SUMMARY AND CONCLUSIONS

1. Parasitic infection of a host by more than one species belonging to the same genus is rare and such a phenomenon was observed in the present study. Eight species of Dinurus recovered during the study, from the stomach of the dolphin fish Coryphaena hippurus, were D. hippuri, D. longisinus, D. tornatus, D. barbatus, D. scombri, D. breviductus, D. coryphaenae and D. ivanosi.

2. Although many hosts were infected with more than one species of Dinurus, those having a combination of D. tornatus, D. hippuri and D. longisinus were common. The intensity of infection was high during monsoon season.

3. Eight species of Dinurus isolated were studied in detail for their taxonomic identity and found variations in the arrangement of tegumental plications, nature of seminal vesicle, sinus sac, sinus organ and the sucker ratio.

4. Of the all reported Dinurus species in Kerala coast, the most encountered is D. hippuri. Hence a detailed study of the same was carried out.

5. The ventral sucker of D. hippuri was armed with six equidistantly arranged papillae. Prosomal plications were distributed from far behind the ventral sucker.

6. Scanning electron microscopy revealed the presence of an acetabular prominence in the ventral sucker and the separate nature of male and female
genital apertures just below the oral sucker. Presence of cirrus was also confirmed.

7. Anatomy and histology of *D. hippuri* was studied in detail LM and TEM revealed the nature of tegument in *D. hippuri*. Living syncytial tegument composed of glycocalyx, collagen layer, and distal cytoplasm, joined by cytoplasmic connections to nucleated tegumental cell bodies situated beneath the circular and longitudinal muscle layers.

8. Alimentary canal consisted of the fore gut, comprising mouth, pharynx and oesophagus, and the paired intestinal caeca. The excretory system consisted of flame cells which were connected with fine tubules which opened into four major excretory ducts.

9. Male reproductive organs included paired testes, seminal vesicle, pars prostatica, sinus organs and cirrus. Spermatozoa were filiform and biflagellate, two axonemes with the 9+1 pattern of microtubules. The female reproductive system included ovary, ootype, Mehlis’ gland, vitellaria, and uterus. The sinus sac carried separate male and female ducts.

10. Histochemical studies revealed that the principal reserves of carbohydrates were the glycocalyx, tegument, parenchyma, connective tissue sheath of the organ system and eggs. The distribution of protein was moderate to intense in all the organs except mature ovum in the ovary, shell precursor granules of the vitellaria and egg shell. Glycocalyx, tegument, parenchyma, intestinal caeca, ovary, ootype and uterine eggs showed an intense staining reaction to
lipids. Intense alkaline phosphatase activity was noted in the glycocalyx, tegument, plications, and vitellaria. Acid phosphatase activity was found intense in the glycocalyx, intestinal caeca, ovary and vitellaria.

11. *In situ* p\(\text{H}\) of the stomach of the host *Coryphaena hippurus* was studied. The cardiac pouch of the stomach was found to be the favored site of infection. A marked lowering of the p\(\text{H}\) in the heavily infected fish was observed in the present study.

12. The clear difference in the *in situ* p\(\text{H}\) of the uninfected and infected stomach indicated that the worms had role in the regulation of the p\(\text{H}\) of their microhabitat. This was proved by an *in vitro* experiment. Irrespective of the initial p\(\text{H}\), the p\(\text{H}\) of the media by the end of incubation period was nearly 6.5.

13. The p\(\text{H}\) range 5 to 8 was tolerable because p\(\text{H}\) less than 5 and more than 8 were found to be lethal. In the *in vitro* culture, 60 % of the worms survived for 30 days.