**CHAPTER-I**

**INTRODUCTION**

Livestock is an important sub sector of agriculture, which plays an important role in the agricultural economy. The contribution of livestock sector in GDP was 1.66% and growth rate was 3.21% in the year of 2015-2016 (BES, 2016). Livestock sector can play a significant role in milk and meat production. The government of Bangladesh has recently given priority in cattle rearing that encouraged the rural people to consider livestock keeping as commercial enterprise.

The geo-climatic conditions together with the water logged and low lying areas in Bangladesh are conducive to parasitic disease in domestic ruminants (Qadir, 1982). In fact, cattle of Bangladesh are affected by various types of helminthic parasites (Rahman and Razzak, 1973, Rahman and Mondal, 1983). The losses due to parasitism take place in the form of morality, poor general health condition, retarded growth, lower draft power, decrease in the production of milk and meat. The productivity of animals in terms of morality, milk, meat, generation loss and other productive traits due to parasitism in Bangladesh.

The prevalence of parasitic infection depends on ecology, geographical and climatic condition prevailing in Bangladesh (Hossain *et al.,* 2004). Gastrointestinal nematodes (Haemonchus, Trichostrongylus and Strongylus) cause impaired digestion and also affect the absorption of minerals particularly the calcium and phosphorus (Speedy, 1992). Like other diseases, parasitic infection or concurrently occurred infections cause economic losses in terms of mortality, stunted growth, loss of body weight gain, poor quality of skin due to ectoparasite in particular, decreased milk and meat production (Dewan *et al.,* 1979).

Among the trematode infections, two Fasciola species (*Fasciola hepatica* and *Fasciola gigantic*) are involved in both animal and human Fascioliasis (Mas, 1999) of these only *Fasciola gigantica* are available in Bangladesh. The major endemic area for *Fasciola gigantica* is largely tropical region of Africa and many areas of Asia including India, Pakistan, Bangladesh (Shelmon and Barwari, 1978 and Mas, 2004). In Bangladesh the report on Fascioliasis are mostly on cattle, sheep, goat and buffalo (Garrels, 1975; 1996 Alim, 1997).

Economic losses caused by these parasites are enormous. Estimated losses due to mortality in different tropical countries stands at 30% in kids/calves, morbidity losses in adults is figure out at 15% in each of body weight gain, work output and milk production. FAO (1962) reported that losses from internal parasites might be as high as 30% of the market value. Afazuddin (1985) estimated an annual loss of taka 0.10 million due to parasitic disease in Saver, Military Farm, Dhaka. Rahman and Ahmed (1991) reported calves to gain daily weight gain by 400gm/day when treated compared to 200gm/day in non-treated calves and subsequently reach to sexual maturity in 24 months by treated calves compared to 36-40 months by non-treated calves. Considering the above facts this study was undertaken to know the prevalence of gastro-intestinal parasites in cattle at Upazilla Veterinary Hospital, Manirampur, Jessore.

**Objectives of the study-**

* To determine the prevalence of gastrointestinal parasitic infection in cattle at Manirampur, Jessore
* To know the harmful effect of parasite in cattle.

**CHAPTER-II**

**MATERIALS AND METHODS**

**2.1 Study Area**

The study was conducted in Upazilla Veterinary Hospital, Manirampur, Jessore.

**2.2 Study period**

The study was carried out during February, 2018 to March, 2018.

**2.3 Study type**

This data were collected from the Upazilla Veterinary Hospital, Manirampur, Jessore.

**2.4 Examination of fecal samples:**

**Flotation method**

**Principle**

The principle for the simple flotation method is the same as for the simple test tube flotation method

**Equipments**

* Two beakers or plastic containers.
* A tea strainer or cheesecloth.
* Measuring cylinder or other container graded by volume.
* Fork, tongue blades or other type of stirring rod.
* Test tube (dry).
* Microscope.
* Micro slides cover slips.
* Balance or teaspoon.
* Flotation fluid.

**Procedure**

* I was taken approximately 3 g of faeces (weigh or measure the faeces with a precalibrated teaspoon) into Container 1.
* Pour 50 ml of flotation fluid into Container 1.
* Mix (stir) the contents thoroughly with a stirring device (tongue blade, fork).
* Pour the resultant faecal suspension through a tea strainer or a double-layer of cheesecloth into Container 2.
* Leave the container to stand for 10 minutes.
* Press a test tube to the bottom of the filtrate, lift it quickly and transfer a few drops adhering to the surface to a micro slide.
* The test tube ought to touch the microslide for at least 2-4 seconds for the drops to run off.
* Mount the cover slip on the micro slide for microscopical examination.

**CHAPTER-III**

**RESULT AND DISCUSSION**

**3.1 Overall prevalence of gastrointestinal parasites:**

Faecal samples examination revealed a total 482 cattle among 503 were infected with one or more species of gastrointestinal parasites in different area. Accoding to (Table 1) Paramphistomum spp. infection (21.57%) is higher than other gastro-intestinal parasite. According to the report of Garrel (1975), prevalence of parasites was 83.7% in cattle of Bangladesh. Aktaruzzaman et al. (2017) observed 76.9% prevalence of different parasites in cows and calves. Bhattacharyya and Ahmed (2005) and Singh et al. (2008) recorded the incidence of gastrointestinal helminths 65.2% and 80.0%, respectively in cattle of India. In Japan, Nakazawa (1986) found 79% cattle infected with gastrointestinal helminths. A total of species of parasites namely- Fasciola spp., Balantidium spp., Paramphistomum spp. were identified.

The variation in prevalence of parasites among different studies could be due to differences in geographic locations, climate and other environmental factors, feeding, management and genetic variation in host resistance.

**Table 1: Overall prevalence of gastro-intestinal parasitic infection of cattle**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Total no of examined**  **animals** | ***Fasciola spp*** | ***Balantidium spp.*** | ***Paramphistom spp.*** |
| February | 251 | 12 | 21 | 54 |
| March | 231 | 11 | 18 | 50 |
| Total no. | 482 | 23 | 39 | 104 |
| Overall  prevalence |  | 4.77% | 8.09% | 21.57% |

**Prevalence of Gastro-intestinal parasite in cattle:**

The prevalence of *Paramphistomum spp* is higher in female (31.95%) but in the male is (28.83%) that is lower than female. Opposing our results, (Das *et al.,* 2010) reported higher infection of *Paramphistomum spp* and lower infection *of F. gigantica* and *Moniezia spp*. in female RCC (Red Chittagong Cattle) than in male RCC whereas *B. coli* infection was not affected by sex. The prevalence of *Fasciola gigantica* is higher (10.26%) in female and lower in male (7.22%).Ibrahim (2004) recorded no significant difference in *F. gigantica* infection rate between male (6.66%) and female (7.14%) cattle. In another study at Comilla district, Saifuzzaman (1996) reported higher prevalence of fascioliasis in females than in the male cattle .He also added, the prevalence of *Balantidium spp.* and *Haemonchus spp*. infection are higher in female (8.70%), (6.41%) than male (6.13%), (5.59%). These findings are agreement with (Fikru *et al*., 2006) from different corner of the world.

Higher rate of parasite infection in female animals than in male was reported (Das *et al.,* 2010; Islam 2008; Raza *et al.,* 2007). Their results were agreed with my findings. (Ibrahim *et al.,* 2008 in Pakistan and Hailu Degefu *et al.,* 2011) in Ethiopia reported higher prevalence of parasitic infections in males than in female hosts. However, Siddiki et al., (2010) observed that both male and female RCC and crossbred animals were equally susceptible to parasitic infections.

The higher percentage of infection in the male cannot be explained exactly but it can be assumed that hormonal influence as well as stress leading to immune-suppression may be associated with this phenomenon. Higher feed and water intake make the male individual more susceptible to any infection. Additionally, sample size, selection of samples and breed of cattle may also be associated with this phenomenon.

**CHAPTER-IV**

**CONCLUSION**

In this study, the overall prevalence of gastrointestinal parasites of cattle and the variation in relation to their sex and season were investigated at Upazilla Veterinary Hospital, Manirampur, Jessore. Most of the farmer are unaware and not properly treated their animals. Therefore, it is suggested that anthelminthic treatment on quarterly basis may be implemented to reduce the risk of re-infection as well as separate grazing practice can be adopted. High level of parasitism in cattle at on-station even after regular treatment indicates either inadequate dozing or ineffectiveness of drugs against the parasites. The control measure should be takes through destruction of intermediate host. Fluke bearing snails can be controlled by use of anthelmentics and rearing ducks in the marshy land. Avoid low-lying pasture have also significant importance for controlling fluke infection. Generally the warm and humid conditions, which prevail in much of South-East Asia, provide favorable condition for many gastro-intestinal parasites. Inadequate stables and improper anthelmintic treatment might be the other contributing reasons.



Figure.1: Egg of *Fasciola spp*



Figure.2: Egg of *Paramphistomum spp*

**LIMITATION**

During my study period in Manirampur Upazilla Veterinary Hospital (UVH), Jessore the following limitation was encountered.

Due to the short duration of the study period the relationship of different types of parasitic diseases with the season can not be studied. We know that season plays a great role in the epidemiology of some disease for which prevalence or incidence of different diseases is varies with the season.

Small number of sample size. If the sample size of the cattle, goat population in which I conducted my study will large, then the result may become more accurate than this result.

Lack of laboratory diagnosed mainly by taking clinical finding. If laboratory diagnostic facility was available then the accuracy of the result will be more significant.

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**ACKNOWLEDGMENT**

First of all the author desire to express her deepest sense of gratitude to “The Almighty” with whose blessing her ability to complete this valuable work.

The author also feels grateful to the supervisor Prof.Dr. A.K.M Saifuddin, Professor of department of physiology , pharmacology , and Biochemistry , Faculty of veterinary medicine, in Chittagong Veterinary and Animal Sciences University, Khulshi, Chittagong, for his scholastic guidance, simultaneous inspiration during the study period and also preparing of this clinical reports.

The author is also grateful to the farmers of those areas, who were helping in various aspects of the study.

The author also feels much proud to convey his profound thanks to his friends and all well-wishers who have seriously encouraged his to run with this study work.

Lastly but not the least express his deepest sense of gratitude and heart- felt thanks to his beloved parents, brothers and sisters who have sweet much to bring his up today’s position.

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September, 2018

**Biography**

Ashik Hazra , Son of Binoy Krishna Hazra and Basanti Hazra. He is an interned veterinary doctor under the faculty of Veterinary Medicine (FVM) in Chittagong Veterinary and Animal Sciences University (CVASU). He passed his Secondary School Certificate (SSC) Examination in 2010 followed by Higher Secondary Certificate (HSC) Examination in 2012 from Jessore board. In future he would like to do Research work about animal welfare, epidemiological study and zoonotic diseases those take public health significance in the world regarding one health constitution.