



## Potential of *Zingiber officinale* Extract against Chlorpyrifos Toxicity in Caprine Testicular Cells

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### Abstract

Chlorpyrifos (CPF), an organophosphate insecticide, is currently under studies due to its reproductive toxicity in non-targeted organisms. The present study on its efficacy as reproductive toxicant, revealed its effect on testicular cells of caprines. CPF was found to decrease cell viability in testicular cells, induced histo-architectural alterations like loss of tubular interactions and empty luminal spaces in testis; initiated DNA damage associated apoptosis as revealed by MTT, Histology and EB/AO fluorescence assay respectively, at both the doses (10 and 50  $\mu$ M). CPF mediated toxicity induced oxidative stress in testicular cells as revealed by dose- and time-dependent increase in lipid peroxidation and decline in ferric reducing antioxidant power. However, supplementation of *Zingiber officinale* (ginger) extract reduced the CPF mediated decrease in cell viability, histological defects, incidence of apoptosis and generated oxidative stress parameters; thus, proving its potential as a therapeutic agent against CPF, preventing testicular cells toxicity mediated reproductive disorders.

## 1. Introduction

Presently toxicity studies are gaining attention due to their large scale ill effects on health and physiology. Pesticides are one of the largest groups of toxicants, causing wide range of acute and chronic diseases. Among these,

Organophosphate (OPs) pesticides are raising brows due to its effects on non-target species<sup>1,2</sup>. Studies suggest that these pesticides besides affecting other vital organs, target the reproductive system and is one of the un-noticed sources of infertility in mammals<sup>32,33</sup>. OPs like malathion increases sperm immotility and teratozoospermia<sup>3,4</sup>

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## Potential of *Zingiber officinale* Extract against Chlorpyrifos Toxicity in Caprine Testicular Cells

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### ABSTRACT

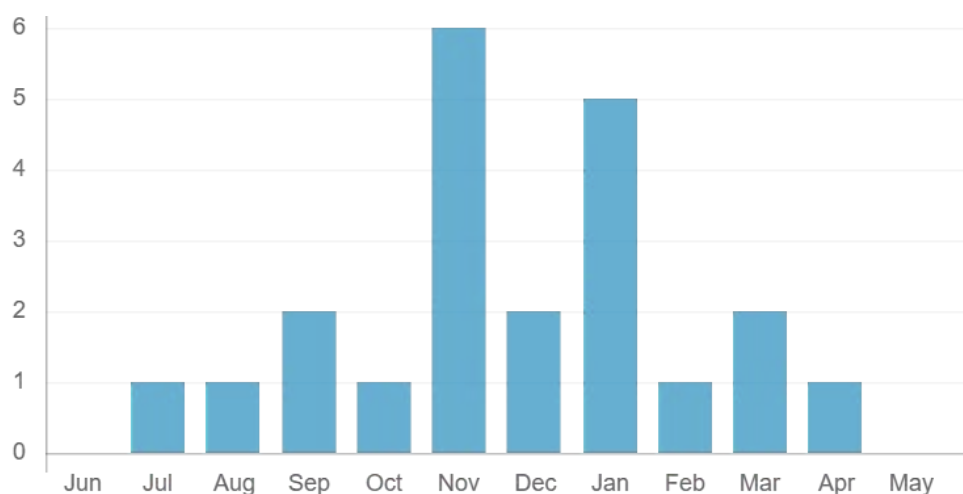
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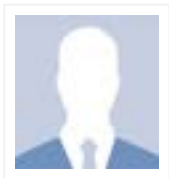
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