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Title:

Effect of Pumpkin Seed Oil Against Alterations in Some Endocrine Function Induced By Chlorpyrifos in Adult Male Rats

Abstract:

The present study was carried out in the animal house and laboratories of the College of Veterinary Medicine/ University of Basrah during the period extended from 15/2/2017 to 1/8/2017 to investigate the role of the coadministration of pumpkin seed oil (PSO) with chlorpyrifos (CPF) on thyroid, liver, kidney and testicular functions in adult male rats. For this purpose, Two experiments were carried out in the present study.

In first experiments, Fifty adult male rats were used and randomly divided into five equal groups of 10 rats each group. Group 1(control) were given corn oil (1ml /kg.bw), whereas animals of Group 2 were given CPF 1/20th LD50 (6.7 mg/kg bw) in corn oil. Group 3 were given CPF+20 mg/kg b.w PSO ,Group4 were given CPF+40 mg/kg b.w PSO and Group 5 were given CPF+80 mg/kg b.w PSO . The treatment were given once daily by oral gavages for 8 weeks.

At the end of the experiment, eight rats from each group were euthanized, blood samples were obtained for measurement some of hormonal and biochemical parameters and tissue samples from thyroid glands, liver, kidneys and testes were kept in 10% neutral formalin for histopathological examination.

The results revealed a significant decrease ($P \leq 0.05$) in final body weight and body weight gain and testes relative weight, RBC,Hb,MCH,MCHC,WBC and the percentage of lymphocytes,T3,T4,testesterone,FSH.LH,SOD, GPx , HDL-C and total protein concentration whereas a significant increase ($P \leq 0.05$)in the relative weights of liver, kidneys and thyroid gland, TSH,MDA, liver enzymes, total cholesterol , triglyceride, glucose, urea , creatinine and deterioration was observed in the characteristics of epidermal sperm and reproductive efficiency in CPF group compared with control group. Histopathological examination of CPF treated males showed that thyroid gland revealed destruction of thyroid follicles with infiltration of macrophages, the liver section showed marked congestion in the centrilobular area with hepatocellular necrosis, the kidney sections showing vacoulation of glomeruli with tubular epithelial necrosis in the renal tubules and the testes revealed marked suppression of spermatogenesis with vaculation and loss of lyding cells and empty seminiferous tubules. While a significant degrees of improvement were recorded in these parameters in all CPF groups treated with PSO in dose dependent manner.

Second experiment was designed to evaluate the fertility efficiency of CPF-intoxicated adult male rats after treatment with 20, 40 and 80 mg PSO. The results revealed that the fertility rates of male treated with CPF, CPF -20 mg PSO , CPF +40 mg PSO and CPF +80 mg PSO were %,25 %,75 % 100, %100, compared with control 100%.