In this study, twenty male BALB/c mice were fed on lead oxide containing diet at 50 part per million (ppm) for four months. Tail biopsies were used for DNA isolation as normal genomic DNA before lead exposure to be compared with genomic DNA from liver and kidney after the exposure.

Blood lead concentrations were measured using atomic-spectroscopy. Blood also drawn from each animal to examine phagocytic activity of peripheral blood leucocytes to engulf *Candida albicans* and results were compared with control group.

After the end of four months, mice were sacrificed and tissue biopsies from liver and kidney were used for DNA isolation and histopathological changes study and at the same time splenic lymphocytes were cultured in presence of phytohemagglutinin (PHA) for determining of blastogenic response and results were compared with control group.

Results showed that daily up-take of 0.27 Mg/day lead were associated with a mean blood lead level of 40.9 Mg/dL for exposed group compared to a less than 0.1Mg/dL for normal mice.

The mean phagocytic percentage showed decreased value of 38.18% compared to 55.12% of the normal group, while mean splenic lymphocyte transformation was 28.42% for the exposed group compared with 43.4 for normal group.

DNA samples from lead exposed and control groups before and after exposure were analyzed using randomly amplified polymorphic DNA (RAPD) which is a polymerase chain reaction (PCR)-based
The analysis of genetic alterations resulted from lead oxide exposure showed that there were detectable genetic alteration compared with normal tail genomic DNA for the same animal and five of seven primers used showed these alterations. These primers were OPC-14, OPB-07, OPB-09, OPE-20, and OPN-16, which gave different binding patterns.

In addition, histopathological study showed significant histological changes in liver and kidney compared with control group. The results concluded that lead exposed mice were:

1. Immunologically depressed.
2. Genetically insatiable.
3. Histopathologically had affected liver and kidney.