

THESIS ABSTRACT

**Some studies on Edwardsiellosis in Catfish
Clarias gariepinus, in Assiut governorate**

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The aim of this study is to investigate the infection rate of *Edwardsiella tarda* in Nile catfish, *Clarias gariepinus*, in Assiut governorate. 1000 *C. gariepinus* were collected from River Nile and El-Ibrahemia canal over a twelve-month period. 120 of them revealed clinical alterations. These fish were subjected to clinical, postmortem and bacteriological examination. Clinical findings included several ulcerative lesions on the body surface. Haemorrhagic spots were widely spread in many parts of the body particularly in mouth region, body surface and at the base of fins. Corneal opacity were observed in one or both eyes. Gills were congested in some of examined fish, while they appeared pale in some other fish. Postmortem findings included congestion in liver with focal and

petechial haemorrhage on the surface and edge. Kidneys were congested, friable and larger than normal. Intestine was inflamed and filled with bloody or yellow exudates and gas.

Bacteriological examination of fish showing clinical signs resulted in isolation of 166 isolates which are close in morphological, and cultural characters to *Enterobacteriaceae*. According to morphological, cultural and biochemical characters the 166 isolates were identified as *Edwardsiella tarda* (42), *Proteus vulgaris* (20), *Escherichia coli* (16), *Citrobacter sp.* (15), *Salmonella sp.* (13), *Serratia sp.* (12), *Proteus mirabilis* (9), *Morganella morganii* (7), and there were 32 isolates that have not been identified. *E. tarda* was isolated in unmixed infections from 15 samples, while it was isolated in mixed infection with other bacteria species from 20 samples. Bacteriological examination of fish revealed that *E. tarda* is best isolated at any time of infection from the intestine. It was also found that the infection with *E. tarda* in *C. gariepinus* within weight range investigated were more common in fish that weighs from 255 to 350 grams. The rates of natural infection in *C. gariepinus* were 43.3% and 50% in the Spring and Summer, respectively, and were 13.3%, 10% in Autumn and Winter with 29.17% overall prevalence rate over the year of study.

The pathogenicity and virulence of chosen twelve *E. tarda* isolates were estimated by acriflavin agglutination test, and precipitation test. Strains that gave negative results with acriflavin agglutination test, and positive result with precipitation test were considered as suspected virulent strain. Pathogenicity and virulence of suspected virulent strains were

investigated by experimental infection in catfish *C. gariepinus*. All inoculated fish died within 24-72 hours post-infection.

Clinical signs of fish experimentally infected with *E. tarda* were lethargy and loss of catch reflex. External lesions included corneal opacity in one or both eyes. Increase of mucus which cover body surface. There were ulceration on the skin and fin rot. Petechial haemorrhages on the body surface particularly at the base of fin and on the skin. Abscess developed on the caudal portion of the body and were surrounded by hyperemic edge. Internal findings included clotted haemorrhage in the abdominal cavity and accumulation of bloody exudates (ascitis) in the abdominal cavity. Liver was congested in addition to presence of petechial and focal haemorrhage on the surface and edge. White nodules were also seen on the surface of the liver. Kidney were congested and enlarged than normal. Intestine was filled with bloody or yellow exudates and gas.

Antibacterial sensitivity tests showed that the isolated *E. tarda* were highly sensitive to oxytetracycline, chloramphenicol, sulpha-trimethoprin, nalidixic acid, furazolidone, oxalinic acid, garamycin and sulfamethazole and resistant to penicillin, erythromycin and amoxicillin + clavulanic acid.

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