

# **Effects of metformin treatment on Iron, Zinc and Copper status concentration in the serum of female rats with induced polycystic ovary syndrome**

## **Abstract**

This study conducted to investigate the effects of metformin drug on serum Iron, Zinc and Copper concentration in Estradiol Valerate(EV) induced polycystic ovary syndrome(PCOS) in virgin rats. Thirty virgin rats were randomly allotted to constitute Normal control (NC-I) group and induced polycystic ovary (PCO-I and PCO-II) groups having 10 rats in each group. Rats from NC-I group were administered intramuscularly with 0.2 ml of corn oil whereas polycystic ovary was induced in rats from PCO-I and PCO-II groups by administering single intra-muscular injection of estradiol Valerate 4mg/rat. The rats from PCO-I and PCO-II groups were left for 60 days for development of polycystic ovary syndrome. Animals from PCO-I group were then administered with 0.2 ml normal saline as oral gavage for 15 days, these animals were kept as PCO control group animals whereas those from PCO-II groups received metformin (50mg/kg B.wt) as oral gavage for 15 days, these animals served as metformin treated PCO group animals. All the rats were thereafter sacrificed for collecting blood from inferior vena-cava. Serum samples from each rat were assessed for iron, zinc and copper status in each experimental group. The results revealed a significant ( $p \leq 0.05$ ) increase in serum Fe and Zn and a significant

( $p \leq 0.05$ ) decrease in serum Cu concentration in PCO group 1 compared with control non-treated group. The PCO group2 treated with metformin showed a significant ( $p \leq 0.05$ ) decrease in serum Fe concentration as compared with those in animals from group NC-I and PCO-I. While, no significant differences were found in serum Zn concentration between all treated groups. On the other hand, a significant ( $p \leq 0.05$ ) increase in serum Cu concentration appeared in metformin treated group compared with PCO group 1 which appears significant decrease compared with control group.

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