Deterioration of male reproductive health is one of the rising problems in these days. Recently there has been increased awareness of the possible effects of environmental pollutants on male reproduction (Sharpe, 1993; Becker and Berhane, 1997). It is assumed that endocrine disrupting chemicals affect the male reproductive health, by mimicking or antagonizing endogenous hormones, modifying hormone receptor levels, or altering the synthesis and metabolism of endogenous hormones. Many reproductive malformations including retention of nipples, abnormal sexual behavior, birth defects, decreased spermatogenesis, reduced gonad weights and infertility have been reported in laboratory animals and wildlife exposed to endocrine disrupting chemicals and in humans, impaired fertility, declining sperm count and quality, and undescended testes also have been attributed to exposure to environmental contaminants (Toppari et al., 1996). Endocrine disruptors may affect mammalian development either indirectly or directly, altering the maturation of target tissues. In particular, the development and differentiation of target tissues may both be critically sensitive phases, since hormones play crucial regulatory roles.

It is believed that, reproductive disorders are thought to originate in developing stages of the fetus's life in the womb. Exposure to xenobiotics during early stages of life is of particular concern. Hormones play many critical roles in controlling growth and development in early life, such that any interference will have serious and irreversible effects on the child. The increase in the incidence of certain conditions of the reproductive system has revealed a parallel rise in the manufacture and use of chemicals and such chemicals are known as 'reproductive toxicants'.

Metals constitute an important gamut of pollutants because of their bio-accumulative, immutable, and non-degradable properties. Lead (Lead) is a non-essential, highly toxic heavy metal, which can be released into the environment by several routes, but principally through industrial, mining and hunting activities (Fisher et al., 2006). Nevertheless, the restrictions implemented over the last few decades have resulted in the current situation where contaminating sources, particularly those from industrial activities in developed countries, are very limited.

Lead acts as a reproductive toxicant. Many rodent studies have demonstrated that lead can pass through the blood-testis barrier, accumulate in the testis and/or
epididymus and affect the germinal cells at different levels of differentiation (Apostoli et al., 1999). It has been demonstrated a significant decrease in testicular weights with reduced androgen secretion as a result of exposure to lead indicating that testicular endocrine function had been compromised (Naha and chowdary, 2005; Xu et al., 2006; Kasperczyk et al., 2008). Although a large number of studies have been reported on detrimental and deleterious effects of lead on reproduction, the damaging effects of lead on developmental toxicity has not attracted the interest of researchers. A few toxicological studies have addressed the possible relationship between reproductive toxicity and exposure to lead but the results are controversial and the effect of lead on male mediated developmental toxicity is still unclear. There have been no systemic reports dealing particularly with lead induced male reproductive toxicity a) in adults and b) in F1 generation adults exposed to lead in utero. These two areas are primarily selected because, it gives immense scope to study the toxicity of lead on reproductive system in rats at different time points viz., a) a well compartmentalized male reproductive system (adult rats) and b) developing and being compartmentalized male reproductive system (perinatal period- F1 generation adult rats). Considering the facts that, a) lead is a ubiquitous environmental pollutant b) lead has ability to accumulate in the fat tissues and also transfers from mothers to fetuses through placenta and to pups via milk, c) affects male reproductive health in adult rats exposed during prenatal/neonatal and also during pubertal periods, and d) so far few studies related to the effects of in utero and lactation exposure to lead on male reproduction in adult rats has little attracted, the researcher is very curious to know the effects of perinatal exposure to lead on male reproductive health in rats at their adulthood and also to know whether the lead-induced altered male reproductive health is predominant in rats exposed during perinatal period and/or during pubertal period.

The present research has been undertaken to evaluate the effect of lead acetate on male reproductive health in rats exposed during perinatal period and/or during pubertal period. This study deals with the effect of lead on pregnancy, growth and feed in-take, histological studies of testis and first generation reproductive performance of male rats.

The dissertation presents a humble effort by the researcher towards a better understanding of the effect of lead for further studies on male reproduction. The researcher assumes the responsibility for any deficiencies presented in the text, which could be due to oversight, and earnestly request condonation.