CHAPTER VI

CONCLUSION AND RECOMMENDATION

CONCLUSION

1. The neem seed extract is acutely toxic to young Nile tilapia *Oreochromis niloticus* at the age of 1 month with 24-hr LC_{50} of 47.71, 48-hr LC_{50} of 40.71, 72-hr LC_{50} of 38.92 and 96-hr LC_{50} of 36.25 ppm, respectively.
2. The sublethal concentration of neem seed extract for the long-term study (sublethal toxicty) was computed at 25.07 ppm.
3. The peripheral blood of the normal Nile tilapia *O. niloticus* contains erythocyte, thrombocyte, lymphocyte, monocyte, neutrophil, basophil and eosinophil.
4. Anomalies of erythrocyte in experimental fish are seen in immature erythrocytes that follow as;
    - 4.1 A numerical increase in circulating immature erythrocyte.
    - 4.2 Extrusion of nuclear material in immature erythrocyte.
5. Anomalies of erythrocyte in experimental fish are seen in mature erythrocytes that follow as;
    - 5.1 Poikilocytosis including spindle-, spherical- and irregular-shaped.
    - 5.2 Extrusion of nuclear material.
    - 5.3 Increase nuclear interchromatin space.
    - 5.4 Vacuolated erythrocyte.
    - 5.5 Hypochromic erythrocyte.
    - 5.6 Gray cytoplasm of mature erythrocyte.
    - 5.7 An appearance of a "ragged" cytoplasmic membrane or echinocyte.
    - 5.8 Dividing erythrocytes.
6. Anomalous white blood cell including monocyte with nuclear hyperthropy and vacuolated neutrophil was observed.
7. A significant increase in lymphocyte, neutrophil, basophil and eosinophil number was exhibited at the begining of exposure to neem seed extract while monocyte number decreased.

8. A significant increase in the total leukocyte count was presented in the fourth, fifth and seventh month.
9. Correlation between a decrease in the total red blood cell, haematocrit value and mean cell volume was presented, thereby suggesting an anemia.
10. The sublethal concentration of neem seed extract was observed to reduce glucose level in blood, thereby suggesting hypoglycemic effect.
11. Significant differences in ALP and GOT levels between control and neem seed extract-exposed groups were not exhibited throughout the experimentation period.
12. A significant increase in GPT level was exhibited in blood of fish exposure to a sublethal concentration of neem seed extract, thereby indicating hepatotoxic.

RECOMMEMDATION

1. Information on toxicity of neem seed extract against aquatic organism is less available. So the further study should be done.
2. There are many factors that significantly alter haematological parameters in fish. Thes factors include diet, strain, age, sex, season, method of capture and state of sexual maturity. All these variables should be investigated before an attempt is made to construct normal values.
3. Further histological studies on hepatotoxic effect of neem seed extract should be carried out together with enzyme indices hepatic dysfunction.