

Ceylon Cinnamon (*Cinnamomum zeylanicum*) Possesses Prophylactic and Therapeutic Potentials in Ameliorating Polycystic Ovary Syndrome (PCOS)

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Ceylon Cinnamon (*Cinnamomum zeylanicum*) is known for its many bioactive properties and this study was conducted to evaluate the prophylactic and therapeutic potentials of Ceylon Cinnamon bark against PCOS, which is one of the most common endocrine and reproductive disorders among women at reproductive age. Symptoms of PCOS may affect the quality of life, and its accompanied metabolic difficulties have implications for long-term well-being. The experiments were performed using a Letrozol® induced PCOS mouse model. For prophylaxis potential evaluation, Cinnamon treatments were orally gavaged with Letrozol® for 21 days and compared with Letrozol only and non-treated control groups. For the therapeutic potential evaluation, cinnamon was gavaged after induction of the PCOS for another four weeks. At the end of the treatment periods, blood glucose levels, serum androgen levels, gross ovarian morphology, estrus cyclicity and histological examinations were performed. Morphological, histological and biochemical examinations revealed establishment of PCOS with Letrozol®. In prophylactic potential trial, the blood glucose levels significantly elevated ($p < 0.05$) in PCOS group compared to control group and it was significantly ameliorated ($p < 0.05$) with the Cinnamon treatment. The serum testosterone levels significantly elevated ($p < 0.05$) in PCOS group compared to control group and it was significantly lowered ($p < 0.05$) in Cinnamon treated groups. Histological examinations showed that ovaries of Cinnamon bark extract treated animals had functional ovaries with restored follicular development and cytology indicated normal cyclicity. In the therapeutic potential evaluation, blood glucose and testosterone levels were significantly ($p < 0.05$) decreased compared to PCOS control group and histological examinations of vaginal swabs and ovaries revealed return to cyclicity and recovery of ovarian follicular development. Both groups of Cinnamon treated mice showed significant decrease in endometrial thickness ($p < 0.05$) compared to the PCOS group. In summary, the data clearly indicate a greater prophylactic and therapeutic potential of Ceylon Cinnamon against PCOS warranting further in-depth investigations.

Key words: *Cinnamomum zeylanicum*, PCOS, Mouse model, Prophylactic effect, Therapeutic effect

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