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# Isolation and Identification of *Pseudomonas fluorescens* from Hatchery-Reared Tilapia fry (*Oreochromis niloticus* Linnaeus)

R.C. Duremdez and G.D. Lio-Po

Bacterial infections caused by *Pseudomonas* sp. are widely reported among cultured aquatic organisms. In the Philippines, initial report of *Pseudomonas* sp. infections occurred among hatchery-reared tilapia fry, *Oreochromis niloticus* Linnaeus. Undue stress due to crowding and handling enhanced the development of the disease. The causative agent was identified as *Pseudomonas fluorescens*.

*Pseudomonas fluorescens* is a Gram-negative, rod-shaped bacterial species with flagellar filaments for active motility. It produces greenish to yellowish diffusible pigments

on selective agar medium such as Pseudosem Agar. Growth and viability of this bacterium is maintained in optimum freshwater conditions for more than 150 days while viability in brackishwater situations is limited to 50 days only. Sea-water medium is not tolerated by this bacterium. This species is thus able to survive and thrive only in freshwater and brackishwater fish culture systems under optimum temperature (25°-30°C).

*Ps. fluorescens* has been frequently reported to occur predominantly in the tissues and internal organs of healthy and diseased freshwater fishes such as *Oreochromis niloticus*. The rearing water, likewise, contained predominantly the same genus of the bacteria.

Since this bacterial species appears almost always in an aquatic environment, it is likely to infect the fish under adverse environmental conditions. Undue exposure of the cultured fish to stress brought about by sudden environmental changes and poor rearing conditions such as overcrowding can cause deterioration of water quality parameters. This condition triggers increased bacterial load in the water and eventually weaken the fish. Evidence also shows that most outbreaks of infectious diseases are associated with stress. Such situations coupled with the ability of *Pseudomonas* to thrive longer in an aquatic environment may explain occurrences of *Pseudomonas* infections in aquaculture systems. ●

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\_\_\_\_\_. 1987a. An introduction to *lapu-lapu* (*Epinephelus*) of the Philippines. Part 2 of a series. SEAFDEC Asian Aquacult. 9(1):5, 10.

\_\_\_\_\_. 1987b. An introduction to *lapu-lapu* (*Epinephelus*) of the Philippines. Part 3. SEAFDEC Asian Aquacult. 9(2):5-8.

\_\_\_\_\_. 1987c. An introduction to *lapu-lapu* (*Epinephelus*) of the Philippines. Last of a series. SEAFDEC Asian Aquacult. 9(3):5-8.

Manzano VB. 1985. Polyculture system using grouper (*Epinephelus tauvina*) and tilapia (*T. mossambica*) in brackishwater pond. R&D J. 2(1):43-50.

Philippines (Republic) Bureau of Fish-

eries and Aquatic Resources. Region VIII. 1981. A preliminary report on the observation of groupers (*Epinephelus merra*, *Epinephelus summana*, *Cephalopholis patchycentron* and *Anyperodon leucoaromicus*) comparative growth rate of the four species of *lapu-lapu* culture at Barangay Diit Technical paper, no. 3.

Sakares W, Sukbanteang S. 1985. Experiment on cage culture of *Epinephelus tauvina* (Forsk.) at different density. Proceedings of the 3rd Seminar on Coastal Aquaculture; 1985 May 22-24; Bangkok, Thailand. Bangkok. Brackishwater Fisheries Division, Department of Fisheries, Ministry of Agriculture and Cooperatives: 2-29. (In Thai.)

Sudradjat A, Oedin H, Amini S. 1985. Effect of feeding methods on the growth of estuarine grouper, *Epinephelus tauvina* (Forsk.) cultured in floating net-cages. J. Penelitian Budidaya Pantai 1(1):45-54. (In Indonesian)

Teng SK, Chua TE. 1978. Effects of stocking density on the growth of estuary grouper, *Epinephelus salmoides* Maxwell, cultured in net-cages. Aquaculture 15:273-287.

\_\_\_\_\_, \_\_\_\_\_. 1979. Use of artificial hides to increase the stocking density and production of estuary grouper, *Epinephelus salmoides* Maxwell, reared in floating net cages. Aquaculture 16:219-232.