and cystic conditions.

#### Mechanism of Action

- Anti-proliferative activity
- Improves lymphatic drainage
- Enhances metabolism
- Often combined with Guggulu

#### Benefits in PCOS

- Helps reduce ovarian cysts
- Supports thyroid and metabolic balance
- Improves menstrual regularity

In PCOS where the body feels “heavy” or stagnant, Kanchanar helps clear blockages and restore flow.

### 6.3 Triphala

*(Combination of Haritaki, Bibhitaki, Amalaki)*

Triphala is a classical Ayurvedic formulation made from three fruits—Haritaki (*Terminalia chebula*), Bibhitaki (*Terminalia bellirica*), and Amalaki (*Emblica officinalis*). In Ayurveda, it is valued for its ability to gently cleanse the body while strengthening digestion and metabolism.

In women with Polycystic Ovary Syndrome (PCOS), digestive weakness, toxin accumulation, weight gain, and insulin resistance are commonly seen. Triphala helps by improving digestion, removing metabolic toxins (*Ama*), and supporting healthy metabolism. When digestion improves, hormonal balance and menstrual regularity often follow naturally.

Triphala is not a hormone-altering drug. Instead, it creates a healthier internal environment by improving gut health, reducing inflammation, and supporting insulin sensitivity. This makes it especially useful for long-term PCOS management, particularly in women struggling with weight gain and irregular cycles.

Overall, Triphala acts like a gentle internal cleanser and metabolic supporter, helping the body slowly return to balance without harsh side effects.

- Pharmacological Actions**
- Improves digestion and gut health
  - Antioxidant
  - Mild laxative
  - Detoxifying agent

#### Benefits in PCOS

- Enhances metabolism
- Helps weight management
- Improves insulin sensitivity
- Reduces toxin (*Ama*) accumulation

Triphala works quietly by fixing digestion, which plays a central role in hormonal health.

### 6.4 Ashwagandha (*Withania somnifera*)

Ashwagandha, or *Withania somnifera*—some folks call it Indian ginseng—has been a staple in Ayurvedic medicine for about 2,500 years. People have turned to it for all sorts of reasons: easing stress, fighting off bacteria, calming inflammation, working as an antioxidant, and boosting the immune system. There’s some solid research backing these uses, too. Ashwagandha even helps with conditions like Parkinson’s, anxiety, and insomnia. It’s also given people extra support during radiation or chemo.

In lab tests, ashwagandha bumped up cortisol levels in the blood, helped mice handle stress better, and cut down on fatigue. Anwer and his team found it really improved blood sugar control and insulin sensitivity in people with non-insulin-dependent diabetes. You’ll find ashwagandha as a nutritional supplement all over the world (Budhiraja & Sudhir, 1987).

The main compounds responsible for these effects are called steroidal lactones, or withanolides—they’re behind most of ashwagandha’s benefits (Santhi & Aishwarya, 2011).

Here’s a real-life example: one study reported on a 57-year-old woman dealing with major hair loss, dryness, and a burning feeling on her scalp. She didn’t have any typical PCOS symptoms—no problems with periods, weight, or acne. Her BMI sat at 21.5 kg/m<sup>2</sup>, but her daughter had been diagnosed with PCOS. The doctors suggested she take 400 mg of ashwagandha root twice a day, mainly for its anti-stress and antioxidant effects. After a month, her hair loss almost stopped completely. Blood tests showed drops in several hormones linked to stress and the adrenal system, like corticosterone, cortisol, and 11-deoxycortisol (Kalani et al., 2012).

#### Role as Adaptogen

Ashwagandha helps the body adapt to stress and normalize cortisol levels.

#### Benefits in PCOS

- Reduces stress-induced hormonal imbalance
- Improves sleep and mood
- Supports ovarian function indirectly
- Improves quality of life

Stress worsens PCOS. Ashwagandha calms the mind, allowing the body to heal rather than fight.

### 6.5 Cinnamon (*Cinnamomum verum*)

Cinnamon (*Cinnamomum verum* / *Cinnamomum cassia*) is a commonly used spice that has gained scientific attention for its role in managing Polycystic Ovary Syndrome (PCOS), especially in women with insulin resistance. Many women with PCOS struggle with high insulin levels, which disturb normal hormonal balance and delay ovulation.

Cinnamon helps the body use insulin more effectively, allowing glucose to enter cells instead of remaining in the bloodstream. As insulin levels improve, hormonal imbalance gradually reduces,

which can lead to more regular menstrual cycles. Some women taking cinnamon regularly have reported improved cycle regularity and better metabolic control.

Rather than acting like a hormone, cinnamon works gently at the metabolic level, addressing one of the root problems of PCOS. Because it is natural, affordable, and generally well tolerated, cinnamon is often used as a supportive therapy alongside lifestyle changes and medical treatment. Scientific Evidence One of the most evidence-supported herbs in PCOS.

Mechanism of Action

- Improves insulin receptor sensitivity
- Enhances glucose uptake
- Reduces insulin resistance

Benefits in PCOS

- Improves menstrual cyclicity
- Supports metabolic control
- Reduces risk of type 2 diabetes

Cinnamon helps the body use insulin properly, which is a key problem in PCOS.

#### 6.6 Fenugreek (*Trigonella foenum-graecum*)

Fenugreek (*Trigonella foenum-graecum* L.) is a medicinal plant people have used for ages. Its seeds actually lower cholesterol and help control blood sugar — proven in both humans and animals. No one's found any toxic effects, either. Shamas and colleagues even said fenugreek is safe. This study set out to see what fenugreek seed extract does for insulin resistance in women with PCOS.

Here's what happened: At Montaserieh Hospital in Iran, researchers ran a double-blind, randomized, placebo-controlled trial. They worked with 58 women who had PCOS but normal ovaries and irregular or absent periods. For eight weeks, the women got either hydroalcoholic fenugreek seed extract plus metformin (30 women) or a placebo plus metformin (28 women). The team checked in before treatment started and then every four weeks.

One particular extract, called Furocyst, actually shrank the ovaries and cut down the number of cysts. Periods started coming regularly again, and a few women even got pregnant. Most of the women who took fenugreek daily saw their cycles normalize, and some regained their fertility.

Pharmacological Effects

- Hypoglycemic

- Hypolipidemic
- Insulin-sensitizing

Benefits in PCOS

- Improves ovulation
- Reduces insulin resistance
- Helps weight management

#### 6.7 Licorice (*Glycyrrhiza glabra*)

Licorice (*Glycyrrhiza glabra*) is a well-known medicinal herb traditionally used for its hormone-modulating and anti-inflammatory properties. In women with Polycystic Ovary Syndrome (PCOS), excess male hormones (androgens) often lead to symptoms such as acne, unwanted hair growth, and irregular menstrual cycles.

Licorice helps by reducing excess androgen activity, particularly testosterone. It supports the adrenal glands and gently influences hormone production, which can improve symptoms related to hormonal imbalance. Some studies suggest that licorice may help lower circulating testosterone levels, making it useful as a supportive therapy in PCOS.

Rather than acting aggressively, licorice works subtly and gradually, helping restore hormonal balance while also calming inflammation and supporting overall well-being. Because of its potency, licorice should be used carefully and under professional guidance, especially for long-term use.

Mechanism

- Anti-androgenic activity
- Suppresses testosterone production

Benefits in PCOS

- Reduces hirsutism
- Improves acne
- Supports adrenal balance

Caution: Long-term use may cause hypertension; medical supervision required.

#### 6.8 Guduchi (*Tinospora cordifolia*)

Guduchi (*Tinospora cordifolia*), also known as Giloy, is a highly respected Ayurvedic herb known for its ability to balance metabolism, reduce inflammation, and support overall hormonal health. In women with Polycystic Ovary Syndrome (PCOS), chronic inflammation, insulin resistance, and hormonal imbalance play a major role in worsening symptoms. Guduchi helps by improving insulin sensitivity and reducing low-grade inflammation, which are key underlying problems in PCOS. When insulin levels become more balanced, excess androgen production

also reduces, supporting better menstrual regularity and ovarian function. Guduchi is also known to strengthen digestion and immunity, helping the body cope better with long-term metabolic stress.

Rather than targeting hormones directly, Guduchi works as a system-balancing herb, supporting the body's natural healing processes. Its gentle yet powerful action makes it suitable for long-term supportive use in PCOS, especially in women with weight gain, fatigue, and metabolic disturbances. Actions

- Immunomodulatory
- Anti-inflammatory
- Antidiabetic

Benefits in PCOS

- Reduces chronic inflammation
- Improves insulin sensitivity
- Supports metabolic health

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