

## THE EFFECT OF CARP PITUITARY EXTRACT ON SPERMATION RESPONSE IN RIVER CATFISH *MYSTUS NEMURUS* (CUVIER AND VALENCIENNES)

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### Introduction

A study on induce breeding of *Mystus nemurus* (Thalathiah et al. 1988) has been reported. However, information on its milt characteristics and quality are scarce. Milt quality defined as the ability to fertilize eggs (Aas et al. 1991) and it is assess by the measurement of sperm density, motility (Ciereszko and Dabrowski, 1994) and seminal plasma compositions are some of the characteristics that enhance milt quality (Piironen and Hyvarinen, 1983). Therefore, it is the objective of this study to determine the spermiation response of *M. nemurus* with carp pituitary extract (CPE) induction.

### Materials and Methods

This experiment was carried out in November, 1995 at the Hatchery Unit of University Putra Malaysia. Male fish weighing 550 to 950 grams were divided into two groups, i.e. hormone-treated group was given intramuscular injection of 2.5 mg of carp pituitary extract (Sigma Chemical, St. Louis USA) per kg body weight, while control group received saline injection. Milt was collected 9 h after hormone administration. Three parameters were determined in this study i.e. sperm density, percentage of spermatocrit and milt volume. Sperm density was counted on Neubauer Haemocytometer (under 40X magnification), while the percentage of spermatocrit was determined by using hematocrit capillary tubes, centrifuged at 5000 rpm for 45 minutes. Sperm motility duration was clocked and observed under microscope (10X) immediately after activation. Other physical characteristics such as milt colour and viscosity were determined visually. Statistical analysis on the data were carried out by student t-test.

### Results and Discussion

Statistical analysis showed a significant difference ( $P < 0.05$ ) for milt volume and total sperm count between pituitary treated and control group, though no difference in the sperm density and percentage of spermatocrit. The milt volume collected for this fish is 0.2 to 8.0 mL. Sperm density and percentage of spermatocrit in temperate fishes such as trout, salmon, perch, burbot and whitefish (Piironen and Hyvarinen, 1983) in comparison are higher than of *M. nemurus*. A single injection of carp pituitary extract increases collectable milt and sperms from each stripping in *M. nemurus* and it also resulted better stimulation of spermiation in European catfish compared to GnRH-A (Linhart and Billard, 1994), may also be considered to induce milt production in *M. nemurus*. The colour of the milt observed varies from clear (colourless), yellowish clear, yellowish cloudy to cloudy when collected from pituitary treated fish while only clear or yellowish clear from control fish. As for viscosity, all milt samples were appeared to be watery regardless whether fishes were treated with hormone or not. Sperm activity in most of the freshwater fish with external fecundation remain motile in a very short time, after being released thus this explained the short duration 100 to 218 seconds in *M. nemurus*.

### Conclusions

Clearly this study showed that, administration of CPE, increased spermiation, thereby increasing the volume of collectable milt and total sperm count.

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