عنوان مقاله:

The effects of pyridaben pesticide on the DNA integrity of sperms and early in vitro embryonic development in mice

محل انتشار:

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خلاصه مقاله:

Background: Pyridaben, a pyridazinone derivative, is a new acaricide and insecticide for control of mites and some insects such as white flies, aphids and thrips. Objective: This study was designed to elucidate how pyridaben can affect the sperms' morphological parameters, its DNA integrity, and to estimate the effect of various quantities of pyridaben on in vitro fertilization rate. Materials and Methods: In this study, 80 adult male Balb/C strain mice were used. Animals were divided into control and two test groups. Control group received distilled water. The test group was divided into two subgroups, viz, high dose (212 mg/kg/day) and low dose (53 mg/kg/day) and they received the pyridaben, orally for duration of 45 days. The spermatozoa were obtained from caudae epididymides on day 45 in all groups. Sperm viability, protamin compression (nuclear maturity), DNA double-strand breaks, and in vitro fertilizing (IVF) ability were examined. Results: The pyridaben treatment provoked a significant decrease in sperm population and viability in epididymides. The data obtained from this experiment revealed that, the pyridaben brings about negative impact on the sperm maturation and DNA integrity in a time-dependent manner, which consequently caused a significant ($p<0.05$) reduction in IVF capability. Embryo developing arrest was significantly ($p<0.05$) higher in treated than the control group. Conclusion: Theses results confirmed that, the pyridaben is able to induce DNA damage and chromatin abnormalities in spermatozoa which were evident by low IVF rate.

کلمات کلیدی:

Pyridaben, In vitro fertilization, DNA damage, Mice