**CHAPTER-V**

**DISCUSSION**

**5.1 Prevalence of gastrointestinal parasitic infections**

***5.1.1 Overall prevalence of gastrointestinal parasitic infections***

The overall prevalence of gastrointestinal parasitic infections in crossbred cattle was recorded 85% in this present study in the study area. The finding is somewhat higher than what previously reported by **Khan *et al.,* (2010), Saravana *et al.,* (2009)** and **Rahman and Razzak (1973)** who recorded 33.68% in Pakistan, 30.0% in India and 37% in Comilla district, Bangladesh, respectively. The observation also varied from the report of **Zahid *et al.,* (2005),** who recorded 39% and 38.21% in Holstein-Friesian and Jersey breed, respectively in Kasur district, Pakistan. **Khan *et al..* (2010)** also observed 39.82% prevalence in buffaloes in Toba Tek Singh district, Punjab, Pakistan which also showed discrepancy with the findings of this study. Variation in the occurrence of gastrointestinal parasites infection might be due to variation in geo-climatic conditions, sample size, different managemental factors, plane of nutrition, stress, availability of intermediate host, vegetation, grazing pattern, rearing and husbandry measures, anthelmintic therapy, genetic resistance etc. **(Hansen and Perry, 1993).**

***Toxocara spp***

Prevalence of *Toxocara spp* infection was estimated 19% in calves in Chittagong district in the present study. There were found statistically significant difference (p- value < 0.05) in prevalence of *Toxocara spp* in male (29%) and female (4%) calves. However, Toxocara infection does not seem to be statistically (p-value >0.05) varied with the deworming status of the animal (20% and 18% in non dewormed and dewormed calves). A remarkable number of research works on the different species of *T. vitulorum* infection in Buffalo calves have been carried out in Bangladesh **(Mia *et al.,* 1975; Dewan *et al.,* 1979; Hossain *et al.,* 1980)** but a single report on the anthelmintic trial against subclinical *T. vitulorum* infection in calves**(Karim *et al.,* 1998)** has been documented in this country. **Karim *et al., (*1998)** reported 44% subclinical *T.vitulorum* infection with higher infection rate in calves aged between 31-90 days compared to 91-180 days old calves. This findings of occurrence of clinical *T. vitulorum* infection in neonate calves at the age of 30 days of life suggest that the *T.vitulorum* larvae have been passed to newborn calves through colostrums or milk **(Mia *et al.,* 1975; Roberts *et al.,* 1990; Radostits *et* *al.,* 2000).** *Toxocara spp* infection was more prevalent in male (29%) than in female (4%) cattle which is concordant with the reports of **Rekwot and Ogunsusi (1985) and Soulsby (1982)**.

The Occurrence of *Toxocara spp* infection was highest in calf which is supported by the reports by **Lay *et al.,* (2008), Sarder *et al.,* (2006), Aydin *et al.* (2006) and Bachal *et al.,* (2002),** who recorded the infection in early months of life. Higher prevalence might be due to prenatal infection through transfer of 3rd larval stage via milk and post-natal infection by poor hygienic condition **(Lay *et al.,* 2008, Urquhart *et al.,* 1996 and Soulsby, 1982).**

Prevalence of *Toxocara spp* infection in cattle was also reported by **Iqbal *et al.,* (2007) Akyol (1993), Chowdhury *et al.,* (1993)** and **Alim *et al.,* (2011),** where 8.48% infection in Pakistan, 5.1% in Turkey and 6.6% and 5.55% in different areas of Bangladesh, respectively was observed. But, the earlier findings varied widely from the reports of **Avicoglu and Balkaya (2011), Sardar *et al.,* (2006)** and **Samad *et al.,* (2004),** who recorded 22.2% infection in Turkey, 17.22% (native), 21.67% (cross) and 14% in Mymensingh district, Bangladesh, respectively. Conversely, lower prevalence of *Toxocara spp* infection was observed by **Saravanana *et al.,* (2009), Mahieu** and **Naves (2008), Lay *et al.,* (2008)** and **Jiméneza *et al.,* (2007)** who observed 1.4% in India, 0.77% in calves in Guadeloupe, 2.3% in Myanmar and 0.0% (dairy cattle), 1.8% (beef cattle) in Costa Rica, respectively.

***Moneizia spp***

Prevalence of *Moneizia spp* infection was found 22% in calves in Chittagong district in this study. There were no statistically significant difference (p- value > 0.05) in prevalence of *Moneizia spp* in between male(26%) and female (16%) calves. Also no statistical difference in prevalence was observed between non dewormed (19%) and dewormed (24%) calves.  **Radostits *et al.,* (2000)** reported that the signs of Moneizia infestations are restricted chiefly to animals less than 180 days of age on an inadequate diet.

Occurrence of *Moniezia spp* infection observed in the present study is not in accordance with the reports by **Saravanana *et al.,* (2009), Samad et al., (2004)** and **Yldrm *et al.,* (2000),** who observed very low prevalence(1%)in India, Mymensingh district, Bangladesh and Turkey.

**Nakazawa (1986)** observed 1.7% infection in Hokkaido, Japan and **Theodoropoulos *et al.,* (2010**) observed 0.4% in Greece which also does not support the findings of this study. Prevalence of *Moniezia spp* infection of this study also differ from the reports of **Shirale *et al.* (2008), Sardar *et al.,* (2006)** and **Borges *et al.,* (2001)**, who recorded 4.18% in Akola district, India, 8.33% (native), 9.44% (cross) in Mymensingh district, Bangladesh and 4.46% in Jaboticabal, São Paulo State, Brazil, respectively.

**Strongyloides**

Prevalence of *Strongyloides spp* was recorded 15% in calves in Chittagong district in this study. However no significant difference was observed between male (20%) and female (8%) and in between non dewormed (19%) and dewormed (10%) calves.

This finding could be compared with the reports by **Razzak *et al.,* (1973)** and **Motalib *et al.,* (1983).** Who reported that Strongyloides infection is more in calves of 3-5 months of age. The infective larvae might have entered into the neonate calves from mother either by ingestion or via the milk **(Radostits *et al.,* 2000).**

Prevalence of *Strongyloides spp* infection in this study was found inconsistent with the report of **Alim *et al.,* (2011), Sardar *et al.,* (2006)** and **Garrels (1975)**, who recorded 1.38% in Chittagong division, 1%infection in Mymensingh and 1.6% in Tangail, Bangladesh, respectively. Occurrence of *Strongyloides spp* of this study showed less variation from the reports of **Shirale *et al.,* (2008)** and **Chavhan *et al.,* (2008), Nakazawa (1986), Chowdhury *et al.,* (1993)** and **Rahman and Razzak (1973),** who recorded 11.14% in Akola district, India and 11.98% in Nagpur India, 5.6% in Hokkaido, Japan, 7.4% in Savar and 8.89% in Comilla district, Bangladesh, respectively. Variation in occurrence of such infection in cattle might be due to difference in geo-climatic condition and manage mental practices in different countries **(Kakar *et al.,* 2008)** or inadequate same size **(Bachal, 2002).**

**Trihuris**

Prevalence of *Trichuris spp* was estimated as 14% in calves in Chittagong district in this study. There were statistically significant difference (p- value > 0.05) in prevalence of *Strongyloides spp* in between male (6%) and female (24%) calves. And also significant difference (p- value > 0.05) was observed between non dewormed (23%) and dewormed (4%) calves. Findings of this study was found in accordance with the reports by **Davila *et al.,* (2010), Raza *et al.,* ( 2010)** and **Al-Shaibani *et al.,* (2008).** Who also reported higher prevalence of helminthes in female cattle.

Prevalence of *Trichuris spp* infection of this study is inconsistent with the findings of **Saravanana *et al.,* (2009)** and **Lima (1998)** recorded much lower prevalence; 1.9% in Namakkal, India and less than 1% in Minas Gerais State, Brazil, respectively. Higher prevalence of *Trichuris spp* infection was recorded by **Shirale *et al.,* (2008), Jiméneza *et al.,* (2007)** and **Sardar *et al.,* (2006)** in different corners of the world. Variation in the occurrence of *Trichuris spp* infection in this study might be due to geo-climatic conditions of the study areas as well as differences in husbandry practices. **Reza *et al.,* (2007), Regassa *et al.,* (2006), Shah-Fischer (1989),** and **Dunn (1978),** recorded significantly higher prevalence of helminthes in younger animals than adult.

**Eimeria**

In this present study prevalence of Eimeria was estimated as 17% in calves in Chittagong district. There were no significant difference between male (18%) and female (16%). Also no statistical difference in prevalence was observed between non dewormed (17%) and dewormed (17%) calves.

**Tawfiq (1978) and Hossain (1985)** who also recorded higherincidence in calves and similar in bothmale andthe female calves.

**(Hafiz and Khalid, 1998)** reported that Calves born during the rainy season had a higher parasiteburden and diversity than calves born during the dry season. Calves acquired most of the

parasites occurring in adult bovines within their first year of their life. Calves born during the rainy season had a higher risk of infection during their first month of life than calves born during the dry season **(Mujahid *et al.,* 1998).**

Coccidias were frequent and prevalence incalves higher than in adult cows in our study oranother Malian study with 0-5% **(Traoré and Wilson 1988).**

A coprological study conducted in the urban area of Tamil nadu reports that 61% to 90% of calves aged less than ayear were excreting Coccidia oocyst during the rainy and hot dryseason **(Dara 1985).**

Parasite spectrum encountered in this study with calves was similar to that found in otherstudies done on adult cattle in South India. The parasite *Eimeria spp*. occurred in 69% of calvesaged 4-12 months, a value which is already within the range of 67-88% found in studies onadult cattle in the Gambia **(Zinsstag *et al.,* 1998)** and much higher than found in calves with anaverage age of 27 months in The Gambia **(16-26%; Kaufmann and Pfister 1990)**

In West Africa, slaughterhouse and coprological studies performed on adult cattle haveestablished that worm numbers and egg excretion are seasonal, with higher numbers duringthe rainy season **(Ankers *et al.* 1994, Zinsstag *et al.* 1998).** As a consequence, calves born duringthe rainy season are expected to be at a higher risk of infection with gastrointestinalparasites than calves born during the dry season.

**Bunostomum**

Prevalence of *Bunostomum spp* infection was found 10% in calves in Chittagong district in this study. There were no statistically significant difference (p- value > 0.05) in prevalence of *Bunostomum spp* in between male (9%) and female (12%) calves. Also no statistical difference in prevalence was observed between non dewormed (13%) and dewormed (7%) calves. Findings of this study was found in accordance with the reports by **Chowdhury *et al.,* (1993).** Who conducted a study on G.I nematodal infection in cattle at Savar & recorded 22.9% Bunostomiasis. He also reported that Bunostomiasis infestation were more prevalent in female than in male. Prevalence of *Bunostomum* spp infection of this study showed variation from **Uddin *et al.,* (1998) who recorded 55.83% prevalence of bunostomiasia in Bandarban district in Chittagong. This variation occurred due to geo-climatic changes and improved husbandry practices.** The infection rate of Bunostomiasis were in highest in the age group > 9 months. The increase in prevalence of these parasites with the age has been reported by **Rahman & Mondal *et al.*, (1983).**

**Chowdhury *et al.,* (1970),** reported that gastrointestinal nematodiasis especially Trichuris, Capillaria, Neoascaris & Bunostomum were more prevalent in exotic crosses than in native.

**Gilies *et al.,* (1991**) reported that eggs of *Bonustomum spp* appeared in feces of calves at 14 days of age and they become to disappear from the feces between 80-120 days of calves.

**Hanif *et al.,* (2003),** out of 145 diarrhoeic calves, 98(67.58%) were found to be affected with gastrointestinal helminthes parasites. The occurance of *Bonustomum spp* is 4.82%. **Karim *et******al.,* (1998),** who reported 44% sub-clinical *Bonustomum spp* infection & with infection rate in calves aged between 1-3 months (60%) than 4-6 months (28%) old calves.