POPULATION STUDY
1. **Host species survey:**

In the study three amphibian hosts were collected from four different industrial areas of Aurangabad region during the period of 2007-10. Total 175 *Duttapharynus melanostictus* were collected and out of them 42.85% were male and 57.14% female; out of 105 *Hoplobatrachus tigerinus* 30.09% male and 61.90% female; 85 *Euphlyctis hexadactylus* collected out of which 37.64% male and 62.35% female and among 32 *Uperodon systoma* collected 37.5% male and 62.5% female (Table: 01).

From the present study it is observed that among all the three amphibian hosts the female hosts were always dominant in their occurrence than males (Table: 01).

Among all the four places studied high percentage of *Duttapharynus melanostictus* were collected from Site-I (50) and lowest from site-III and IV (40) during the period of 2007-10.

In *Hoplobatrachus tigerinus* highest percentage was occurred in Site-4 (32) whereas lower at Site-I (22). High percentage of *E. hexadactylus* occurred at Site-III (30) while lowest in Site-I (10). In case of *Uperodon systoma* highest percentage was at Site-III (14) whereas there is no infection found at site-II (Table: 01).

2. **Diversity of nematode species collected from the hosts:**

In *D. melanostictus* 10 species of nematodes from Site-I, 9 species from Site-III and 8 species from Site-II and IV respectively were recovered. The species *Oxysmatium macintoshii* were recorded highest in percentage (47.82%) from Site-IV and also from the same site *Thelandros sp.* and *Monhysterides sp.* found in lowest percentage (0.56%). The occurrence of *Ascaridia galli* from site-I and II in *Bufo* was forms a new accidental record of this species as it was a parasite of birds and found in amphibian host in present study. (Table: 07A)
In *H. tigerinus* 6 species of nematodes from Site-I and II, 5 and 4 species from Site-III and IV respectively were recovered. From the total nematodes species collected *Oxysomatium macintoshii* was found in highest percentage from Site-IV (47.32%) and *Spinicauda sp.* was lowest in number at Site-II (0.36%). Whereas there was no record of the species *Monhysterides, Ascaridia galli, Thelandros and Raillietnema* from all the four study areas (Table: 07B).

*E. hexadactylus* showed total 6 species of nematodes from Site-I and IV. Whereas Site-II and III has 5 species each. Out of 6 nematode species recovered *Oxysomatium macintoshii* showed the highest percentage from site-II (38.01%) and from the same site *Monhysterides* was found in lowest percentage (0.95%). The species *Paracosmocerca* and *Monhysterides* was absent from Site-II and III respectively (Table: 07C).

In *Uperodon systoma* only 4 nematode species were recovered. Out of which *Cosmocercoides* found in higher percentage from Site-I (43.67%) and *Paracosmocerca* showed lowest percentage at site-III (5.49%). There was no record of any nematode species from site-II. Among 4 nematode species Site-IV showed only 3 and dominant species is *Cosmocercoides* whereas the *Paracosmocerca* species is lacking in given site. (Table: 07D).
3. Frequency distribution of nematodes in different habitats within hosts

The organ specificity of different species of nematodes are observed in *D. melanostictus*, *H. tigerinus*, *E. hexadactylus* and *Uperodon systoma*.

**a) Duttapharynus melanostictus:**

Nematodes *Oswaldocruzia goezei*, *Oxysomatoides macintoshii*, *Meteterakis govindi*, *Monhysterides* sp, *Cosmocercoides dukae*, *Paracosmocerca mucronata*, *Raillietnema simples*, *Thelandros alatus*, *Ascardia galli*, *Spinicauda anurae n.sp.* infect different organs of the host *D. melanostictus* (Table: 05A).

*Oswaldocruzia goezei* was found in the mucosal lining of small intestine ranging from 1 to 9 ± 3.36 with a mean frequency 4.6.

The adult *Oxysomatium macintoshii* were recovered in the intestinal content of toad with mean frequency of 36 and ranging from 4 to 50 ± 16.41.

The mean frequency of adult *Meteterakis govindi* recovered in the rectal contents was 32.4 ranging from 1 to 45 ± 16.59.

The larvae of *Monhysterides* sp. remained within the cyst on body muscle, peritoneum of stomach, intestine, liver. In one host it was also found on lungs. This parasite was also recorded on liver with a frequency of 6.4 ranging from 2 to 12 ±4.27.

The mean frequency of *Spinicauda anurae n.sp.* recovered from intestine was 15.2 ranging from 4 to 30 ±11.64.

The adult *Cosmocercoides dukae* recovered from intestine was ranging from 4 to 37 ±11.93 with a mean frequency of 25.
The *Paracosmocerca mucronata* was found in the intestine with a mean frequency of 3.8 ranging from 1 to 7.

Only a single adult specimen of *Ascaridia galli* was found in the intestine of *D. melanostictus*.

In *Thelandros alatus* only the female specimens found and were recovered in the intestine with a mean frequency of 1.6 ranging from 1 to 3 ± 0.89.

The mean frequency of adult *Raillietnema simples* recovered in the intestine was 10.4 ranging from 3 to 15 ± 4.21. (Table: 05A)

b) *Hoplobatrachus tigerinus:*

The nematode parasites recovered from different organs of *Rana tigrina* are *Oswaldocruzia goezei*, *Oxysomatium macintoshii*, *Meteterakis govindi*, *Cosmocercoides dukae*, *Paracosmocerca mucronata*, *Raillietnema simples*. *Spinicauda anurae n.sp.* (Table: 05B).

1) Adult *Oswaldocruzia goezei* was found in the mucosa of stomach with mean frequency 2.6 ranging from 1 to 5 ± 2.07. In one of the host the larvae of this parasite was found in the lining of intestine but they were not consider for the study.

2) The adult and larval forms of *Oxysomatium macintoshii* was recovered in small intestine with mean frequency of 20.8 ± 16.

3) The frequency of *Meteterakis sp.* in intestine was 7.4 ± 4.72.

4) The *Spinicauda sp.* was found in intestine with a mean frequency of 2.2 ranging from 2 to 5 ± 1.92.

5) The adult and larval *Cosmocercoides sp.* was also seen in the intestine with a mean frequency of 17.2 ranging from 2 to 25 ± 9.14.
6) *Raillietnema* sp. was recovered in the intestine with a frequency of 5.4 ± 3.2.

7) *Paracosmocerca* sp. found in the intestine and has a mean frequency 2.6 ±1.5 ranging from 1 to 5. (Table: 05B)

**C) Euphlyctis hexadactylus:**

In *E. hexadactylus* the nematodes recovered from different organs are *Oxysomatium macintoshii*, *Meteterakis govindi*, *Cosmocercoides* sp., *Raillietnema* sp.

1) *Oxysomatium macintoshii* was found in both adult and larval form in the small intestine ranging from 2 to 25, with a mean frequency of 10 ± 5 per host.

2) Adult *Meteterakis govindi* recorded in the intestine with a mean frequency of 5 ± 3.6, ranging from 1 to 10.

3) *Cosmocercoides* sp. was recovered from the lumen of intestine with a mean frequency 11.8 ± 8.6 ranging from 2 to 20.

4) The *Raillietnema* sp. was also recovered in the intestine ranging from 1 to 7 and in the frequency 3.6 ± 2.4. (Table: 05C)

**d) Uperodon systoma:**

The nematodes recorded from different organs of the body in *Uperodon systoma* are *Oxysomatium macintoshii*, *Cosmocercoides* sp., and *Raillietnema* sp.

1) *Oxysomatium macintoshii* was recovered from the intestine ranging from 2 to 20 and in the frequency 12 ± 7.2.

2) *Cosmocercoides* sp. was found in the intestine having mean frequency 4.6 ± 3.05, ranging from 1 to 8.

3) *Raillietnema* sp. recorded also from the intestine with a frequency 3 ± 1.5 ranging from 1 to 5. (Table: 05D).
4) **Relationship of weights of hosts and parasite burden (irrespective of the localities)**

The relationship of the weight of the hosts *D. melanostictus*, *H. tigerinus*, *E. hexadactylus* and *Uperodon systoma* and the total number of parasite burden per host sex wise are expressed in range, mean, ± SD and the relationship between the two parameters per host are analysed statistically and expressed through $\sqrt{\text{xy}}$. (Table: 09)

In *D. melanostictus* the weight of male and female varied from 20 to 100 ± 21.45 and ± 34.59 respectively.

The total number of parasite per individual in male and female ranged from 25 to 102 ± 36.43 and 39 to 112 ± 29.12 respectively.

The relationship between the weight of the host and total number of parasites per individual in male toads is significant at 5% level and the female toads are non-significant. (Table: 09A).

In *H. tigerinus* the weight of males and females shows great variation ranged from 40 to 240 ± 8.7 and ± 12.23 respectively.

The total number of parasites per individual in male ranged from 40 to 85 ± 17.72 and in female 25 to 100 ± 27.77 respectively.

The relationship between the weight of the host and total number of parasites per individual in female host is significant at 5% level whereas in male it is non-significant. (Table: 09B).

The weight of male and female host *E. hexadactylus* ranged from 60 to 260 ± 4.39 and ± 7.01 respectively.

The total number of parasites per individual in male and female ranged from 20 to 70 ± 18.84 and 30 to 75 ± 15.80 respectively.
The relationship between the weight of the host and total number of parasites per individual in female host is significant at 5% level whereas in male it is non-significant. (Table: 09C).

In *Uperodon systoma* the weight of male and female host varied from 20 to 100 ± 6.61 and ± 7.6 respectively.

The total number of parasites per individual in male and female varied from 25 to 45 ± 15.94 and 25 to 90 ± 26.50 respectively.

The relationship between the weight of the host and total number of parasites per individual in both male and female is non-significant. (Table: 09D).