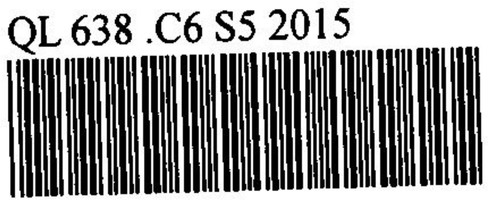
THESIS

EFFECTS OF MELATONIN AND ZINC AMINO ACID ON *Clarias macrocephalus* BROODSTOCK MATURATION AND REPRODUCTIVE PERFORMANCE

SITI ARIZA ARIPIN

GRADUATE SCHOOL, KASETSART UNIVERSITY
2015



Effects of malatonin and zinc amino acid on clarias macrocephalus broodstock maturation and reproductive performance / Siti Azriza Aripin.

Lihat Sebelah

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A Thesis Submitted in Partial Fulfillment of
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Siti Ariza Aripin 2015: Effects of Melatonin and Zinc Amino Acid on *Clarias macrocephalus* Broodstock Maturation and Reproductive Performance. Doctor of Philosophy (Aquaculture), Major Field: Aquaculture, Department of Aquaculture. Thesis Advisor: Associate Professor Orapint Jintasataporn, Ph.D. 176 pages.

This study examines the effects of exogenous melatonin, zinc amino acid (ZnAA), and combined melatonin and ZnAA treatment to the first sexual maturity stage in female and male broodstock of the Walking catfish, *Clarias macrocephalus*. The exogenous melatonin was able to accelerate the first puberty stage of *C. macrocephalus* by enhancing the broodstock maturation and reproductive performance especially on fecundity, larval survival rate, sperm motility and lowered the sperm abnormality.

The optimum exogenous melatonin level is 50 ppm (Mt0.05) and chosen to proceed to the third experiment. The ZnAA treatment was able to enhance the first maturation stage of catfish broodstock first sexual maturation especially on fecundity, larval survival rate, sperm motility and lowered the sperm abnormality. Both ZnAA1 (100 ppm ZnAA) and ZnAA2 (200 ppm ZnAA) treatments were chosen to proceed to the third experiment. The optimal treatment from exogenous melatonin and exogenous ZnAA was selected to reduce the cost and amplify the effect of melatonin and ZnAA to the reproductive performance. Both combined melatonin and ZnAA treatments demonstrated significant effect in maturation enhancement and reproductive performance in the *C. macrocephalus* broodstock especially on immune parameter, fecundity, larval survival rate, sperm concentration and lowered the sperm abnormality.

In conclusion, the melatonin 50 ppm or ZnAA 100 ppm or the combined melatonin and ZnAA (50 ppm melatonin and 100 ppm ZnAA) is the recommended treatment to accelerate the first puberty stage in the *C. macrocephalus* broodstock, especially 50 ppm melatonin and 100 ppm ZnAA where it exhibited the effectiveness on enhancing the first puberty and immune parameter.

Student's signature

Thesis Advisor's signature

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