

Nattaphong Pankao 2006: Effects of pH from Tropical Almond Leaves Extract on Sex Ratios of Siamese Fighting Fish (*Betta splendens* Regan). Master of Science (Aquaculture), Major Field: Aquaculture, Department of Aquaculture. Thesis Advisor: Professor Uthairat Na-nakorn, Ph.D. 82 pages.  
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Male Siamese fighting fish are more attractive than their female counterparts, thus they have higher market demand. Fish farmers often use tropical almond leaves suspension as a medium for breeding of fighting fish, believing to enhance larvae's health and increase male larvae ratios. To prove the mentioned belief and to study the exact timing for sex determination in Siamese fighting larvae, the studies were carried out. Histological studies revealed differentiation of male and female gonads at 5 and 8 days of age respectively, although external sexual dimorphism could not be observed. The studies on the effect of tropical-almond leave's pH levels were carried out at pH 7.8, 6.8, 6.4 and 5.5, using fighting fish from 3 populations, mated at a 1:1 male: female ratio, 2 pairs per population hence resulted in 6 pairs per pH level. At pH 7.8, one mating pair did not spawn, whereas at pH 6.8, all pairs spawned. At pH 6.4, 2 pairs mated (those from populations B and C), but at pH 5.5 none of the fish mated. At 4 days of age, the larvae were transferred to nursing facilities using plain freshwater (pH 7.8) at a density of 410 individuals per square meter. The sex ratios revealed by histological study showed that the tropical almond leaves extract at low pH altered sex ratios of some offspring families towards maleness. Wherein sex ratios were 1:1 in all mating pairs in pH 7.8; 2 of 6 mating pairs each from populations B and C yielded more males than females offspring in pH 6.8 and at pH 6.4 one of the mating pairs from population C gave more male than females. There was a significant correlation between pH and proportion of male offspring ( $r=-0.577$ ;  $P=0.039$ ). However the ANOVA performed on percentage of male offspring showed that low pH did not alter sex ratio of the offspring. Testing of survival of spermatozoa in different pH implied that the skewed sex ratio in some mating pairs was not a result of selective mortality of male gametes. Survival rates of larvae at 4 and 15 days at each pH level were not statistically different among groups ( $P>0.05$ ). At 15 days of age, the length and weight of fish of the pH 6.4 group were significantly lower than those at pH 6.8 and 7.8 ( $P<0.05$ ).

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Student's signature

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Thesis Advisor's signature

