

THE EFFECTS OF FORMALIN AND SODIUM CHLORIDE ON
ECTOPARASITES OF IMPORTED GRASS CARP
(*Ctenopharyngodon idella* CUVIER AND
VALENCIENNES 1844) FINGERLINGS

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Avy : Average
 repl. : replicate
 h : hour
 NaCl : Sodium Chloride
 Fig./Figs. : Figure/Figures
 DO₂ : Dissolved Oxygen

LIST OF ABBREVIATIONS

- L. calcarifer* : *Lates calcarifer*
M. latipinna : *Mollienesia latipinna*
M. cupanus : *Macropodus cupanus*
P. panchax : *Panchax panchax*
B. pugnax : *Beta pugnax*
M. strigatus : *Microcanthus strigatus*
A. forsteri : *Aldrichetta forsteri*
B. puntius : *Barbus puntius*
Spec. : Specimen
Nos. : Numbers
asc.piece : accessory piece
eja.tube : ejaculatory tube
O.sucker : oral sucker
LC₅₀ : Median Lethal Concentration
> : More than
< : Less than
L. : Linnaeus
LSD : Least Significant Difference
Avg : Average
repl. : replicate
h : hour
NaCl : Sodium Chloride
Fig./Figs. : Figure/Figures
DO₂ : Dissolved Oxygen

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April 1993

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Four shipments of grass carp imported from Indonesia were used for this study. The grass carp (*Ctenopharyngodon idella* Cuvier and Valenciennes 1844) fingerlings were infected by the monogenean (*Dactylogyrus lamellatus* Akhmerov 1952); protozoans (*Trichodina* spp., *Trichodinella* sp., *Trichophrya* sp., *Cryptobia branchialis* Nie, *Ichthyophthirius multifiliis* Fouquet 1876 and *Piscinoodinium pillulare* Schaperclaus 1954); trematodes (metacercariae of Echinostomatidae and *Transversotrema* sp.) and a crustacean (*Argulus* sp.).

Dactylogyrus lamellatus Akhmerov 1952 obtained in this study were comparatively smaller than those previously described from USSR and Hungary. *Transversotrema* sp. was found underneath the scales of grass carp. It differed in shape, size and certain morphological details to other previously described

species. Histopathological study carried out on the gills infected by echinostomatid metacercariae showed severe swollen chondrocytes, epithelial hyperplasia, squamous metaplasia of epithelial cells, atrophy, haemorrhages, necrosis and obliteration of blood vessels.

The toxicity tests of formalin and sodium chloride to grass carp fingerlings were carried out. Based on the results of the 96h-LC₅₀ value, formalin at 25, 50 and 75 mg/L and sodium chloride at 6, 8 and 10 g/L in four hours were used for treatments of ectoparasitic diseases on this fish. In this study, the fish was held for 14 days in experimental tanks and treated using formalin and sodium chloride.

Formalin (25 and 50 mg/L) and sodium chloride (8 and 10 g/L) in four hour baths were found to effectively control monogenean and protozoan parasite infections.

The efficacy of both formalin and sodium chloride in this study showed almost similar results but due to the harmful effect of formalin on human and fish (influence on human tissue and oxygen depletion of water), sodium chloride was preferably used for treatment.