

## Polycystic Ovary Syndrome (PCOS)-A Mini Review

**Aruna L Hugar, Amarvani P Kanjekar and Ramesh L Londonkar\***

Department of Biotechnology, Biopharmaceutical & Nanobiotechnology Laboratory,  
India

**\*Corresponding author:** Ramesh L Londonkar, Department of Biotechnology, Biopharmaceutical & Nanobiotechnology Laboratory, Gulbarga University, Kalaburagi-585106, India, E-mail: londonkarramesh53@gmail.com

### Mini Review

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### Abstract

Polycystic Ovary Syndrome (PCOS) is a hormonal disorder that affects between 5-10% women of reproductive age and remains the most enigmatic reproductive disorders. The most common symptoms of PCOS are obesity, acne, amenorrhea, irregular menstrual cycles, hirsutism, insulin resistance and high cholesterol. One of the treatments for PCOS is the use of synthetic medicine which can help to treat PCOS but with side-effects. However, many women who suffer from PCOS opt to use alternative medicine in conjunction with traditional medicine to improve their condition. There are some herbs that are very helpful in treating PCOS. In this review, we focus on the role of herbal medicine in the treatment of PCOS.

**Keywords:** Stein-Leventhal syndrome; Polycystic Ovary Syndrome; Menstrual Cycles; Hirsutism; Dyslipidemia; Insulin Resistance; Diabetes; Obesity; Cancer; Infertility; Coronary Heart Diseases

**Abbreviations:** PCOS: Polycystic Ovary Syndrome; WHO: World Health Organization

### Introduction

Polycystic ovary syndrome (PCOS), also known as Stein-Leventhal syndrome is a complex condition characterized by elevated androgen levels, menstrual irregularities and small cysts on ovaries affecting about 6-8% of women worldwide [1]. Its hyperandrogenic manifestations include acne, hirsutism, dyslipidemia, insulin resistance, diabetes, obesity, cancer, infertility and coronary heart diseases [2]. Based on the Rotterdam criteria, PCOS is diagnosed by the presence of at least two of the following three criteria: clinical or biochemical hyperandrogenism, oligo- or amenorrhea and the presence of PCO by ultrasound [3]. The etiology of PCOS is unclear and decisive clinical studies are limited by ethical and logistic constraints. Due to the increasing prevalence

of PCOS in India, there is a need for early diagnosis and treatment that can help to relieve the symptoms and prevent health related problems [4]. Many synthetic drugs available for the effective treatment and management, however their numerous side effects and high cost effect has led a way to seek plant based remedies for the treatment of PCOS [5]. So there is always a tendency for the women to follow alternative therapy for the management of PCOS.

### International Status

PCOS is a circuitous metabolic, endocrine and reproductive disorder affecting approximately 5-10% of the female population in developed countries [6]. This prevalence is derived from a modest amount of Western biomedical research largely conducted in the U.S. and Europe [7]. The American College of Nurse-Midwives found that between 5-30% women have some

characteristic of PCOS i.e., approx 6.8 million people in USA. PCOS and related complications are also having a tremendous economic burden and in 2006, the total annual cost to treat women with PCOS between the ages of 14- 44 years was more than US\$430 million in the USA [8]. Cinnamon extract has been shown to reduce insulin resistance by increasing phosphatidyl, inositol, 3-kinase activity in the insulin signaling pathway and thus potentiating insulin action in 15 PCOS women [9]. Recent research in Turkey has revealed that the spearmint tea has antiandrogenic properties in females with Hirsutism [10].

### National Status

World Health Organization (WHO) has emphasized the need for better utilization of the indigenous system of medicine, based on the locally available medicinal plants in the developing countries. The prevalence of PCOS in general population has been estimated to be 5% -10% of reproductive age women, which are undergoing rapid nutritional transitions due to westernized diets and lifestyle. However, recent findings from developing countries like China and India are indicated a similar prevalence rates of PCOS [11]. The estimation of high PCOS prevalence rates appears high in countries where diagnoses of obesity and type 2 diabetes are more common. Even though women with PCOS vary in degrees of thinness to fatness, but even then about 30-75% of PCOS cases contend with being overweight or obese [12]. These parallel trends between metabolic health perturbations and PCOS have impacted much of the developed world as well as urban areas of developing nations such as India and China. Aloe vera gel formulation exerts a protective effect against the PCOS phenotype by restoring the ovarian steroid status and altering key steroidogenic activity [13].

Recently, *Pterocarpus marsupium* found to have potential reproductive effects in testosterone propionate induced PCOS female albino rats and could be used as an alternative therapy in the treatment of PCOS, which was carried out by Department of Biotechnology, Biopharmaceutical & Nanobiotechnology Laboratory [14].

### Conclusion

Polycystic Ovary Syndrome (PCOS) is a severe clinical and public health issue, because it adversely affects women's health and puts a significant strain on healthcare resources. When choosing a synthetic medication, side effects and high cost of the fertility drugs must be taken into account, including weight gain, fatigue, nausea, oedema, diarrhoea, sinusitis, hypoglycaemia and kidney

toxicity. Therefore, the present review discusses about the need of novel drugs from different plant sources which will have low cost, safer and highly effective for PCOS treatment to overcome the infertility.

### References

1. Umland EM, Weinstein LC, Buchanan EM (2011) Menstruation related disorders. In: DiPiro JT, Talbert RL, Yee GC (Eds.), *Pharmacotherapy: A Pathophysiologic Approach* 8<sup>th</sup> (edn), McGraw-Hill, New York, pp: 1393.
2. Demirel MA, Ilhan M, Suntar I, Keles H, Akkol EK (2016) Activity of *Corylus avellana* seed oil in letrozole-induced polycystic ovary syndrome model in rats. *Revista Brasileira de Farmacognosia* 26(1): 83-88.
3. Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group (2004) Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome (PCOS). *Human Reproduction* 19(1): 41-47.
4. Londe P, Shubhi Agarwal (2017) Invitro phytochemical study on *Berberis aristata* root extracts: An effective nutraceutical for the treatment of polycystic ovarian syndrome. *International Journal of Recent Scientific Research* 8(9): 19934-19940.
5. Bency Baby T, Smitha Rani, Remya K, Shebina PR, Azeem AK (2016) Polycystic ovarian syndrome: Therapeutic potential of herbal remedies-A review. *International Journal of herbal Medicine* 4(5): 91-96.
6. Xita, Tsatsoulis A (2006) Fetal programming of polycystic ovary syndrome by androgen excess: evidence from experimental, clinical, and genetic association studies. *J Clin Endocrinol Metab* 91(5): 1660-1666.
7. Li L, Yang D, Chen X, Chen Y, Feng S, et al. (2007) Clinical and Metabolic Features of Polycystic Ovary Syndrome. *International Journal of Gynecology and Obstetrics* 97(2): 129-134.
8. Azziz R, Marin C, Hoq L, Badamgarav E, Song P (2005) Health Care-Related Economic Burden of the Polycystic Ovary Syndrome during the Reproductive Life Span. *J Clin Endocrinol Metab* 90(8): 4650-4658.
9. Jeff G, Wang MD, Richard A, Anderson, George M, et al. (2007) The effect of cinnamon extract on insulin

- resistance parameters in polycystic ovary syndrome: a pilot study. *Fertility and Sterility* 88(1): 240-243.
10. Grant P (2010) Spearmint herbal tea has significant anti-androgen effects in polycystic ovarian syndrome. A randomized controlled trial. *Phytotherapy Research* 24(2): 186-188.
  11. Allahbadia GN, Merchant R (2008) Polycystic Ovary Syndrome in the Indian subcontinent. *Seminars in Reproductive Medicine* 26(1): 22-34.
  12. Pasquali R, Gambineri A, Pagotto U (2006) The impact of obesity on reproduction in women with polycystic ovary syndrome. *BJOG* 113(10): 1148-1159.
  13. Maharjan R, Nagar PS, Nampoothiri L (2010) Effect of *Aloe barbadensis* Mill. Formulation on Letrozole induced polycystic ovarian syndrome rat model. *J Ayurveda Integr Med* 1(4): 273-279.
  14. Aruna LH, Amarvani PK, Londonkar RL (2017) A novel potential reproductive effects of *Pterocarpus marsupium* methanolic extract on testosterone propionate induced polycystic ovary syndrome in female albino rats. *Endocrine, Metabolic & Immune Disorders Drug Targets* 17(4): 317-323.