

Effect Of Kanchnar Guggul, Flaxseeds And Spearmint To Reduce Testosterone Level In Pcos And Pcod

Sahilsingh Ravindra singh Pardeshi, Shruti Dattatraya Chaudhari and Gauri Vijay Sonar.

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ABSTRACT:

Polycystic ovary syndrome (PCOS) is of clinical and public health importance as it is very common, affecting up to one in five women of reproductive age. It has significant and diverse clinical implications including reproductive (infertility, hyperandrogenism, hirsutism), metabolic (insulin resistance, impaired glucose tolerance, type 2 diabetes mellitus, adverse cardiovascular risk profiles) and psychological features (increased anxiety, depression and worsened quality of life). Testosterone is a male sex hormone, or androgen, produced in a woman's ovaries in small amounts. Combined with estrogen, the female sex hormone, testosterone helps with the growth, maintenance, and repair of a woman's reproductive tissues, bone mass, and human behaviors. Kanchnar Guggulu is an effective Ayurvedic classical preparation that helps to promote a fully mature ovum and reduce the chance of PCOS. According to Ayurveda, the aggravation of Kapha and Manda Agni is considered responsible for PCOS. Flaxseed is a rich source of lignan and has been shown to reduce androgen levels in men with prostate cancer. Spearmint decreases body weight in the PCOS condition and since it has antiandrogenic potential, its administration leads to decrease of androgen production. Studies show that spearmint leaves decrease cholesterol and in type II diabetes, decrease oxidative stress. Polycystic ovarian syndrome (PCOS), a common endocrine disorder among women in their reproductive years, also is associated with high levels of androgens and is frequently accompanied by hirsutism, amenorrhea and obesity. Hirsutism in polycystic ovarian syndrome (PCOS), consequent to elevated androgen levels leads to significant cosmetic and psychological problems. Recent research in Turkey has shown that spearmint tea has antiandrogenic properties in females with hirsutism.

KEYWORDS: PCOD, PCOS, Testosterone, Kanchnar guggulu, Flaxseeds, Spearmint

I. INTRODUCTION:

Polycystic ovary syndrome (PCOS) is a condition in which the ovaries produce an abnormal amount of androgens, male sex hormones that are usually present in women in small amounts. The name polycystic ovary syndrome describes the numerous small cysts (fluid-filled sacs) that form in the ovaries. However, some women with this disorder do not have cysts, while some women without the disorder do develop cysts.

Ovulation occurs when a mature egg is released from an ovary. This happens so it can be fertilized by a male sperm. If the egg is not fertilized, it is sent out of the body during your period.

In some cases, a woman doesn't make enough of the hormones needed to ovulate. When ovulation doesn't happen, the ovaries can develop many small cysts. These cysts make hormones called androgens. Women with PCOS often have high levels of androgens. This can cause more problems with a woman's menstrual cycle. And it can cause many of the symptoms of PCOS.

Treatment for PCOS is often done with medication. This can't cure PCOS, but it helps reduce symptoms and prevent some health problems.

- Abnormal menstruation – missing periods, not having periods, heavy bleeding during periods.
- Excessive hair growth – excess hair growth on the face, arms, chest, and abdomen
- Acne – hard-to-treat pimples on the back, chest, and face.
- Obesity – 38%–88% of women with PCOS are either overweight or obese²
- Dark skin – patches of darker skin may occur in the armpits, groin, and under the breasts
- Skin flaps – small flaps of extra skin (usually in the armpits or neck area)
- Hair problems – hair on the head may begin to thin and fall out.

Difference between PCOD and PCOS

The significant difference between PCOD and PCOS are:

Polycystic Ovary Disease (PCOD)	Polycystic ovary syndrome (PCOS)
<ul style="list-style-type: none"> PCOD is common. Close to 33% of women worldwide experience the symptoms of PCOD. Those with PCOD can ovulate consistently. The ones who have PCOD might have comparable symptoms to PCOS, yet can ovulate occasionally and, subsequently, can conceive. PCOS is a serious metabolic medical disorder. Women who experience the symptoms of PCOS are at risk of diabetes, hypertension, vascular heart issues, weight and, surprisingly, endometrial cancer. 	<ul style="list-style-type: none"> PCOS is an uncommon condition and affects 4%–20% of women of reproductive age worldwide. Those with PCOS have huge infertility issues. Females who experience the symptoms of PCOS, battle with infertility. They have higher chances of miscarriages. PCOD isn't a disorder moreover a symptom of PCOS; also, it gets reversed with the proper eating routine and exercise plan.

Women with high testosterone:

Testosterone is a male sex hormone, or androgen, produced in a woman's ovaries in small amounts. Combined with estrogen, the female sex hormone, testosterone helps with the growth, maintenance, and repair of a woman's reproductive tissues, bone mass, and human behaviors.

- balding
- acne
- enlarged clitoris
- decreased breast size
- deepening of the voice
- increased muscle mass
- irregular menstrual cycles
- low libido
- changes in mood in more severe cases of testosterone imbalances in women, high testosterone can cause infertility and obesity.

Symptoms of too much testosterone in women:

Too much testosterone can cause symptoms that effect a woman's physical appearance including:

- excess body hair, specifically facial hair

Pathogenesis of PCOS:

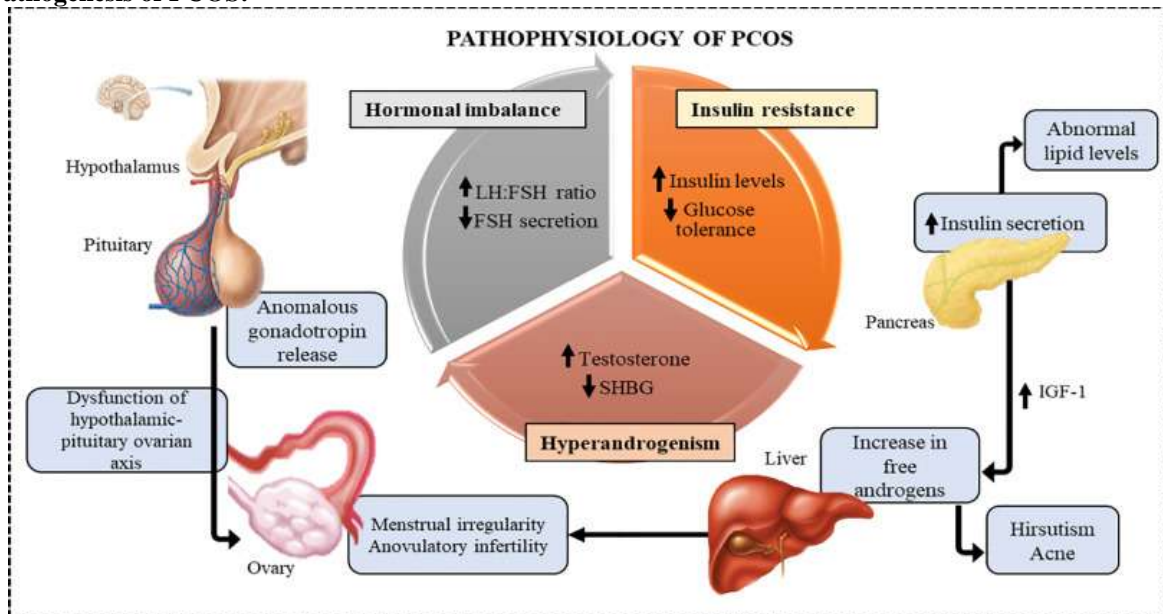


Fig.no.1

Causes of high testosterone in women:

Various diseases or hormonal disorders can cause hormonal changes in women. The most common causes of high testosterone levels in women are hirsutism, polycystic ovary syndrome, and congenital adrenal hyperplasia.

1. Hirsutism:

Hirsutism is a hormonal condition in women that causes growth of unwanted hair, specifically on the back, face, and chest. The amount of body hair growth is highly dependent on genetics, but this condition is primarily caused by an imbalance of androgen hormones.

2. Polycystic ovary syndrome:

Polycystic ovary syndrome (PCOS) is another hormonal disorder caused by an excess of androgen hormones in women. If you have PCOS, you may have irregular or prolonged periods, unwanted body hair growth, and enlarged ovaries that may not function properly.

Other common complications of PCOS are:

- infertility
- miscarriage
- type 2 diabetes
- obesity
- endometrial cancer

3. Congenital adrenal hyperplasia:

Congenital adrenal hyperplasia (CAH) is a disorder that directly affects the adrenal glands and the production of the body's hormones. In many cases of CAH, the body overproduces androgen.

Common symptoms of this disorder in women include:

- infertility
- masculine characteristics
- early appearance of pubic hair
- severe acne Treatment for high testosterone depends on the cause, but generally includes medication or lifestyle changes.
- Medications used to treat high testosterone include:
 - glucocorticosteroids
 - metformin
 - oral contraceptives
 - spironolactone Oral contraceptives have been shown as effective treatment for blocking testosterone, but this treatment method will interfere if you have immediate plans to get pregnant.

According to research from the American Academy of Family Physicians, low-dose birth control that use low levels of norgestimate, gestodene, and desogestrel are the best choices.

All of these medications are only available by prescription. To obtain one, you must meet with your doctor or gynecologist. Making certain lifestyle changes can also affect testosterone levels. Starting an exercise or weight loss program can help because losing weight can improve symptoms. Some women choose only to treat their symptoms, including shaving or bleaching hair and using facial cleaners for acne or oily skin.

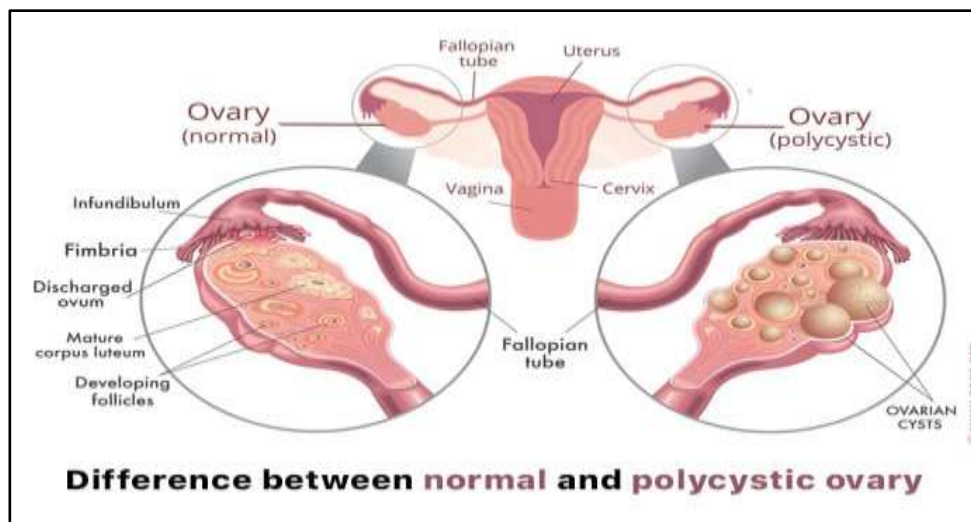


Fig.no.2

MATERIAL:

KANCHNAR GUGGULU:

Kanchanar Guggulu is an effective Ayurvedic classical preparation that helps to promote a fully mature ovum and reduce the chance of PCOS. According to Ayurveda, the aggravation of Kapha and Manda Agni is considered responsible for PCOS. Its effective ayurvedic remedy for treating hypothyroidism, hormonal imbalance, PCOS and joint pains. The word Guggul originated from the Sanskrit word Guggulu means 'protection from the disease'. It also promotes the functioning of the lymphatic system and in getting rid of toxins.

Kanchanar Guggulu is a traditional classic polyherbal formulation used for the treatment of tumors, cystic swelling, PCOS, and ulcers. It reduces swellings and lumps by drying the excess Kapha and fluid in the body. It contains ingredients which show anti-inflammatory, anti-tumor, diuretic, and decongestant properties that help to promote healthy function of the body.

Kanchanar Guggulu is widely used by Ayurvedic experts for normalizing the function of the thyroid gland. Detoxifying and cleansing properties of Guggulu are combined with Kanchanar to support the healthy function of the thyroid. It also helps to cleanse the lymphatic system (network of tissues and organs which help to remove toxins, waste, and other unwanted materials from the body).

Kanchanar Guggulu, when taken in the prescribed dose and duration, is considered safe for use. However, if you are suffering from any chronic disease, it would be best to avoid self-medication and consult a doctor before using Kanchanar Guggulu.

Ingredients of Kanchanar guggulu:

Kanchanar guggulu has a distinct odour and a bitter taste. It consists of about 12 ingredients. These include:

- Kanchanar
- Haritaki
- Bibhitaka
- Amalaki
- Marica
- Shunthi
- Pippali
- Ela or Suksmaila
- Varuna
- Tvak
- Tejpatta
- Guggulu shuddha

Shatavari (Asparagus)

Shatavari, popularly known as Sparrowgrass, does not need any introduction as it is known as an item of diet. It is a diuretic, brings clear motion and is nutritious. A variety of it in India, known as Shatavari, is considered one of the healthiest herbs.

Shatavari increases vitality and virility. It has a cooling, soothing and calming effect. It agrees more with the fire and air type of temperaments. Shatavari helps to balance hormones and helps to regulate the menstrual cycle. In addition, it helps in preventing new cysts formation in ovaries

Varuna

Varuna works excellent in reducing the size of cysts in ovaries and helps clear the reproductive tract and regulates the menstrual cycle.

Pippali

Pippali works wonders on weight management and is considered an incredible rejuvenator. Pippali has antioxidant and carminative properties, which help to prevent oxidation of cells in the reproductive system.

FLAXSEEDS:

Flaxseed is a rich source of lignan and has been shown to reduce androgen levels in men with prostate cancer. Polycystic ovarian syndrome (PCOS), a common endocrine disorder among women in their reproductive years, also is associated with high levels of androgens and is frequently accompanied by hirsutism, amenorrhea and obesity. This clinical case study describes the impact of flaxseed supplementation (30 g/day) on hormonal levels in a 31-year-old woman with PCOS.

Flaxseed, a food generally renowned for its omega-3 fatty acid content, also is one of the richest sources of dietary lignan, having levels that are 800-fold over that of most other foods, (Thompson, 1995). Prior studies on the use of flaxseed or isolated lignan suggest that it may decrease androgen levels and normalize lipid levels; however, most of this research has been conducted in male subjects. (Adlercreutz et al, 1987, Demark-Wahnefried et al, 2001, Shultz & Leklam, 1983, Slavin et al, 1997). Currently, there are no published reports on the use of flaxseed in the treatment of PCOS, even though it also is an androgen-related disorder. The following

case study provides preliminary evidence that flaxseed supplementation may indeed help regulate androgen levels in women with PCOS. Hirsutism in polycystic ovarian syndrome (PCOS), consequent to elevated androgen levels leads to significant cosmetic and psychological problems. Recent research in Turkey has shown that spearmint has antiandrogenic properties in females with hirsutism.

SPEARMINT:

Spearmint for PCOS

In an animal model study conducted to evaluate the positive effect of spearmint tea on PCOS, it was observed that spearmint has an anti-androgenic effect, helping reduce testosterone levels.

In this study, the endocrine profile in animals with PCOS improved after they consumed spearmint hydroalcoholic extract.

Another study showed that spearmint positively affects women with excessive hair growth on the face, chest, and back. Patients experienced a reduction in FSH (follicle-stimulating hormone), LH (luteinizing hormone), and DHEA (dehydroepiandrosterone hormone) levels.

While these studies show the potential of spearmint to help with PCOS, there are too few of them to make definitive conclusions.

Meanwhile, drinking spearmint could have such side effects as:

Allergic reactions (rare)

Damage to the uterus during pregnancy

Worsening of existing kidney problems

Possible increase in liver damage

It is necessary to talk to your doctor about how spearmint tea interacts with other medications. For example, taking spearmint together with sedatives could cause breathing problems.

Other benefits of spearmint

Spearmint (*Menthaspicata*) is a mint type that contains vitamins A, B2, B3, and folate, as well as minerals such as potassium, calcium, and magnesium.

This herb has several potential benefits, including:

- Antiparasitic activity
- Antioxidant activity
- Stimulating properties
- Antispasmodic properties

More studies are needed to evaluate spearmint's benefits, contraindications, and side effects. Before using spearmint-based medications that are yet to receive US FDA approval, PCOS patients should seek medical guidance.

II. METHODS:

Experimental design

This study was attained under the approval of the state committee on animal ethics, Shiraz University, Shiraz, Iran. Also, the testimonial of the European Council Directive (86/ 609/ EC) of November 24, 1980, regarding the standards in the protection of animals for experimental goals were followed. Twenty-four adult female Sprague Dawley rats (200 ± 20 g) purchased from Comparative and Experimental Center of Medical Sciences Department of Shiraz Medical University. Animals with regular reproductive cycle (following 3 cycles checking), were selected and randomly dispensed into four groups as control (C) (received distilled water), Treatment- Control (TC) (received 40 mg/kg hydroalcoholic extract of spearmint + 200 mg/kg flaxseed extract for 30 days by gavage). PCOS was induced in the next two groups, PCOS group, and Treatment group (T) by a single intramuscular injection of estradiol valerate (4 mg/rat). The treatment group received 40 mg/kg spearmint extract + 200 mg/kg flaxseed extract for 30 days by gavage, 7 weeks after injection of estradiol valerate, while PCOS group received distilled water during the same period. Animals were kept in the standard polypropylene cages at 20–22 °C, 38% humidity and 12/12 h light/dark cycle, fed with a standard pellet diet and had free access to tap water.

Preparation of hydroalcoholic extract of kanchnar gugglu, spearmint and flaxseed

Kanchnar gugglu Fresh spearmint and flaxseed were purchased from a local market source in Shiraz. The plants' qualities were confirmed by a botanist in the biology department. After clearing and drying, the spearmint was completely ground; the resulting powder was placed in 70% alcohol for 72 h. After straightening with filter paper, the rotary machine was used to concentrate extract under reduced pressure. The resultant semi-solid extract put into a lyophilizer machine for 24 h in order to make a powder. The same procedure was used for flaxseed after grinding of the seeds.

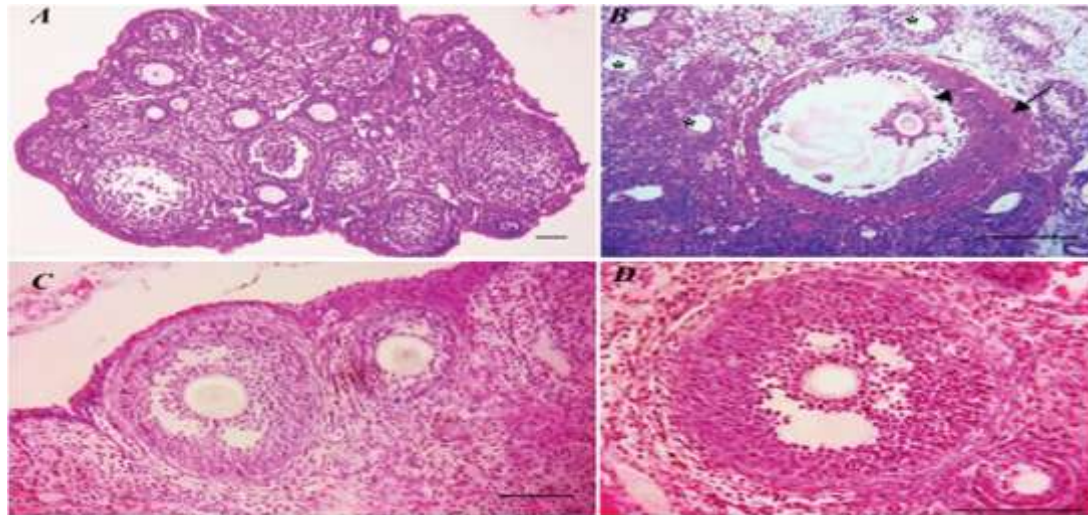


Fig.no.3 Depicts ovaries section in 4 groups, PCOS (a) with cystic follicles 100 micrometer, treatment (b) with pre-antral and antral follicles, Control (c) Including antral follicles and Treatment Control (d) Which includes primary follicles as antral follicles (H & E Staining) index bars, 50.0 micrometer.

Diet chart for PCOD patients:

	Breakfast	Mid-meal	Lunch	Evening	Dinner
Sunday	2 Idlis with Sambar 1/2 cup and Green chutney or Tomato Chutney	1 cup green gram sprouts	2 Rotis, 1/2 cup salad with Fish curry (100 gm fish) and 1/2 cup cabbage subji.	A portion of fruit but avoid high sugar fruits like banana, Jack fruit, Mango, Chikku.)	2 Roti / chapati. + Tomato subji 1/2 cup.
Monday	2 Slices brown bread. +1 slice low-fat cheese+2 Boiled egg whites.	A portion of fruit but avoid high sugar fruits like banana, Jack fruit, Mango, Chikku.)	Veg pulao rice 1 cup+ 1/2 cup Soya Chunk curry+ 1/2 cup Butter Milk.	1 cup light tea+ 2 wheat rusks	2 roti/ Chapati+ Ladies finger subji 1/2 cup.
Tuesday	Chapati 2 + 1/2 cup green pea's curry.	1/2 cup boiled black chana	1 cup rice+ 1/2 cup Dhal+ Palak subji 1/2 cup+ 1/2 cup low-fat curd.	A portion of fruit but avoid high sugar fruits like banana, Jack fruit, Mango, Chikku.)	Broken wheat upma 1 cup+ 1/2 cup green beans subji
Wednesday	Methi Parata 2+ 1 tbsp green chutney.	A portion of fruit but avoids high sugar fruits like banana, Jack fruit, Mango, Chikku.)	1 cup rice+ chicken curry (150 gm chicken)+ 1 cup cucumber salad.	1 cup light tea+ Brown rice flakes poha 1/2 cup.	Wheat Dosa 2 + 1/2 cup Bitter guard subji.

Thursday	Vegetable Oats Upma 1 cup+ 1/2 cup low-fat milk.	Plain Yoghurt and raw vegetables or 1 cup grilled vegetables	1/2 cup rice + 2 medium chappatis+1/2 cup Kidney beans curry+ Snake gourd subji 1/2 cup.	1 cup boiled chana+1 cup light tea.	2 Roti/ chapati+ 1/2 cup mixed veg curry
Friday	Mixed veg Poha 1 cup+ 1/2 cup low-fat milk.	A portion of fruit but avoids high sugar fruits like banana, Jack fruit, Mango, Chikku.)	2 Chapati+ 1/2 cup cluster beans subji+ Fish curry (100g fish) 1/2 cup.	1 cup tea+ + 2 biscuits (Digestive or Oatmeal.)	2 Rotis / chapathi + Ridge gourd subji 1/2 cup.
Saturday	Uthappam 2+ 1 tbs green chutney.	1 cup boiled chana	1 cup rice+ Soya chunk curry 1/2 cup+ Ladies finger subji 1/2 cup+ 1 small cup low-fat curd.	A portion of fruit but avoids high sugar fruits like banana, Jack fruit, Mango, Chikku.)	Broken wheat upma 1 cup+ 1/2 cup green beans subji

III. RESULT:

The patient had followed the diet and restriction as advised. Pelvic pain irregular menstrual cycle and associated symptoms have disappeared. The USG was done after the completion of 3 months. The findings of USG of whole abdomen including pelvic region report before and after treatment are:

USG (Before treatment):

Uterus:

Uterus is anteverted measures 7.9×4.6×3.2 cm. Normal myometrial echo pattern seen. No focal lesion seen. Endometrium measures 9.4mm. No collection or lesion seen

Ovaries:

Right ovary measures 3.6×2.6×1.9cm shows multiple small follicles of upto (8mm) arranged peripherally with stromal hyperchogenicity- PCOD pattern.

Left ovary measures 3.3×2.6×1.9cm shows multiple small follicles of upto (8mm) arranged peripherally with stromal hyperchogenicity-PCOD pattern. No adnexal mass seen.

USG (After treatment):

Uterus:

Normal in size, shape and anteverted position. Endometrial cavity appears empty.

Ovaries:

Both ovaries appeared normal in size, shape and position.

Lifestyle change aiding in PCOD and PCOS:

People with PCOD can also benefit from a change in their lifestyle. According to studies, combining a PCOD diet with physical exercise can result in the following advantages:

- Slimming down
- Increased insulin sensitivity
- More consistent periods
- Male hormone levels are lower
- Low cholesterol level

Women can use behavioral measures to assist them to reach their weight-loss goals, which will help them manage their PCOS symptoms. These are some of the practices:

- Social support networks for goal-setting
- Strategies for self-monitoring
- Taking care of one's mental health

Self-care habits like getting enough sleep, avoiding over-commitment, and setting aside time to unwind can also help with PCOD management.

IV. CONCLUSION:

In summery administration of a combination of kanchanar gugglu, spearmint and flaxseed extract to PCOS patient improved endocrine secretion including estradiol, progesterone and testosterone level and ovarian histology which are more remarkable than using Kanchnarguggule flaxseed or spearmint alone, reported previously. The results highlighted the potential effects of using a combination of kanchanar gugglu spearmint and flaxseed extract for treatment of PCOS.

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