

# PREVALENCE OF PARASITES OF WATER BUFFALOES IN BANGLADESH

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## Summary

A total of 480 live buffaloes and 180 visceral samples from Dhaka, Mymensingh, Bogura and Rajshahi were examined for the presence of parasites of water buffaloes in Bangladesh during September, 1988 to August, 1989. The recorded parasites were eight trematodes, two cestodes, fourteen nematodes, two protozoa and two arthropods. The trematodes were *Fasciola gigantica* (18.9%-46.4%), Paramphistomes (*Gigantocotyl explanatum*, *Ceylonocotyl scoliocoelium*, *Cotylophoron cotylophorum* and *Gastrothylax crumenifer* (29.5%-48.3%), *Schistosoma indicum* (1.6%-31.6%), *S. spindale* (13.9%-27.7%) and *S. nasalis* (4.6%-8.3%). The cestodes were Hydatid cyst (24.4%), *Cysticercus tenuicollis* (11.1%). The nematodes were *Strongyloides papillosus* (14.8%-21.6%), *Capillaria* spp. (*C. bilobata*, *C. bovis*) (8.5%-20.0%), *Setaria digitata* (7.2%), *Onchocerca armillata* (27.2%), *Thelazia rhodesii* (2.3%), *Gongylonema pulchrum* (3.9%), *Oesophagostomum radiatum* (6.6%-41.6%), Hookworms (*Agriostomum vryburgi*, *Bunostomum phlebotomum*) (8.1%-17.2%), *Trichostrongylus axei* (11.2%-21.6%), *Mecistocirrus digitatus* & *Haemonchus contortus* (15.2%-25.5%) and *Toxocara vitulorum* (1.1%-9.8%). The protozoa were *Eimeria zuerni* (2.3%) and *Trypanosoma theileri* (0.4%). The arthropods were *Haemaphysalis bispinosa* (8.1%) and *Haematopinus tuberculatus* (34.6%).

(Key Words : Prevalence, Parasites, Water Buffaloes)

## Introduction

Water buffaloes are stronger and powerful animals for draft power than cattle in Bangladesh. They also constitute a good source of milk, meat and hides. Amongst the factors responsible for decreasing health, productivity and even mortality of buffaloes (Dewan et al., 1979), parasitic diseases are of great importance. Very limited works on the parasites of buffaloes had been performed earlier by some workers (Bhuyan, 1970; Chowdhury, 1970; Mollah et al., 1970; Islam, 1982; Rahman, 1985). The present paper describes the prevalence of parasites of water buffaloes with the identification of 13 new species of parasites in Bangladesh.

## Materials and Methods

A total of 480 live buffaloes and 180 visceral

samples from Dhaka, Mymensingh, Bogura and Rajshahi were examined for the prevalence of parasites during the period from September 1988 to August 1989.

## Collection, preservation and identification of arthropods

Arthropod parasites (ticks and lice) were collected and preserved in 70% ethyl alcohol and these were processed for permanent mounting using methods suggested by Cable (1967). Lice were identified following the methods suggested by Ferris (1951), Buxton (1950) and Herms & James (1961). Ticks were identified as described by Hogstraal (1956), Roberts (1952) and Soulsby (1982).

## Examination of feces and nasal secretions

Feces were collected directly from the rectum and examined by Stoll's dilution technique. Nasal secretions were collected in a petridish, 10 drops of 10% formalin was added and examined under microscope. Parasitic eggs/oocysts were identified as described by Soulsby (1982) and Samad (1988).

## Examination of blood smear

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Blood samples were collected from ear vein and thick smears were prepared on clean glass slides. The smears were air dried, fixed by methanol and stained by Geimsa's stain for detection of protozoa as described by Cable (1967). Protozoan parasites were identified according to Levine (1967) and Soulsby (1982).

#### Examination of viscera

Heart, lungs, liver, mesentery and alimentary tract were separated and examined for the helminth parasites following the procedure described by Cable (1967). Collection and preservation of helminths were made according to Cable (1967) and Soulsby (1982). Examination of helminths for identification were made under stereoscopic and/or compound microscope and identifications were made based on system followed by Soulsby (1982), Belding (1965) and Yamaguti (1958).

### Results and Discussion

Prevalence of parasites on the basis of external examinations, examination of feces, nasal swab and blood is presented in table 1 and on the basis of visceral examinations is presented in table 2.

This study revealed the presence of 28 species of parasites of water buffaloes in Bangladesh, out of which 15 species were reported earlier (Chowdhury, 1970; Bhuyan, 1970; Mollah et al., 1970 and Rahman, 1985) and 13 species of parasites were newly recorded which were *Cotylophoron cotylophorum*, *Schistosoma nasalis*, *Strongyloides papillosus*, *Onchocerca armillata*, *Setaria digitata*, *Thelazia rhodesii*, *Gongylonema pulchrum*, *Oesophagostomum radiatum*, *Trichostrongylus axei*, *Mecistocirrus digitatus*, *Haemonchus contortus*, *Eimeria zuerni* and *Trypanosoma theileri*. Studies conducted in India by Sharma et al. (1984), Sharma et al. (1985), Sharma and Pande (1963); and Yusuf and Chowdhury (1970) in Pakistan also recorded similar species of helminths in buffaloes.

Incidence of Hydatid cysts in the liver of buffaloes (table 2) was slightly lower than the findings of Islam (1982). Incidence of *Haematopinus tuberculatus* and *Haemaphysalis bispinosa* in buffaloes in the present study (table 1) were almost similar with respectively those of Mollah et al. (1970) and Rahman (1985). Incidence of fascioliasis (table 2) is much more lower than the finding of Bhuyan (1970). This might be due

TABLE 1. PREVALENCE OF PARASITES OF BUFFALOES ON THE BASIS OF EXTERNAL EXAMINATIONS, EXAMINATION OF FECES, NASAL SWAB AND BLOOD

Name of parasites	Total no. of animal/sample examined	Total no. of positive cases	Percentage
<i>Fasciola gigantica</i>	480	91	18.9
<i>Paramphistomum spp.</i>		142	29.5
<i>Schistosoma indicum</i>		8	1.6
<i>Schistosoma spindale</i>		67	13.9
<i>Schistosoma nasalis</i>		22	4.6
<i>Strongyloides sp.</i>		71	14.8
<i>Capillaria spp.</i>		41	8.5
<i>Thelazia rhodesii</i>		11	2.3
<i>Oesophagostomum sp.</i>		32	6.6
Hook worm		39	8.1
<i>Trichostrongylus sp.</i>		54	11.2
<i>Haemonchus sp./Mecistocirrus sp.</i>		73	15.2
<i>Toxocara vitulorum</i>		47	9.8
<i>Eimeria zuerni</i>		11	2.3
<i>Trypanosoma theileri</i>		2	0.4
<i>Haemaphysalis bispinosa</i>		39	8.1
<i>Haematopinus tuberculatus</i>		166	34.6

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TABLE 2. PREVALENCE OF PARASITES OF BUFFALOES ON THE BASIS OF VISCERAL EXAMINATIONS

Name of parasites	Total no. of visceral sample examined	Total no. of positive cases	Percentage
<i>Fasciola gigantica</i>		84	46.6
<i>Paramphistomum</i> spp. ( <i>Gigantocotyl explanatum</i> , <i>Ceylanocotyl scoticocelium</i> , <i>Cotylophoron cotylophorum</i> and <i>Gastrothylax crumenifer</i> )		87	48.3
<i>Schistosoma indicum</i>		57	31.6
<i>S. spindale</i>		50	27.7
<i>S. nasalis</i>		15	8.3
<i>Strongyloides papillosus</i> .		39	21.6
<i>Capillaria</i> spp. ( <i>C. bovis</i> , <i>C. bilobata</i> )	180	36	20.0
<i>Oesophagostomum radiatum</i>		75	41.6
Hook worms ( <i>Agriostomum vryburgi</i> , <i>Bunostomum phlebotomum</i> ).		31	17.2
<i>Trichostrongylus axei</i>		39	21.6
<i>Mecistocirrus digitatus</i> / <i>Haemonchus contortus</i>		46	25.5
<i>Toxocara vitulorum</i>		2	1.1
<i>Setaria digitata</i>		13	7.2
<i>Onchocerca armillata</i>		49	27.2
<i>Gongylonema pulchrum</i>		7	3.9
Hydatid cyst		44	24.4
<i>Cysticercus tenuicollis</i>		20	11.1

to variation in the sample size, period and place of studies, environmental factors and availability of snails. Incidence of paramphistomes (*Paramphistomum explanatum*, *Gastrothylax crumenifer* and *Cotylophoron cotylophorum*), Hydatid cyst, *Cysticercus tenuicollis*, *Strongyloides papillosus*, *Bunostomum phlebotomum* and *Agriostomum vryburgi*, *Onchocerca armillata*, *Gongylonema pulchrum* and *Thelazia rhodesii* in buffaloes was higher (table 2) and the incidence of *Fasciola gigantica*, *Schistosoma spindale* & *S. indicum*, *S. nasalis*, *Capillaria* spp., *Haemonchus contortus*, *Mecistocirrus digitatus*, *Trichostrongylus axei*, *Oesophagostomum radiatum* and *Toxocara vitulorum* in buffaloes was lower (table 2) than the findings of Rahman and Mondal (1984) in cattle. The reason might be due to variation in (i) susceptibility in buffalo and cattle, (ii) sample size, and (iii) place of studies.

The study revealed that incidence of different helminths by feces examination were far less than what had been detected by visceral examination (table 1, 2). These differences were attributable to slaughtering of weak and debilitated animals than

the herd composed of both weak and physically good buffaloes and these were also due to non-detection of very low infestation by feces examination. In case of *Toxocara* sp., incidence was higher in feces than visceral examination (table 1, 2) as the *Toxocara* sp. was recorded mostly among young buffaloes in feces examination and young buffaloes were almost absent among the slaughtered animals.

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