Bangladesh J. Fish. Res.,8(1), 2004: 83-86

Short Note

Prevalence of ectoparasites in farmed *Pangasius hypothalamus*

M. Z. Haque, M.H. Khan* and M.G. Hussain
Bangladesh Fisheries Research Institute, Freshwater Station, Mymensingh 2201, Bangladesh
*Corresponding author

Abstract
Of the total 240 *Pangasius hypothalamus* (5 - 8.7cm) fry examined during September'01 to February'02, 80 (33.33%) were found to be infested with one or more ectoparasites irrespective of genera or groups. Seven parasitic groups were identified with the highest average prevalence of Trichodinids (55%) followed by *Dactylogyrus* spp. (42%), *Epistylis* spp. (8%), *Apiosoma* spp. (7%) *Argulus* spp. (5%), *Gyrodactylus* spp. (4%) and *Piscicola* spp. (2%) the lowest prevalent group irrespective of months. Trichodinid and *Dactylogyrus* spp. were recorded to be the dominating parasitic groups among the seven both in terms of monthly prevalence and severity of infestation throughout the period of investigation. The highest prevalence (60%) of ectoparasite was recorded in December and the lowest (10%) in February irrespective of groups.

Key words : Ectoparasites, *Pangasius hypothalamus*

Introduction

Intensified fish culture and ectoparasitic prevalence are known to be closely related to each other. Fish mortality due to parasitic infestations was reported by several authors in various fish culture systems in different countries (Banu *et al.* 1993). Physical presence of ectoparasite might damage fin, skin and gill, and thus open portal of entry for secondary invaders (Kabata 1985). During the epidemiological studies in Bangladesh, Khan (2001) and Khan *et al.* (2002) identified the ectoparasitic infestation as a significant risk factor for epizootic ulcerative syndrome (EUS). Therefore, present study attempted the preliminary investigation of ectoparasites in Pangasius hypothalamus at high density farms in order to predict the possible risk of ulcer type disease facilitated by ectoparasitic infestation.

Materials and methods

The investigation was carried out from September'01 to February'02 in and around Freshwater Station, Bangladesh Fisheries Research Institute (BFRI), Mymensingh, Bangladesh. Twelve monoculture based Pangasius ponds were selected for the investigation without any bias. Twenty live *P. hypothalamus* were captured once from each of the ponds during the sampling period using a cast net. Fish were captured

randomly during each sampling period irrespective of clinical signs or symptoms and carried to BFRI fish disease laboratory using plastic buckets as soon as possible in order to prevent the ecoparasitic deformity due to death Kabata 1985. Macroscopic ecoparasites were detected with naked eye but scrapings of skin slime and gills were thoroughly examined under compound microscope in order to identify the macroscopic ones. Fish size were recorded as well during fish examination. Parasitic identification was accomplished using the keys of Kabata (1985). Parasitic loadings for each type was categorised as low, medium and high based on visual examination and estimation.

Results

Total 240 P. hypothalamus (5-8.7cm) fry were examined during the investigation. Of the total fish, 80 (33.33%) were found to be infested with one or more parasites irrespective of genera or groups during the sampling period. Seven parasitic groups were identified with the highest prevalence of Trichodinids (55%) followed by Dactylogyrus spp. (42%), Epistylis spp. (8%), Apiosoma spp. (7%) Argulus spp. (5%), Gyrodactylus spp. (4%) and Piscicola spp. (2%) the lowest prevalent group (Fig. 1).

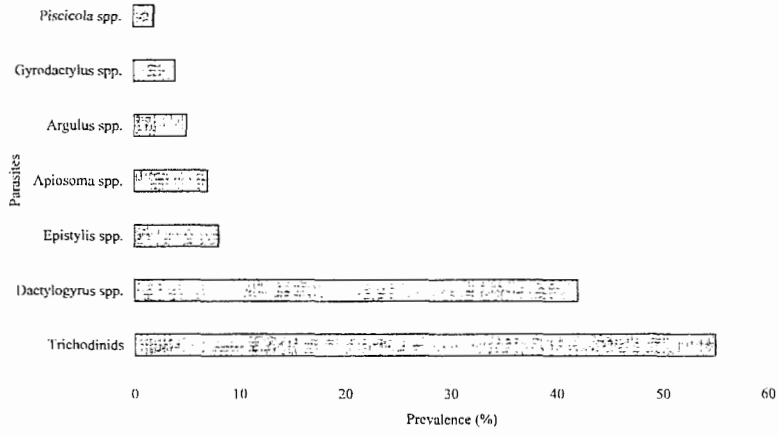

Fig. 1. Average prevalence of ectoparasites in respect to the total number of fish examined.

During the investigation period started from September to February, the highest prevalence (60%) of ectoparasite was recorded in December and the lowest (10%) in February irrespective of groups (Table 1).

Table 1. Average monthly prevalence of ectoparasites irrespective of species in *Pangasius hypothalamus*

Sampling month	Total no. of fish examined	No. of fish infested with any ectoparasite	Prevalence of ectoparasites (%)
September	40	11	27.5
October	40	19	47.5
November	40	9	22.5

December	40	24	60.0
January	40	13	32.5
February	40	4	10.0
Total	240	80	33.33

Trichodinid was found as the most dominating ectoparasitic group among the seven throughout the investigated months except the total absence of parasites in February, with the highest prevalence (40%) in December and followed by (35%) in October, (22.5%) November and (17.5%) September respectively. Second dominating parasitic group, Dactylogyrus spp. showed the highest prevalence (47.5%) in December and followed by (30%) October, (15%) January and (12.5%) September. Epistylis spp. Apiosoma spp. Argulus spp. Gyrodactylus spp. and Piscicola spp. were the least dominant parasitic groups. Gill was identified as the main site of parasitic attachment for most of the parasites. High parasitic loading was shown by Trichodinids only in December and medium in October and November. Dactylogyrus spp. exhibited medium loading in December. Remaining ectoparasitic infestations were found as low level loadings (Table 2).

Table 2. Prevalence of ectoparasites in *Pangasius hypothalamus* during sampling months along with location of attachment and loadings

Sampling month	Size of fish (cm)	No. of fish examined	No. of fish infested	Prevalence of infestation	Parasites observed	Location of infestation	Parasitic load
Sep.	5.0-7.3	40	7	17.5%	Trichodinids	Gill	Low
			5	12.5%	*Dactylogyrus spp.*	Gill	Low
			4	10%	*Argulus spp.*	Skin	Low
Oct.	7.3-8.3	40	14	35%	Trichodinids	Gili/Skin	Medium
			12	30%	*Dactylogyrus spp.*	Gill	Low
			4	10%	*Gyrodactylus* spp.	Skin	Low
			7	17.5%	*Apiosoma spp.*	Skin	Low
Nov.	7.1 -7.8	40	9	22.5%	Trichodinids	Gill	Low
			2	5%	*Piscicola spp.*	Skin	Low
Dec.	5.7 - 7.7	40	16	40%	*Trichodinids*	Gill	High
			19	47.5%	*Dactylogyrus spp.*	Gill	Medium
			4	10%	*Epistylis* spp.	Skin	Low
			1	2.5%	*Argulus* spp.	Skin	Low
Jan.	6.6-8.4	40	9	22.5%	*Trichodinids*	Gill	Low
			6	15%	*Dactylogyrus* spp.	Gill	Low
Feb.	8.0-8.7	40	4	10%	*Epistylis* spp.	Skin	Low

Discussion

Present investigation clearly indicates an association between parasitic infestation and colder months due to decreased aquatic space, high stocking density and

deteriorated water quality (Hossain *et al.* 1994). The study also identified a remarkable parasitic infestation in catfish *(P. hypothalamus)* both in terms of loadings and diversity, which might increase the chances of ulcer type disease to some extent. The highest infestation of Trichodinids followed by monogenetic trematodes were found similar to previous investigations conducted by Banu *et al.* (1993) and Hossain *et al.* (1994). Chandra *et al.* (2000) and Chandra and Yasmin (2003) identified fourteen species of monogenetic trematodes in five freshwater catfish and air breathing species of Bangladesh. Gill had been found as the most vulnerable site for ectoparasitic infestation due to its thin epithelial layer and physical protection by the operculum. Exposure of fish skin by external parasites might be one of the sufficient causes for the invasion of secondary invaders to develop ulcer type disease.

References

Banu, A.N.H., M.A. Hossain and M.H. Khan, 1993. Investigation into occurrence of parasites in carps, catfish and tilapia. *Progressive Agriculture*, 4(1&2): 11-16.

Chandra, K.J., H.K. Paul and M.A. Islam, 2000. Monogenean ectoparasites of *Wallago attu* (Blotch & Schneider) in freshwater fishes of Mymensingh. *Bangladesh. J. Agril.*, 25 (1) : (in press)

Chandra, K.J. and R. Yasmin, 2003. Some rare and new monogenetic trematodes from air breathing freshwater fishes of Bangladesh. *Indian J. Animal Sci.,* 73 : 111-116

Hossain, M.A., A.N.H. Banu and M.H. Khan, 1994. Prevalence of ectoparasites in carp nursery of greater Mymensingh. *Progressive Agriculture*, 5(2) : 39-44.

Kabata, Z., 1985. Parasites and diseases of fish cultured in the tropics. Taylors and Francis Inc. 242 Cherry St. Philadelphia.

Khan, M.H., 2001. Epidemiological studies on Epizootic Ulcerative Syndrome (EUS) in Bangladesh. PhD thesis, University of Stirling, Scotland, 238 pp.

Khan, M.H and J.H. Lilley, 2002. Risk factors and socio-economic impacts associated with epizootic ulcerative syndrome (EUS) in Bangladesh. In: Primary Aquatic Animal Health Care in Rural, Small-scale Aquaculture Development (eds. J.R. Arthur, M.1. Phillips, R.P. Subasinghe, M. B. Reantaso and 1.If. MacRae). FAO Fish. Tech. Pap. No. 406. pp. 27-39.

(Manuscript received 18 December 2003)