

# Evaluation of the effectiveness of herbal composition (fennel, anise and bamboo cane) in the treatment of polycystic ovaries

*Evaluación de la efectividad de la composición de hierbas (hinojo, anís y caña de bambú) en el tratamiento de ovarios poliquísticos*

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## Abstract

Polycystic ovary syndrome is one of the most common endocrine disorders. The most common cause of infertility is ovulation. The aim of this study was to evaluate the effectiveness of plant composition (fennel, anise and Bamboo Cane) in the treatment of polycystic ovaries. This double-blind, randomized placebo study was performed in the years 1300-1400. In this study, a controlled clinical trial on 20 patients with PCO referred to Sajjad Clinic in Tehran was randomly divided into two groups. The first group was treated with 19 drops of plant extract (fennel, anise, Bamboo Cane) once a day and the second group were treated with metformin and 1000 mg daily. The duration of treatment was 2 weeks for the first group and 3 months for the second group. The results of sonography showed that in the group receiving the compound (fennel, anise and Bamboo Cane) 50% of the subjects, the appearance of the ovaries was free of cysts. The results of jujube consumption with metformin in patients with polycystic ovary syndrome seem to be similar. Complications of metformin (nausea, vomiting, and diarrhea) were reported.

**Key words:** fennel, anise, bamboo cane, polycystic ovary.

## Resumen

El síndrome de ovario poliquístico es uno de los trastornos endocrinos más comunes. La causa más común de infertilidad es la ovulación. El objetivo de este estudio fue evaluar la efectividad de la composición vegetal (hinojo, anís y caña de bambú) en el tratamiento de los ovarios poliquísticos. Este estudio de placebo aleatorizado y doble ciego se realizó en los años 1300-1400. En este estudio, un ensayo clínico controlado en 20 pacientes con PCO remitidos a la Clínica Sajjad en Teherán se dividió al azar en dos grupos. El primer grupo se trató con 19 gotas de extracto vegetal (hinojo, anís, caña de bambú) una vez al día y el segundo grupo se trató con metformina y 1000 mg diarios. La duración del tratamiento fue de 2 semanas para el primer grupo y de 3 meses para el segundo grupo. Los resultados de la ecografía mostraron que en el grupo que recibió el compuesto (hinojo, anís y caña de bambú) el 50% de los sujetos, la apariencia de los ovarios estaba libre de quistes. Los resultados del consumo de azufaifo con metformina en pacientes con síndrome de ovario poliquístico parecen ser similares. Se informaron complicaciones de la metformina (náuseas, vómitos y diarrea).

**Palabras clave:** hinojo, anís, caña de bambú, ovario poliquístico.

## Introduction

Polycystic ovary syndrome is one of the most common endocrine disorders. The most common cause of infertility is lack of ovulation. With a prevalence of 5-24% depending on the diagnostic criteria. The name of this syndrome is due to the presence of large ovaries containing a large number of small cysts (in most women and not all) that are located on the outer layer of each ovary. This problem occurs due to changes in the structure of intra-ovarian hormones and enzyme issues that cause the level of these hormones to rise. In this syndrome, the levels of female hormones (such as estrogen, progesterone, LH, FSH) are unbalanced. And increases male hormones (androgens) and insulin hormone. Signs and symptoms of polycystic ovary syndrome may vary, including: Irregular periods: The patient may have a period less than once a month (usually less than 8 times a year) and the patient may not have a period at all. The patient may also have heavy menstrual bleeding. Weight gain, excess hair growth on the face, chest, back, abdomen, arms or inside the thighs. Acne is oily skin. Today, due to the side effects of chemical drugs, the use of complementary medicine in the treatment of diseases such as polycystic ovaries have been considered. These medicinal plants include fennel, anise and Bamboo Cane<sup>1</sup>.

## Botanical characteristics

### Bamboo Cane

Bamboo Cane is a white, hard, crystalline material made of silica, which is taken from the nodes and stems of bamboo or bamboo. This substance has medicinal properties and is also known as bamboo sugar, black bamboo, Indian bamboo, razor bamboo, formal bamboo, golden bamboo and Indian reed. It is a plant of the genus Grain and has several different species. The roots of this plant are in the form of underground stems (rhizomes), the leaves are narrow and pointed, and its aerial stems are banded, reaching a height of several meters. The most important medicinal properties of this plant are: Forearm News: Treatment of intestinal and duodenal ulcers, strengthening the heart, improving the relief of pregnant women<sup>2</sup>.

### Anise or Roman anise

Anise or Roman anise, belonging to the umbrella family, *Pimpinella anisum* with the scientific name (Umbelliferae) is one of the oldest medicinal plants. The Arabic name of this plant is Bozralrazianj Roman or Alrazianj Shami and also Hab Al-Halwa. This herbaceous plant is one year old with a height of 30-50 cm and has small white flowers in the form of umbel inflorescences and yellowish green fruits, the upper part of which is pointed and has five prominent lines on it. It is grown in the eastern Mediterranean, western Asia, the Middle East, Mexico, Egypt and Spain<sup>3&4</sup>. The part used in this plant is its

seeds (Aniseeds). From the perspective of traditional medicine, fresh seeds that have not been peeled are better; Because there are many properties in the skin of seeds 5. In the books of Iranian traditional medicine, anise is considered to have a warm and dry nature. Other organs have been used as a cleanser, analgesic and anti-inflammatory, and as a facelift. These seeds also strengthen the kidneys and open the obstructions of the liver, spleen, bladder and uterus<sup>6&7</sup>.

### Fennel

Fennel plant *Foeniculum vulgare* Mill is one of the most important and widely used aromatic and medicinal plants. Its seeds are the most important organ producing essential oil and its most important composition is anethole (50 to 75%). The active ingredients of this plant are used in pharmacy to treat cough, heartburn, bloating, indigestion in children and stimulate breastfeeding in lactating mothers<sup>8</sup>.

## Materials and Methods

### Extraction

After preparing fennel, anise and Bamboo Cane seeds, extraction was done by soaking with 80% ethanol solvent. This double-blind, randomized placebo study was performed in the years 1300-1400. In this study, a controlled clinical trial was performed on 20 patients with PCO referred to Sajjad Clinic in Tehran. Written and informed consent was obtained from all patients to participate in the study and the study protocol was approved by the ethics committee<sup>9</sup>.

### Randomization and Medical prescribing

All women of childbearing age who referred to Sajjad Clinic with complaints of oligomenorrhea and infertility were collected and a complete clinical examination was performed. Individuals who did not meet the inclusion criteria were excluded from the study. Vaginal ultrasonography was performed on individuals who met these criteria. Those who did not have positive criteria. Those who did not have positive ultrasound symptoms were excluded from the study and those with these conditions were randomly divided into two groups: the first group treated with 19 drops of plant extract (fennel, anise, Bamboo Cane) once a day and the second group treated with metformin and 1000 mg daily. The duration of treatment was 2 weeks for the first group and 3 months for the second group. Twenty patients with oligomenorrhea and infertility referred to Sajjad Clinic were evaluated as appropriate in terms of inclusion criteria. The age range was 17-33 years with an average of 24.12 years. They were oligomenorrhea<sup>10&11</sup>.

### Statistical Analysis

After the simulation test, the therapeutic effects and side effects of the two groups were statistically judged by Fisher's exact test.

## Findings

The study was conducted on 20 people in 2 groups of 10 people. The people in the 2 groups were similar in terms of economic and social status (referrals to a center) and age. Clinical treatment results in 2 groups were presented in **table I**.

Their differences were not statistically significant. ( $P \leq 0.2$ )

**Table I:** Distribution of samples according to clinical results of treatment by group therapy.

Medicine	Pregnancy	Regular menstruation	Oligomenorrhea	Exit the plan	p-value
Metformin	(10%)1	(33%)3	(50%)5	(10%)1	86/0
Extract fennel-anise and Bamboo Cane	(10%)1	(60%)6	(10%)1	(20%)2	46/0

The results of the ultrasound view of the ovaries after treatment are presented in **table II** and show that there are still no differences in the condition of the ovaries after treatment and this difference was not statistically significant.

**Table II:** Distribution of samples according to clinical results of treatment by group therapy.

Medicine	clear	Pco	P-value
Metformin N=10	(50%)5	(50%)5	14/0
Extract (fennel-anise and Bamboo Cane N=10	(5/87%)7	(5/12%)1	07/0

Clinical results showed that while taking the drug drops (fennel, anise, Bamboo Cane), 2 people were out of the plan. One case occurred. 6 people had regular periods and 1 person remained oligomenorrhea. The results of ultrasound showed that in 87.5% of people, all ovaries were free of cysts. It happened. Five people remained oligomenorrhea and three people had regular periods. In the ultrasound obtained in 50% of people, the appearance of the ovaries was free of cysts.

## Discussion

The study showed that the therapeutic effects of the extract (fennel, anise, Bamboo Cane) were similar to metformin and did not differ. From the perspective of Iranian traditional medicine, anise seeds have analgesic and inflammatory properties and due to their anti-

inflammatory effects can be effective in the prevention and treatment of many diseases in which inflammation is a major factor<sup>3&4</sup>. Also, the analgesic effects of anise essential oil were comparable to morphine and aspirin. Fixed oils of anise also had good analgesic and anti-inflammatory effects<sup>12</sup> which is consistent with the present study. On the other hand, anise extracts and excellent analgesic effects in heat and writing tests induced by studying anise seeds have effects. It has hypoglycemic, hyperlipidemic, lipid peroxidation control (oxidative stress index) and antioxidants in patients with type 2 diabetes<sup>13&14</sup>. In another study, anise extract significantly reduced the number and severity of hot flashes in postmenopausal women<sup>15</sup>.

In a study, oral administration of methanolic extract of fennel seeds in rats showed inhibitory effects on acute and non-acute inflammation of this plant by inhibiting two pathways of cyclooxygenase and lipoxygenase. Also, in increasing milk, reducing menstrual pain, facilitating childbirth It is also used to increase sexual desire. Its essential oil also shows potential hypoglycemic and antioxidant effects<sup>15</sup>.

In another study, it was shown that fennel seed is a potential source of antioxidant activity. 100 mg of ethanolic and aqueous extracts of this plant are 99.1% and 77.5% of antioxidant activity, respectively, which is the amount of alpha antioxidant activity. Tocopherol was 36.1% higher with the same dose<sup>16</sup>.

In another study, Moradi et al. In a review study in 1398 found that the effect of medicinal plants such as fennel by reducing insulin resistance; Bamboo Cane with menstrual regulation; Anise with oligomenorrhea recovery; Also, fennel root is effective with anti-androgenic effects and increased FSH against polycystic ovary syndrome<sup>17</sup>, which is consistent with the present study.

## Conclusion

Although this study has introduced medicinal plants affecting polycystic ovary syndrome, the use of medicinal plants can also be associated with side effects, so comprehensive clinical trial studies are recommended in relation to the introduced plants.

## Conflict of interest

Authors do not have any conflict of interest to declare.

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