MOTILE AEROMONAS SEPTICAEMIA (MAS) IN MORMYRUS KANUME AT ASSIUT GOVERNORATE
(With 1 Table & 3 Figs.)

By

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SUMMARY

The present investigation reveals the pathogenicity Aeromonas hydrophilae to Mormyrus Kannume. One hundred Mormyrus Kannume fish were the subjected of this work out of them twenty fish showed haemorrhages on different part of the body, fins rot and ulcerative lesions.

Ten isolates of Aeromonas hydrophila were recovered from internal organs, ascitic fluid and skin. Acriflavine agglutination; stability after boiling and pathogenicity tests were applied to detect the virulence of the isolated strains.

INTRODUCTION


Motile Aeromonas species were identified as a significant pathogen of fish, cold blooded animals and human (BULLOCK, 1961; SHOTTS, et al. 1972 and AUSTIN
and AUSTIN, 1987) and DAVIS, et al. 1978) respectively. Moreover, POST (1983) reported that all fresh and salt water fish are susceptible to motile Aeromonas septicæmia.


The aim of the present work was planned to study the role played by A. hydrophila in naturally and experimentally infected Mormyrus Kannume.

**MATERIAL and METHODS**

One hundred Mormyrus Kannume collected from fresh water cannal, (El-Ebrahimia Cannal, Assiut Governorate) were used in this work.

Out of these, twenty fishes suspected to be infected with MAS were brought alive into Laboratory as quickly as possible under aseptic condition.

**Experimental procedure:**

Mormyrus Kannume (40-45 gm) were collected from the River Nile (Assiut) and brought to the Laboratory. Fish were kept in glass aquaria for three weeks for adaptation and for further pathogenicity tests. Random Samples were subjected to bacteriological and parasitological examinations to insure fish pathogen free.

**Clinical and Post mortem examinations:**

Clinical and Post mortem examinations were carried out and recorded as described by AUSTIN and AUSTIN (1987).

**Bacteriological examination:**

Samples from skin, liver, kidney and ascitic fluid of infected fish were cultured on trypticase soya agar & blood agar media and incubated at 22°C for 48 hours. The isolates were identified morphologically and biochemically according to the methods described by COWAN and STEEL (1974); ALLEN, et al. (1983) and POPOFF (1984).

Acriflavine agglutination test and stability after boiling were conducted to detect the virulence of isolated A. hydrophila as reported by MITTAL, et al. (1980).

**Pathogenicity test:**

Forty four fish of Mormyrus Kannume were divided into eleven groups (each of four). Ten groups were inoculated intraperitoneally each with one of the isolated...
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10 strains of A. hydrophila. The inoculum was composed of 0.5 ml broth culture containing 2x10^7 living bacterial cell. The eleventh control group was inoculated with 0.5 ml Sterile broth. Assay of pathogenicity test was conducted at 19±1°C with daily observation to detect the morbidity and mortality rates for two weeks.

RESULTS

Clinical and Postmortem findings:

Signs of infected fish included a wide spread petichial haemorrhages which was so evident in eye and bases of the dorsal, pectoral and pelvic fins associated with fin rot (Fig. 1 & 2).

Diffuse haemorrhages with sticky gelatinous material, greyish white in colour at the caudal portion of the body, especially tail fins, were also noticed (Fig. 3). Some infected fish showed haemorrhagic and protruded anal orifice with white central ulcerative lesion surrounded by clear narrow haemorrhagic zone (Fig. 2). All internal organs particularly ovaries were congested, little amount of yellowish serous fluid was found in the body cavity.

Bacteriological examination:

Primary isolation revealed that 10 isolates were recovered from 20 infected fish. The isolates were identified as A. hydrophila.

Acriflavine agglutination test and Stability after boiling:

Seven out of ten isolated strains did not agglutinate in acriflavine and settled down after boiling, these were the Highly virulence strains. The other strains agglutinated in acriflavine and did not settle down after boiling (Table 1).

Pathogenicity test:

Inoculated fish with strains No. 1, 2, 4, 5, 6, 8 and 9 died within five days showing the same clinical signs and post mortem findings described previously; however no ulcerative lesions were noticed. The other inoculated fish with strains No. 3, 7 and 10 gave negative result (Table 1). A. hydrophila was isolated from the internal organs particularly liver and kidney of the dead infected fish.

DISCUSSION

Motile Aeromonas Septicaemia has a worldwide distribution in many countries. Many authors reported that A. hydrophila, is considered as either a primary agent

or secondary to viral infection or parasitic infestation. Moreover, unfavourable environmental conditions play a role in the incidence of the infection. All types of freshwater fish are susceptible to infection (Bullock, 1961; Otte, 1963; Bullock, et al. 1971; Richards, 1977; Post, 1983 and Andrews, et al. (1988).

From the obtained results, 10 strains of A. hydrophila were isolated from 20 naturally infected fish (Mormyrus kannume). All the isolated strains were tested experimentally and proved that, A. hydrophila could be considered as the primary cause of MAS in Mormyrus Kannume. To the best of our knowledge and from the available literature it appears most likely that this work is the first record of MAS infection in Mormyrus Kannume.

Only seven out ten isolated strains did not agglutinate in acriflavine, settled down after boiling and killed all the inoculated fish within 5 days (Table 1). These results revealed that, acriflavine agglutination, stability after boiling and pathogenicity tests can be used to detect the virulence of A. hydrophila, a similar observation had been previously recorded by Mittal, et al. (1980).

REFERENCES


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Table 1
Different tsets used for the detection of virulence of _A. hydrophilia_

<table>
<thead>
<tr>
<th>No. of group</th>
<th>No. of isolate</th>
<th>Acriflavine agglutination test</th>
<th>Appearance after boiling</th>
<th>No. of dead fish after inoculation</th>
<th>No. of survivors after 1-2 days</th>
<th>No. of survivors after 3-5 days</th>
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Sterile Broth used as control.

- No agglutination in acriflavine or settling down after boiling.
+ Agglutination in acriflavine and no settling down after boiling.
Fig. (1)
Haemorrhage in the eye.

Fig. (2)
Ulcerative Lesions
Surrounded by haemorrhage

Fig. (3)
Tail fins suffered from haemorrhage and rot.