

PARASITOSIS ON THE CULTURE FISH FROM THE BRATES FARM – GALATI COUNTY

Aida Vasile

*The Dunarea de Jos University, Faculty of Food Science and Engineering, Galati
e-mail: avasile@ugal.ro*

Abstract

In what regards the intensive and super intensive aquaculture, parasites are often the cause of severe illness manifestations. The presence of some dense fish populations, maintained in specific medial conditions, can be favourable for the growth of some parasites species and also can trigger the development of severe illnesses which can lead to a high mortality ratio, with negative aspects on the aquaculture production.

The present paper reveals the evaluation of the culture fish parasitological conditions, from the anthropic ecosystem in the Galati county, from the point of view of the illness degree caused by the various parasitosis. Thus, the researches were oriented as to underline the parasitosis which affects fishes in anthropic aquatic ecosystem such as Brates, the spreading area and their evolution.

Key words: parasitosis, anthropic aquatic ecosystem, culture fish

INTRODUCTION

In aquaculture, as in any sector where it is working with living organisms, obtaining control of the biomass production is organically conditioned by knowing and maintaining unaltered the fish health. To achieve this knowledge use is made of certain specific physiological and biochemical indicators. In the light of these indicators, a practitioner can assess the extent to which he applied or not adequately the growth technological norms. It thus becomes possible maintaining stocks outside stressful incidents, both in terms of nutrition and other elements of the echo-physiological comfort: density, flow, health, etc [4].

In these circumstances, in aquaculture, improved health of aquatic organisms that are growing is one of the guarantees of profitability in this activity and obtaining proper food for human consumption.

Because the disease are limiting factors of fishery production, by slowing the rate of increase and decrease in the nutrition value and by the death they can cause, knowledge of disease in fish is of particular importance [1], [4].

The research subject was the basic species of juvenile fish bred in the farm of Brates as carp (*Cyprinus carpio*, L.), silver

carp (*Hypophthalmichthys molitrix*, Val.) Big head carp (*Aristichthys nobilis*, Rich.) and grass carp (*Ctenopharyngodon idella*, Val.) [6], [7].

The fish from winter ponds, reproduction and growth pools, summer I and summer II (10 samples from each age and species) during 2000-2005 were investigated in terms of ichtiopathology by field observations and complete parasitological dissections.

MATERIAL AND METHODS

Fish were picked up live in pots with pond water and were examined in the laboratory. Careful handling of fish when collected and transported limited loss of mucus on the surface of the fish where usually ectoparasitosis are found a number of 10 specimens from each species of different ages have been investigated.

Parasitological examination in the case of parasitic diseases was conducted on fresh preparations of between blades and lamella (scrape mounts and squash mounts). Squash mounts have been achieved both on surface and depth, from gills, tegument, fins and intestinal mucosa. Squashes were made from tissues of liver, flippers and bladder. Preparations were studied under a microscope with magnification objectives 5x

to 100x [5]. Results were expressed as a percentage of disease spread (disease incidence) (E %) of fish material per age and species) and the intensity of the disease based on the number of microscopic parasites on the microscope scan: S -1-10 parasites; M - 10 -20 parasites; I - from 20 in the microscopic parasites [2], [3].

RESULTS AND DISCUSSIONS

On Brates farm, in the period 2000-2005, a number of 17 parasitosis with varying degrees of extension and intensity has been identified on the fish culture, depending on the species, age and technology stage (reproduction, breeding and wintering). The extension percentage of the annual parasite diseases per cyprinid species in the period studied is presented in figure 1, figure 2, figure 3 and figure 4.

The largest number of parasite diseases each spring has been reported with the material removed from wintering. Among the species of Brates fish farm, carp was the most affected, the number of annual parasite diseases ranging between 4 and 6 during the growth period and wintering respectively. Silver carp, big head carp and grass carp were affected by a number of 3-5 parasite diseases in the periods of growth and wintering each year during 2000-2005.

In summer fish growth I-a pond, the culture cyprinids were affected by a smaller number of parasite diseases. Thus the carp and silver carp showed 3-4 parasite diseases while the big head carp and grass carp 2-3 diseases each year in the period 2000-2005. Parasitosis occurred due to the presence macrophit vegetation, ichthyophagous birds which are also final or intermediate hosts for some parasites and predators for juvenile summer crop.

The fish material (larvae of 3-5 days, 20 days' juvenile fish) in the carp natural controlled reproduction-pools has been affected every year by 1, 2 parasitic diseases namely protozoosis, ichtyophthiriosis and trichodiniosis of 100% extension and an average or intense intensity. With asian cyprinids, reproduction has been made in artificial breeding station of the farm. Larvas

of 3-5 days from incubators were pre-developed up to 20 days in the carp natural breeding ponds.

From the research carried out on the Brates farm on the health of cyprinids culture during 2000-2005, the following conclusions have been drawn:

In the mentioned period on the culture cyprinids (carp, sanger, big head carp, grass carp) a number of 17 parasitic diseases were found: saprolegniosis, muchophilosis, criptobiosis, mixosporidiosis, ichtyophthiriosis, chilodnelosis, trichodiniosis, dactilgirosis, girodactilosis, diplostomosis, posthodiplostomosis (black spots disease) botriocephalosis, digramosis, hepaticolosis, argulosis, lerneosis, sinergasilosis.

- carp - 13 parasitosis: saprolegniosis, mixosporidiosis, muchophilosis, criptobiosis, ichtyophthiriosis, chilodnelosis, trihodiniosis, dactilgirosis, botriocephalosis, hepaticolosis, argulosis, ergasilosis, lerneosis;

- silver carp - 11 parasitosis: saprolegniosis, muchophilosis, criptobiosis, mixosporidiosis, ichtyophthiriosis, chilodnelosis, trichodiniosis, dactilgirosis, girodactilosis, diplostomosis, posthodiplostomosis (black stain disease) sinergasilosis;

- big head carp - 11 parasitosis: saprolegniosis, muchophilosis, mixosporidiosis, ichtyophthiriosis, chilodnelosis, trichodiniosis, dactilgirosis, girodactilosis, diplostomosis, posthodiplostomosis (black stain disease), digramosis and sinergasilosis;

- grass carp - 12 parasitosis: saprolegniosis, muchophilosis, criptobiosis, mixosporidiosis, ichtyophthiriosis, chilodnelosis, trichodiniosis, dactilgirosis, diplostomosis, hepaticolosis, lerneosis, sinergasilosis.

The biggest losses due to various diseases have been recorded in juvenile carp ponds of natural controlled reproduction and other species that were pre-developed in these basins. Thus, in 2002, losses of juvenile were 100 % and in the coming years they reduce to 50 %.

The wintering material in the aquaculture ponds has been found with all the 16 parasitic diseases the degree of damage variation

depending on the species, age and condition of fish.

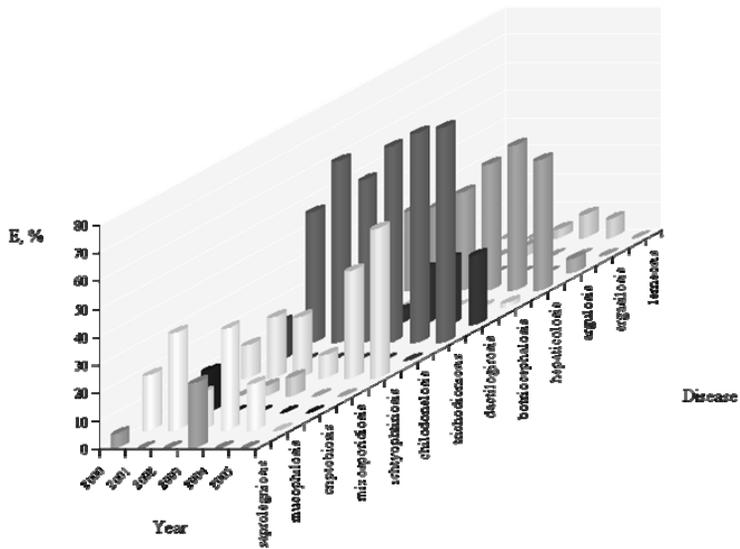


Fig. 1. Parasite diseases to carp of Brates farm during 2000-2005

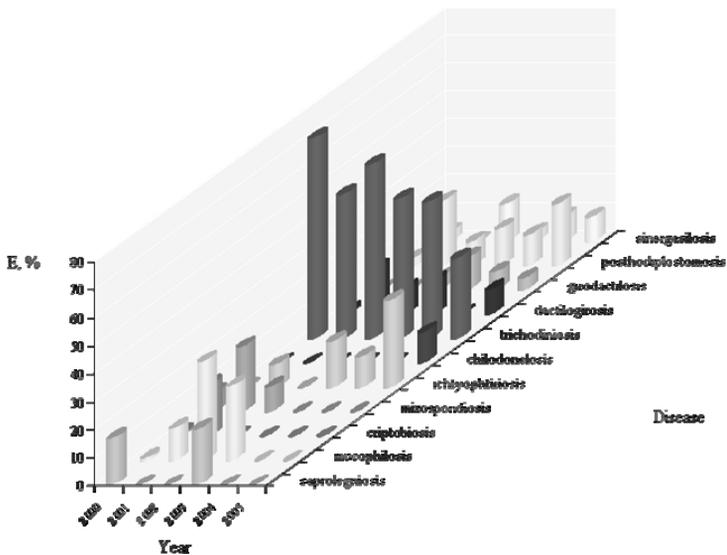


Fig. 2. Parasite diseases to silver carp of Brates farm during 2000-2005

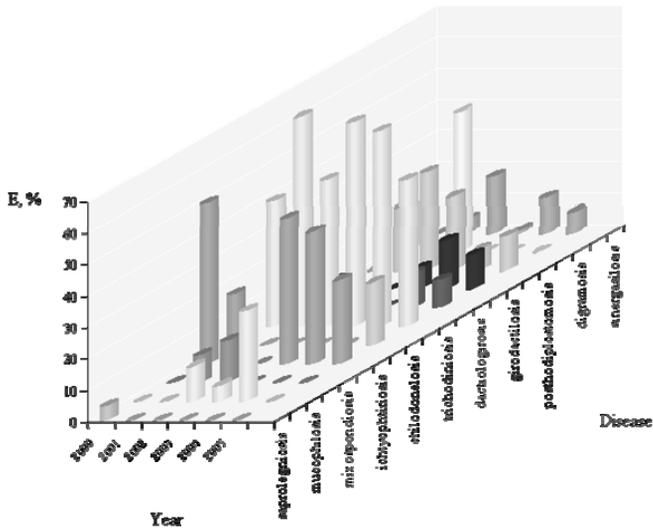


Fig.3. Parasite diseases to bighead carp of Brates farm during 2000-2005

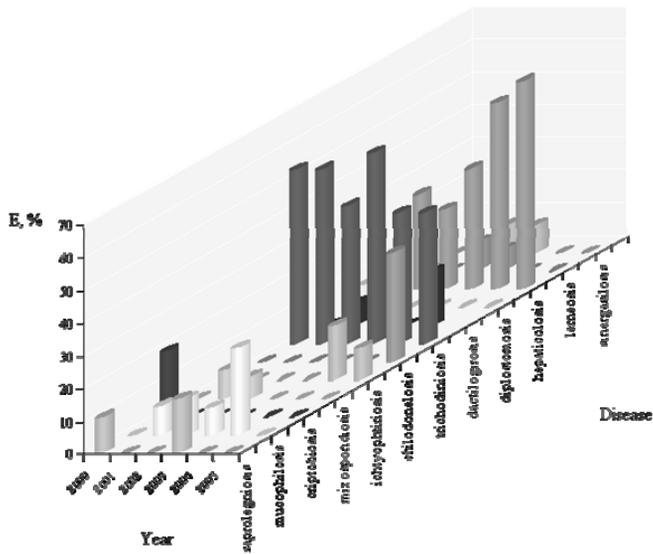


Fig.4. Parasite diseases to grass carp of Brates farm during 2000-2005

CONCLUSIONS

As regards the range of parasitic diseases found in the fish stock of this farm, those caused by parasite ciliates prevail, which confers a specific status to the farm of Brates which is supplied mostly from Lake Brates, found in an advanced eutrophic stage.

The health status of fish culture in farm Brates was affected by the diseases mentioned above both in terms of quality and quantity. While the mortality losses were low, with the exception of juveniles, the slowing pace of growth as well as the depreciation of the commercial aspect of the

fish stock is the result of the pathologies manifested.

The large number of parasitic diseases of the culture cyprinids from the Brates farm is largely attributable to the organic loading of the water supply which comes from Lake Brates and because of the large number of wild fish, carriers of pathogens.

As a general conclusion we can highlight that the health status of the cyprinid culture in combination with various other factors (climate, water, technology, etc.) influenced the production of fish both in terms of quantity and quality decreasing fish production with 10-15 % as a result losses due to mortality and slowing the pace of growth and in some cases impairing the market value of the fish.

REFERENCES

- [1] Moravec F., Ergens R., Nasincova V., Scholz F.: Parasitic diseases - Parasitic metazoa - Diagnostics, prevention and therapy of fish diseases and intoxication, Research Institute of Fish Culture and Hydrobiology Vodnany Czechoslovakia, 1991, 80-109
- [2] Munteanu G., Cristea V.: Parazitological research on fish species cultured in Galați district fish farms, in: European Association of Fish Pathologists VIIIth International Conference „Diseases of fish and Shellfish”, Edinburgh, 1997, 196
- [3] Munteanu G., Cristea V., Grecu I.: The parasitosis of cultured fish in some fish farms from România, in: 17th International Conference of the World Association for the Advancement of Veterinary Parasitology, Copenhaga, 1999, 683
- [4] Munteanu G., Bogatu D.: Ichtyopatology of fish, Excelsior Art, 2003, 1-816
- [5] Ridlo M.: Experiments on the control of *Costia necatrix*, in: 17th International Conference of the world association for the advancement of veterinary parasitology, 1999, 74
- [6] Vasile A., Vasilescu G.: Main chemical parameter with pathological influence condition in fish, Studii și Cercetări științifice – Biologie Serie nouă, ISSN 1224-919X, 2006, 10: 47-51
- [7] Vasile A., Munteanu G.: The influence of the sanitary condition of the post wintering Cyprinids on the fishing production from the Brates farm, Studii și Cercetări științifice – Biologie Serie nouă, ISSN 1224-919X, 2005, 10: 77-79 .