

# FIRST ISOLATION OF *Edwardsiella tarda* FROM FISH IN SOUTH AFRICA

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*Edwardsiella tarda* has been isolated from a large variety of animals, including birds (Berg and Anderson, 1972), amphibians (Kumar and Sharma, 1978), mammals (Owens, Nelson and Addison, 1974) and fish (Meyer and Bullock, 1973; Van Damme and Vandepitte, 1980). This organism has been identified in a number of human diseases, including meningitis, liver abscesses and gastroenteritis (Waltman, Shotts and Hsu, 1986). It has also been isolated frequently from the aquatic environment (White, Simpson and Williams, 1973) and from healthy freshwater fish, including tilapia species from Zaire (Van Damme and Vandepitte, 1980). This is the first report on the isolation and identification of *E. tarda* from fish in South Africa.

Samples of the Mozambique tilapia (*Oreochromis mossambicus*) were captured from a dam close to Pretoria,

Transvaal, by the University of Pretoria personnel. These fish were kept in ponds at the university for three days with very heavy mortalities. Samples were submitted for parasitological and bacteriological examination. Heavy infestation of *Ichthyophthirius multifiliis* was detected. Bacteriological investigation revealed *Aeromonas hydrophila* and *E. tarda*. The results of the biochemical identification of *E. tarda* can be seen in Table 1.

Samples of *O. mossambicus* were obtained from the National Zoological Gardens and these fish were infected with *E. tarda* in an attempt to fulfil Koch's postulates. The fish were infected by immersion in approximately  $10^7$  bacteria per ml for 30 seconds. No mortalities were recorded in the fish and no *E. tarda* could be isolated from the fish after 25 days. Thus Koch's postulates were not fulfilled.

Table 1. Results of the biochemical identification of *E. tarda*.

| Test                    | Result |
|-------------------------|--------|
| Motility                | +      |
| Citrate as C Source     | -      |
| Gas from glucose        | +      |
| VP test                 | -      |
| Indole                  | +      |
| H <sub>2</sub> S on TSI | +      |
| Lysine decarboxylase    | +      |
| Ornithine decarboxylase | +      |
| Arginine dehydrolase    | -      |
| Acid from Adonitol      | -      |
| Arabinose               | -      |
| Dulcitol                | -      |
| Lactose                 | -      |
| Maltose                 | +      |
| Mannitol                | -      |
| Rhamnose                | -      |
| Salicin                 | -      |
| Sorbitol                | -      |
| Sucrose                 | -      |
| Trehalose               | -      |
| Xylose                  | -      |

#### Summary

Typical *Edwardsiella tarda* was isolated from *Oreochromis mossambicus* for the first time in South Africa. This isolate was not capable of producing symptoms in *O. mossambicus* which were dipped for 30 seconds in  $10^7$  bacteria per ml.

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