SUMMARY AND CONCLUSION
SUMMARY AND CONCLUSIONS

The albino rats were given 10 mg fluoride/gm/body weight (22.22 NaF/gm/body weight/day) in drinking water daily for 180 days to study the effects of high dose of fluoride for longer duration.

After 180 days of fluoride consumption, the rats became lethargic and ate less, drank less resulting in to reduced increase in body weights when compared to control. The body became bent between thorax and abdomen. Sharp tips of incisors were lost. Bone density was found to be increased. Kypho – scoliosis of dorso-lumbar spine was developed.

Bones became decalcified and found to accumulate fluoride. Long bones accumulated much more fluoride than other bones. Serum enzymes...
like alkaline phosphatases, SGOT and SGPT were significantly elevated. There was significant decline in serum calcium and inorganic phosphorous in all the experimental rats.

RBC count was depleted along with decreased hemoglobin content. Total WBC count was increased. Spleen weight in the experimental rats was increased with increase in size.

The prominent organs affected were liver and kidney. All most all the oxidative enzymes in liver were inhibited. Activity of alkaline phosphatase in liver and kidney was increased resulting in damage to liver and kidney architecture.

The G-I tract was also badly affected by fluoride consumption showing broken tips of villi and clumped submucosa. Thyroid and adrenal glands were also affected. Hypertrophy of cells in adrenal gland, shrunked thyroid follicles were noted.

Gonads were also found to affected by the fluoride. This might result in decline in reproductive capacity. In spinal cord, the activities of GPT, GOT, SDH, AChEase, Na-K-ATPase, Ca-ATPase, LDH, catalase and SOD were decreased significantly.

From the present results it is concluded that fluoride develops potential side effects like calcium deficiency, osteomalacia, loss of body weight and also it affects bones, G-I tract, liver and kidney badly to such an extent that the life of the animal becomes measurable and lethargic. The results are summarized on the next page.
Probable route of action of fluoride in albino rats in the present investigation.

Fluoride intake (oral)

Absorbed

Systemic circulation

GI-TRACT

Faeces

Loss of fluoride

Kidney

Liver

Blood, heart, cytotoxic action in all organs like thyroid, adrenal, testis, ovary, spinal cord, bone. Fluoride accumulation in bones resulting in the decalcification of bones, Damage to teeth.

Partly Excreted through urine

Degeneration

Loss of fluoride
SUMMARY OF THE PRESENT STUDIES
Looking towards the present results, it is suggested that the water having high fluoride content should be properly treated to make it defluoridated before using it for drinking - to avoid the deformities as seen in the people from Ghatanji Tahsil, Dist. Yeotmal which are shown in the introduction (Plate III) of the present thesis.