

# PREVALENCE AND SEASONALITY OF *DIPLECTANUM PISCINARIUS* KRITSKY AND THATCHER 1984 (MONOGENOIDEA) IN THE GILLS OF *PLAGIOSCION SQUAMOSISSIMUS* HECKEL 1840 (SCIAENIDAE) FROM VOLTA GRANDE RESERVOIR, MG, BRAZIL

MAURÍCIO L. MARTINS<sup>1</sup>, RODRIGO Y. FUJIMOTO<sup>1</sup> AND FLÁVIO R. DE MORAES<sup>1,2</sup>

<sup>1</sup> Aquaculture Center, UNESP, Via Prof. Paulo Donato Castellane km 05, 14870-000, Jaboticabal, SP, Brazil

<sup>2</sup> Department of Veterinary Pathology, FCAV, UNESP, Via Prof. Paulo Donato Castellane 05, 14870-000, Jaboticabal, SP, Brazil

Address for correspondence: Maurício L. Martins, Centro de Aquicultura, UNESP, Via Prof. Paulo Donato Castellane km 5, 14870-000, Jaboticabal, SP, Brasil.

E-mail: mlaterca@caunesp.unesp.br

**SUMMARY:** Prevalence and seasonality of *Diplectanum piscinarius* (Monogenoidea) on gills of the freshwater corvina, *Plagioscion squamosissimus* (Sciaenidae), from Volta Grande Reservoir, MG, Brazil was analysed based on bimonthly samples from December 1995 to December 1996. A total of 68 fishes were examined, and 36 were found to be infected with *D. piscinarius* (prevalence 52.9%). The maximum number of parasites per host was 161. The highest mean intensity (43.2) was observed in April, 1996. A slight positive correlation between prevalence and pluviosity was observed. However, no correlation between water temperature and prevalence was found.

**KEY WORDS:** Prevalence, seasonality, *Diplectanum piscinarius*, Sciaenidae, *Plagioscion squamosissimus*

## INTRODUCTION

One of the most important fish in the human diet of the Volta Grande Region (State of Minas Gerais) is the corvina, *Plagioscion squamosissimus* Heckel 1840. This fish was transferred from the North to the Southeast Brazil for culture in cages, but is now found in several Southern basins due to escapes from fish hatcheries. The present work, is one of a sequence of papers reporting parasites of fishes collected from Volta Grande Reservoir, MG, Brazil (inundated area of 195 km<sup>2</sup>). Studies on prevalence of such parasites especially in this region are scarce. Monogenoidea are important parasite to cultured fishes being associated to several cases of fish deaths in Brazil (BOEGER *et alii*, 1995; MARTINS, 1998). According to Kritsky and Thatcher (1984), diplectanid Monogenoidea are found on the gills of marine perciform fishes of the families Serranidae, Sciaenidae, Polynemidae, Toxodidae, Percichthyidae, Sparidae, Sillaginidae, Centropomidae and Therapomidae. The authors described *Diplectanum decorum*, *D. gymnopus*, *D. hilum*, *D. pescadae* and *D. piscinarius* from the gills of *Plagioscion* spp collected from the Janauacá Lake, Manaus, AM, Brazil. The present study evaluated prevalence and seasonality of *D. piscinarius* KRITSKY and THATCHER (1984) from the gills

of the sciaenid freshwater fish, *P. squamosissimus*, during a period of one year at Volta Grande Reservoir, MG, Brazil.

## MATERIALS AND METHODS

Sixty eight specimens of corvina, *P. squamosissimus*, were collected bimonthly with the aid of a net, during a period of one year (12/1995 to 12/1996). The gills were removed, placed in a solution of formalin 1:4000 for 1-2 hours, straked and fixed in formalin 5%. Helminths were stained with carmin, haematoxylin or Gomori's trichrome. Prevalence (number of infected hosts/number of examined hosts) and mean intensity (total number of parasites/number of infected hosts) were calculated according to BUSH *et alii*, (1997).

## RESULTS AND DISCUSSION

The only Monogenoidea species, *D. piscinarius* was found parasitizing the gills of *P. squamosissimus* in the Volta Grande Reservoir during the collecting period. A total of 36 out of 68 fish were infected by this Monogenoidea (prevalence 52.9%).

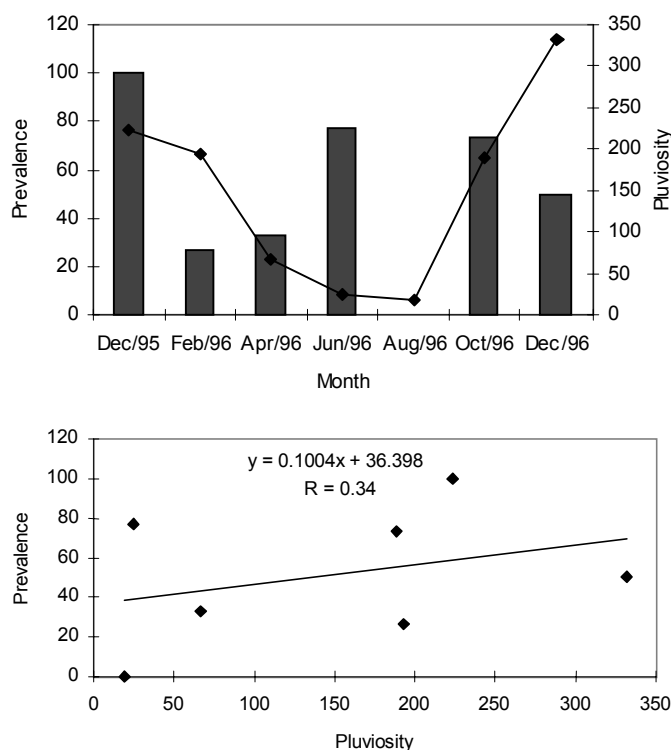


Figure 1 – A- Prevalence (%) of *Diplectanum piscinarium* from *Plagioscion squamosissimus* and pluviosity (mm). Bars indicate prevalence, points indicate pluviosity. B- Correlation between the prevalence and pluviosity.

When analyzed bimonthly, the data revealed that December/95, June/96 and October/96 showed 100, 77 and 73% of prevalence, respectively. In August/96 no parasite was found on the 5 fish examined. Although the lowest prevalences was observed in February and April/96. Fish collected in April/96 presented the highest mean intensity of 43.2 (range 1 to 161) (Table 1). However, pluviosity showed a slight positive correlation to prevalence (Fig. 1). Prevalence of *D. piscinarium* did not show positive correlation to water temperature (Fig. 2).

In the present work, the prevalence of 52.9% observed during the whole period was higher than that related by GONZÁLEZ-LANZA *et alii*, (1991) who reported 15.7% of *Diplectanum* spp in normal conditions of cultured sea bass, *Dicentrarchus labrax*. On the other hand, GONZÁLEZ-LANZA *et alii*, (1991) verified higher infection levels in necropsied fishes, most of which showed signs of disease and reported negative relation between prevalence and temperature. In comparison with *P. squamosissimus*, temperature and prevalence did not show correlation. SHARPLES and EVANS (1995) reported *Lamellodiscus pagrossomi* from the gills of *Pagrus auratus* which showed prevalence and mean intensity increasing with the age of collected fishes (0 to 63% and 0 to 66, respectively). In the present study, however, fish length or weight was not correlated to intensity or prevalence. Influence of temperature causing a rapid development on the life cycle of *D. aequans* was reported in *D. labrax* (CECCHINI *et alii*, 1998). Also in

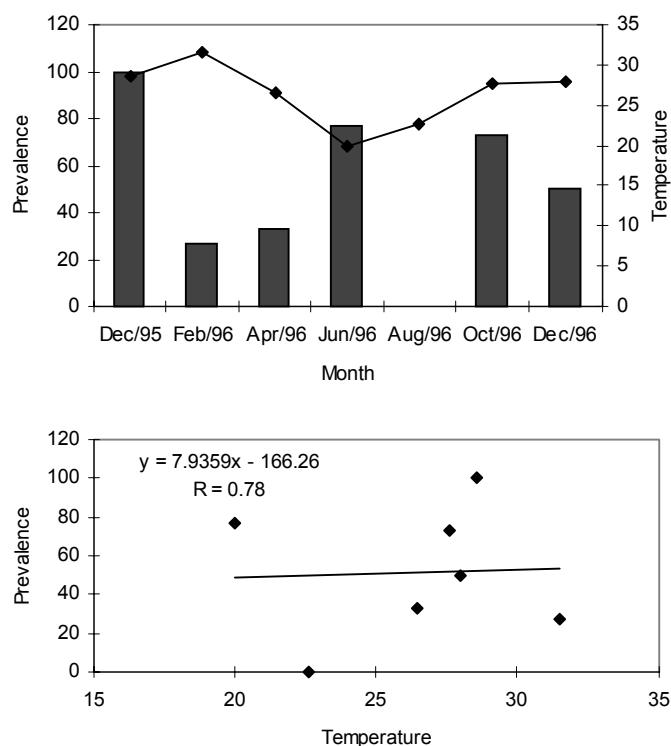


Figure 2 – A- Prevalence (%) of *Diplectanum piscinarium* from *Plagioscion squamosissimus* and water temperature (°C). Bars indicate prevalence, points indicate water temperature. B- Correlation between the prevalence and water temperature.

Table 1 – Mean length and weight of *Plagioscion squamosissimus*, number of *Diplectanum piscinarium* and prevalence of infection, from December 1995 to December 1996.

Month	CF/IF	FL (cm)	W (g)	MI (R)	P (%)
Dec/95	7/7	19.3	82.1	36.1 (4-65)	100
Feb/96	11/3	25.9	180.2	21.6 (2-44)	27
Apr/96	15/5	33.5	443.2	43.2 (1-161)	33
Jun/96	9/7	37.9	727.0	29.8 (2-132)	77
Aug/96	5/0	25.3	177.2	0	0
Oct/96	15/11	26.3	195.0	31.5 (2-110)	73
Dec/96	6/3	29.5	265.8	21.6 (18-25)	50

(CF/IF) collected fish/infected fish; (FL) fish length; (W) fish weight; (MI) mean intensity and range (R); (P) prevalence.

*P. squamosissimus* from Volta Grande Reservoir, MARTINS *et alii*, (1999) observed the highest prevalences of larvae of *Diplostomum* sp (Diplostomatidae) from the eyes, in April, June and August/96. Nevertheless, MARTINS *et alii*, (2000) related the highest prevalences of larvae of *Thynnascaris* sp (Anisakidae) from the mesentery of fish, in December/95, February, October and December/96. In Brazil, the majority of studies on fish parasites are taxonomic. Thus, prevalence

of *D. piscinarius* in the gills of *P. squamosissimus*, may contribute to the understanding of the dynamics of the parasitic fauna of the host.

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## SUMÁRIO

Prevalência e sazonalidade de *Diplectanum piscinarius* (Monogeneoidea) em brânquias de corvina, *Plagioscion squamosissimus* (Sciaenidae), do reservatório de Volta Grande, MG, Brasil foram analisados com base em amostragens bimensais de Dezembro 1995 a Dezembro de 1996. Um total de 68 peixes foram amostrados, sendo que 36 se apresentavam parasitados com *D. piscinarius* (prevalência de 52,9%). O número máximo de parasitas encontrado foi de 161. A maior intensidade média de parasitas (43,2) foi encontrada no mês de abril, 1996. Uma correlação positiva entre a prevalência e a pluviosidade foi observada. Contudo, não houve correlação entre a temperatura da água e a prevalência.

PALAVRAS-CHAVES: Prevalência, sazonalidade.

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