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Research Article

Formulation And Evaluation of Withania Somnifera Syrup for PCOD

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ABSTRACT

PCOD, or Polycystic Ovarian Disease, occurs when the ovaries produce immature or partially mature eggs, which can form cysts over time. This condition leads to hormonal imbalances but is generally less severe than PCOS. This condition characterized by multiple small cysts on the ovaries which lead to irregular or absent periods, acne, hair thinning, and weight gain. The exact cause is not clear, hormonal imbalance is the key factor. The management of PCOD often involves a combination of lifestyle modifications, medications, and herbal treatments. Herbal medicines offer a natural and holistic approach to managing PCOD with potentially fewer side effects than conventional medications. This study aimed to develop a polyherbal syrup for the management of PCOD and evaluate its efficacy in improving hormonal balance and menstrual regularity. The syrup contains a combination of Ashwagandha, Shatavari, Turmeric, and Cinnamon known for their beneficial effects on hormonal balance, menstrual regularity, and insulin sensitivity. Jaggery is used as a sweetening agent, providing a natural and healthy alternative to synthetic sweeteners. Ashwagandha, Shatavari, Turmeric and Cinnamon, Jaggery was used as a sweetening agent to enhance taste. The polyherbal syrup shows as a natural and effective treatment option for women with PCOD.

INTRODUCTION

Almost 10% of women in the world are suffering from PCOD. In compare to PCOD women with PCOS produce higher-than-normal amounts of male hormones. This hormones imbalance causes them to skip menstrual periods and makes it harder for them to get pregnant. While conventional treatment such as hormonal therapies and insulin-sensitizing agents are commonly prescribed, they often come with side effects. This has a growing interest in herbal formulations as complementary or alternative therapies.

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What is Polycystic Ovarian Disease or PCOD?

PCOD refers to a condition in which ovaries produce many immature or partially mature eggs due to poor lifestyle, obesity, stress, and hormonal imbalance. **PCOD**, or Polycystic Ovarian Disease occurs when the ovaries produce immature or partially mature eggs, which can form cysts over time. This condition leads to hormonal imbalances but is generally less severe than PCOS. The condition is characterized by multiple small cysts on the ovaries which leads to irregular or absent periods, acne, hair thinning, and weight gain. The exact cause is not clear, hormonal imbalance is the key factor.

Causes of PCOD:

1. Excess androgens levels

2. Insulin Resistance (impaired glucose metabolism)

3. Genetic Factors (Family history, specific genes)

4. Lifestyle factors (Obesity, Poor diet, Sedentary lifestyle)

Symptoms of PCOD: -

1. Irregular Periods
2. Growth of Unwanted Hair
3. Acne on face neck and back
4. Weight gain

Chemical Constituent:- (Withania Somnifera/ Ashwagandha)

The plants contain the alkaloid withanine as the main constituent and somniferine, pseudowithanine, tropine and pseudotropine, hygrine, isopellederine, anaferine, anahygrine and steroid lactones. The leaves contain steroid lactone, commonly known as withanolides.

Chemical constituents present in different plant parts of W. Somnifera

Plant Parts	Phytoconstituents
Roots	Alkaloids, steroids, volatile oils, and reducing sugar.
Fruits	Pseudowithanine, tropine and pseudotropine, hygrine, isopellederine, anaferine, anahygrine and steroid lactones.
Leaves	12 Withanolides, condensed tannins, flavonoids, glycosides, and free amino acids,

MATERIAL AND METHOD: The preparation of syrup contains poly herbs such as Ashwagandha, Shatavari, Cinnamon, Turmeric have proved pharmacological activity with no side effects.

Collection of Plant Material:

Plant part used is Roots of Ashwagandha, Shatavari, (For treatment of PCOD)

Collection of plant roots: when the plant is mature and the leaves and berries are drying

Cleaning: The Ashwagandha roots which are harvested are now dusted off and is been soaked in the water so that the extra dust and soil particles could be removed.

Drying: The roots are dried in the sunlight so that the wetness could be dried and moisture could be removed from the roots

Grinding: Grind the dried roots into a fine powder using a mechanical grinder Storage: store the powder in an airtight container for further use.

Fig: 1 (Ashwagandha and Shatavari)

Family: Liliaceae,

Phytoconstituents: - Essential oils, asparagines, arginine, tyrosine, flavonoids resin, tannin.

Method (Decoction):- STEP1:

- Ashwagandha was taken and weigh 24 gm.
- Shatavari was taken and weigh 16 gm.
- Cinnamon was taken and weigh 8 gm.
- Turmeric was taken and weigh 0.4gm
- Jaggery was taken and weigh 15g

STEP2:

- Mixed all the ingredients well and add distilled water to it and mix it well.
- Then the mixture was heated up to 100 ml of decoction is formed from it.

STEP3: Filtered out the decoction with muslin cloth and followed by whatman filter paper.

Fig: 2

Preparation and Procedure:

1. **Preparation of Jaggery Syrup:** Weigh jaggery dissolved in 20ml of warm purified water and stir it well.

2. **Addition of decoction:** Filtered out the decoction with muslin cloth and followed by whatman filter paper.

Add 30ml of decoction in jaggery solution and syrup is formed.

3. **Addition of sodium benzoate:**

Add 0.1gm of preservative such as sodium benzoate to increase the shelf life of the syrup.

Store: the final syrup in amber glass bottles to protect from light.

Addition of citric acid:

Add 0.4 gm of citric acid

Formulation Table:

Ingredients	F1	F2	F3
Ashwagandha	22gm	23gm	24gm
Shatavari	14gm	15gm	16gm
Cinnamon	11gm	10gm	8gm
Turmeric	1.5gm	1gm	0.4gm
Jaggery	20gm	18gm	15gm
Citric Acid	0.04gm	0.04gm	0.04gm
Sodium Benzoate	0.1gm	0.1gm	0.1gm
Purified water	q.s 50ml	q.s 50ml	q.s 50ml
Total	50ml	50ml	50ml

Evaluation Test for Syrup

Specific gravity:

Formula for specific gravity:

Specific gravity of liquid under test (syrup) = weight of liquid under test/weight of water ws/W4.

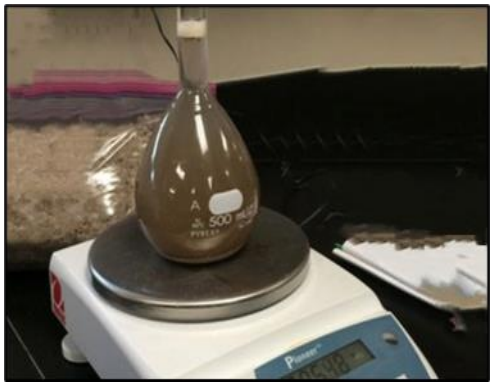

Fig: 3 (Specific Gravity Test)

2) **Formula for viscosity** = x Desity of test liquid ×Time required for flow test liquid Density of water ×Time required for flow water. Viscosity of water.

3) **PH testing:** The syrup PH is 6.3

Fig: 4 (PH Test)

CONCLUSION:

In conclusion, herbal syrups formulated for managing Polycystic Ovary Syndrome (PCOS) offer a promising natural alternative to support hormonal balance, regulate menstrual cycles, and address metabolic concerns. These formulations often combine traditional herbs such as Ashwagandha, Shatavari, Turmeric, and Cinnamon, known for their anti-inflammatory, insulin-sensitizing, and hormone-balancing properties . Clinical studies have demonstrated that polyherbal syrups can improve insulin sensitivity, reduce hyperandrogenism, and enhance follicular development, potentially leading to improved fertility outcomes.

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