Abstract Title:

Protective effect of lycopene on chlorpyrifos induced reproductive toxicity in male albino rats.

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ABSTRACT

Introduction

Chlorpyrifos (CPF) is a common organophosphate insecticide, used extensively in household, industry, and agricultural field. It has wide range of damaging effect on human, animal health and environmental. Male infertility is one of the major problems throughout the world and extensive pesticide exposure is one of them.

Objective:

This experiment designed to study the potential role of lycopene to mitigate CPF induced reproductive toxicity

Methods:

Eighteen male albino rats were selected and divided into three groups (n = 6) control group received only vehicle, CPF-treated group received 6 mg/kg/day and lycopene treated group received 10 mg/kg/day for 28 days.

Result:

Chlorpyrifos exposure resulted significant inhibition of AChE, as well as significant reduction of GSH, GST, GPx, GR but elevation of MDA and CD levels in testicular tissue. Moreover, the antioxidant enzymes CAT, POD, and SOD were decreased when exposed to CPF in testis. Sperm count, viability, motility and HOS levels are decrease due to CPF toxicity. The hormone level serum testosterone, LH, FSH levels as well as 17β-HSD, $^{5}3\Delta\beta$-HSD are also decreased in CPF-treated group. Levels of TNF-α, IL-6 are increased in CPF-treated group in respect to control. P^{53} and Bax gene were upregulated but Bcl_2 gene were downregulated significantly testicular tissue in CPF-treated group. Serum GOT and GPT levels were also significantly

increased in the CPF-treated group. After the treatment of lycopene all parameters are significantly restored compared to the control group. Histo-morphological study of testis also proved the significant rectification of testicular damage in lycopene treated group.

Conclusion:
Our findings demonstrate the significant protective role of lycopene on CPF-induced reproductive toxicity through its antioxidant, an anti-inflammatory, and an anti-apoptotic effects.

Key Words: Reproductive toxicity, CPF, Lycopene, AChE, Antioxidant, PCR.