

Communication

[Comunicação]

Occurrence and control of *Chilodonella* spp. in pejerrey *Odontesthes bonariensis*

[Ocorrência e controle de *Chilodonella* spp. em peixe-rei *Odontesthes bonariensis*]

J. Morato Fernandes¹, M.K. Portelinha¹, C.B. Rocha¹, J.L.O.F. Pouey², S.R.N. Piedras²

¹Aluno de pós-graduação – UFPel – Pelotas, RS

²Universidade Federal de Pelotas – UFPEL

Caixa Postal 453

96010-970 - Pelotas, RS

Due to an increase in fish culture, many parasitic and infectious diseases have caused serious problems in fish production. *Chilodonella* spp. is a cilium parasite that parasitizes integument and gills of several fresh water fish species (Pavanelli *et al.*, 2008). The highest infection in the branchial region is due to its structural characteristics which facilitate the fixation of the parasite that feeds on epithelial cells, resulting in branchial congestion and high mortality rate. *Chilodonella* spp. infection has been treated with chemical products like malachite green, formalin and saline solutions. The use of malachite green is forbidden in fish for human consumption (Poe and Wilson, 1983) and formalin, despite its efficiency in parasitic diseases control, can cause an increase in the fish stress levels (Fujimoto *et al.*, 2006) and reduction in lysozyme levels (Yildiz, 2006). Therefore, the use of saline solutions is the recommended treatment. The objective of this work was to report the occurrence and control of *Chilodonella* spp. infection in pejerrey *Odontesthes bonariensis* fingerlings, aiming to contribute with useful information to improve fingerlings production.

This work was carried out in January 2010. The animals studied were stored in three closed circuit systems. Each system was constituted by three polyethylene water storage tanks of 1000L connected to a biological filter of 300L. The water recirculation was maintained by submerged pumps of 2000L/h. Each system

stored 3000 fingerlings with a total size length of 5.4±4.0mm and 1.1±0.8g average weight, fed *ad libitum* with 55% crude protein meal four times a day and wild zooplankton once a day. The water from the systems was renewed weekly when it was cleaned through siphonage. The water quality was monitored three times a week. The temperature and the dissolved oxygen were measured by oxymeter YSI-F-150, and the pH was measured with Alfacit potentiometer. Alkalinity was measured by titration and ammonia by Nesslerization method (Standard..., 1998). The infected animals were evaluated under a 40 × stereoscopic microscope. The gills were removed and evaluated under a 400 times microscope. Parasite identification was based on Pavanelli *et al.* (2008) and in pictures available at <http://www.koisite.be/VisZiekten/chilodonella.htm>. In order to have a record of the animals the infected and non-infected animals were photographed with a Nikon digital camera.

The physicochemical characteristics of the water from the culture systems were: temperature 23±1.2°C, dissolved oxygen 6.6±1.8mg/L, pH 7.5±1.9 and alkalinity 48±8.0mh/L, with these conditions considered adequate for the species according to Miranda *et al.* (2006).

In one of the systems where there was not infection the total ammonia levels did not exceed 0.5 mg/L. In the other two systems where *Chilodonella* spp. infection was registered, total ammonia showed variation between 0.8 and

Recebido em 21 de janeiro 2011

Aceito em 13 de abril de 2011

E-mail: moratofernandes@hotmail.com

Occurrence and control...

2.5mg/L, which according to Arana (1997) in the temperature of 23°C and pH 7.5 represents between 0.0123 and 0.0385 mg/L of non ionized ammonia. These non ionized ammonia concentrations, even though they are not lethal to *O. bonariensis* (Piedras *et al.*, 2006), can cause gill hyperplasia after a period of exposition and consequently immunological depression, facilitating contamination by opportunist parasites. The contamination was observed in fingerlings with loss of appetite and balance. Observing the animals individually we found a red color gill hyperplasia and alteration in the body color of the infected fish, which presented loss of pigmentation.

The animals that presented loss of balance were collected and had the gills dissected for microscopic analysis, where the presence of parasite was observed. After the verification of the infection, the storage tanks had their volume reduced to 300L, without renovating the water. In this volume, 3kg of NaCl (ground sea salt) were diluted, resulting in a 10g/L salt concentration. The fish were kept in this saline

concentration for 30min, with oxygen supplied by artificial aeration. Then the tanks were filled once again to their original volume of 1000L. Three hours later the fish presented normal behavior and appearance. Later six fish from each tank (n=36) were collected, and after anesthesia they were examined with a stereoscopic microscope. The presence of ectoparasites was not verified in any animal. After feeding, the animals returned to their normal feeding and 24h later there was no record of mortality in any of the culture tanks and the infection was considered cleared.

The use of salt in the control of *Chilodonella* spp. was recommended by Pavaneli *et al.* (2008) in concentrations of 1 to 3g/L, however, Tsuzuki *et al.* (2007) stated that the survival and growth of adult and larvae of *O. bonariensis* are not affected by salinity up to 20g/L. A saline concentration of 10g/L during 30min is effective in controlling the infection of *Chilodonella* spp. in pejerrey *O. bonariensis* fingerlings.

Keywords: fish, parasite, control

RESUMO

O presente trabalho teve por objetivo relatar a ocorrência e controle de infecção parasitária por *Chilodonella* spp. em alevinos de peixe-rei (*O. bonariensis*). A *Chilodonella* spp. é um ciliado que parasita tegumento e brânquias de peixes, podendo ocasionar grande mortalidade. A infecção foi identificada a partir da observação comportamental de alevinos criados em caixas de polietileno com capacidade de 1000 litros, mantidas em circuito fechado com um biofiltro e alimentados com ração e zooplâncton selvagem. A contaminação foi constatada devido à redução do apetite, perda do equilíbrio e alteração na coloração dos peixes, tendo como causa provável, a elevação dos níveis de amônia não ionizável, levando a uma diminuição da imunidade. Como tratamento foi utilizado uma concentração salina de 10g/L, durante 30 minutos, com êxito para o controle deste parasito.

Palavras-chave: peixe, parasita, controle

REFERENCES

ARANA, I.V. *Princípios químicos da qualidade da água em aquicultura*. Florianópolis: Editora DAUFSC, 1997.166p.

FUJIMOTO, R.Y.; VENDRUSCOLO, L.; SCHALCH, S.H.C. *et al.* Avaliação de três diferentes métodos para o controle de monogênicos e *Capillaria* sp. (Nematoda: Capillariidae) parasitos de acará-bandeira (*Pterophyllum scalare*. Liechtenstein, 1823). *Bol. Inst. Pesca*, v.32, p.183-190, 2006.

MIRANDA, L.A.; BERSAIN, G.E.; VELASCO, C.A.M. *et al.* Natural spawning and intensive culture of pejerrey *Odontesthes bonariensis* juveniles. *Biocell*, v.30, p.157-162, 2006.

PAVANELLI, G.C.; EIRAS, J.C.; TAKEMOTO, R.M. *Doenças de peixes: profilaxia, diagnóstico e tratamento*. Maringá: EDUEM, 2008. 338p.

PIEDRAS, S.R.N.; POUHEY, J.O.F.; MORAES, P.R.R. *et al.* Lethal concentration (CL50) of unionized ammonia for pejerrey larvae in acute exposure. *Sc. Agric.*, v.63, p.184-186, 2006.

POE, W.E.; WILSON, R.P. Absorption of malachite green by channel catfish. *Progr. Fish-Culturist*, v.45, p.228-229, 1983.

STANDARD methods for examination of water and wastewater. New York: American Public Health Association, 1998. 824p.

TSUZUKI, M.Y.; OGAWA, K.; STRÜSSMANN, C.A. *et al.* The significance of cortisol on acclimation to salinity in pejerrey *Odontesthes bonariensis*. *Arq. Bras. Med. Vet. Zootec.*, v.59, p.1301-1307, 2007.

YILDIZ, H.Y. Plasma lysozime levels and secondary stress response in rainbow trout, *Oncorhynchus mykiss* after exposure to leteuxmeyer mixture. *Turk J. Vet. Anim.*, v.30, p.265-269, 2006.