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6. Summary

Edwardsiella tarda is an important cause of haemorrhagic septicemia in fish, and also gastrointestinal infection in human. so in this study we attempted to study the virulence factors of *Edwardsiella tarda* isolated from fish .

The present study was carried out on *E.tarda* strain (E.t.105) which provided from department of poultry and fish diseases, faculty of veterinary medicine Alexandria University. *E.tarda* was isolated and identified from *O.niloticus* during outbreak in private farm.

The study was planned to investigate the identification of *E.tarda* by different methods as Biochemical methods. *Edwardsiella tarda* was gram negative, motile with peritrichous flagella and rod shape. *E. tarda* were positive (+ve) to: indole, catalase, methyl red and nitrate reduction. Negative (-ve) to oxidase, urease, and voges-Proskauer and citrate. As well as *E. tarda* fermented only glucose and maltose and give negative results for sucrose mannitol, sucrose, and lactose. The antibacterial sensitivity pattern of *E.tarda* show it was high sensitive to lincospectin, neomycin and oxanilic acid while it was resistant to spectinomycin and chloramphenicol .

The median lethal dose (LD₅₀) of *Monosex tilapia* 10^{2.5} and of *Oreochromis niloticus* 10^{4.5}.

The main clinical signs and gross lesion in the experimentally infected fish :

***Monosex tilapia*:** the most clinical signs were loss of scales from some areas of the body, excessive mucus all over the body surfaces with petechial hemorrhage over the body musculature.

The post-mortem findings were necrotic foci in liver, spleen with enlarged gall bladder.

***Oreochromis niloticus*:** the most clinical signs were hemorrhages in tail and skin, ulceration of head and exophthalmia.

The post-mortem findings were congestion in all internal organs especially liver and kidney.

Crude exotoxin of *Edwardsiella tarda* were prepared and studied for bacterial characterization which found that:

- a. Haemolytic activity: After 24 hours crude exotoxin of *E. tarda* give a positive result on blood agar medium as haemolysis occur (B-haemolysis).
- b. Proteolytic activity: after 36 hours *E. tarda* give a positive result by making gelatin liquefaction.
- c. Cytolytic activity: after 24 hours all the inoculated tissue culture plates were appeared to be lysis of the call.
- d. Lipolytic activity: After 24 hours *E. tarda* made a positive result by making clear zone around bacterial colonies.

After made sonication of *E. tarda* to obtained of endotoxin then injected LPS and ECP in *Commen Carp* and *Oreochromis niloticus* to seen clinical signs, PM, and mortality rate as :

- a. Clinical signs as tail and fin rot and hemorrhage and congestion all over body due to injection of ECP in both fish species.
- b. Postmortem lesion as hemorrhagic septicemia in kidney, gills, and gas bladder due to ECP in both fish.
- c. Endotoxin not made clinical signs but made mortality only to experimentally inoculated fish with in 18 hours while fish inoculated with extracellular product, mortality occurred several days post inoculation.