The aim of this study was to investigate the gonadotoxic effects of diazinon and its mechanism of action with special reference to its possible reactive oxygen species generating potential in rat testis and the protective effect of N-Acetyl Cysteine (NAC) on the exposure of diazinon. The vehicle was given orally to the control group and NAC, diazinon, combination of NAC and diazinon were given to three treatment groups for 4 weeks. Testis lipid peroxidation levels were higher in diazinon group than in control although lipid peroxidation levels were lower in diazinon + NAC group than in diazinon group. The reduced glutathione (GSH) levels were lower in diazinon group than in control and NAC group although its levels were higher in diazinon + NAC group than in diazinon group. Vitamin C, Vitamin E and β-carotene concentrations were also lower in diazinon group than in control and NAC groups. Vitamin E and β-carotene concentrations were higher in diazinon + NAC group than diazinon group. Glutathione peroxidase activity and vitamin A concentrations in the testis did not show any difference between the four groups. In conclusion, we observed that NAC treatment modulated diazinon-induced oxidative injury in the rat testis. These findings suggest that NAC supplementation can be useful in testis oxidative injury caused by the organophosphate insecticides.