

## MALE MICE EXPOSED TO PYRIPROXYFEN FROM PRE-PUBERTY TO SEXUAL MATURITY EXHIBIT REPRODUCTIVE IMPAIRMENT DURING ADULTHOOD

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**INTRODUCTION:** Brazil is one of the largest consumers of pesticides in the world, which affect human and environmental health. Among these compounds, pyriproxyfen (PPF), a widely used larvicide to combat *Aedes aegypti*, has toxic effects on non-target organisms. Since there are few studies assessing its effects on male reproduction, this study aims to investigate the potential impact of this exposure in mice, in an attempt to estimate its effects on male reproductive health in humans. **OBJECTIVE:** To evaluate the impact of exposure to PPF from pre-puberty to sexual maturity on the reproductive parameters and fertility in male mice. **MATERIALS AND METHODS:** Thirty male Swiss mice were used in the study, distributed into three experimental groups ( $n = 10/\text{group}$ ), namely: vehicle (0.9% saline solution and DMSO), and groups exposed to PPF at doses of 0.1 mg/kg or 1 mg/kg diluted in vehicle. The animals were treated from post-natal day (PND) 23 until sexual maturity on PND 80. On PND 70, the animals were mated with untreated females to evaluate fertility. On PND 80, data were collected concerning the age of puberty onset, reproductive organ weights, sperm quality, and reproductive performance. ANOVA or Kruskal-Wallis tests were used, followed by Tukey or Dunn *post-hoc* tests, respectively, for statistical analysis, and differences were considered significant when  $p < 0.05$ . **RESULTS:** There was a delay in the age of puberty onset in the groups exposed to PPF compared to the control group. Regarding sperm quality, both exposed groups showed reduced sperm motility and vitality. There was a 20% decrease in the pregnancy rate and an increase in the post-implantation loss rate in the group exposed to 0.1 mg/kg, compared to the other experimental groups. The other reproductive parameters were not altered by PPF exposure. **CONCLUSION:** Exposure to PPF caused reproductive toxicity, especially at lower doses, suggesting a potential risk to human male reproductive health. Therefore, further studies are needed to clarify the adverse outcome pathways used by PPF to induce reproductive toxicity.

Keywords: Insecticide; rodents; male reproduction; toxicity.

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