

Kancee Charoentawee 2007: Microsatellite Genetic Variation of Hatchery and Wild Populations of Freshwater Prawn, *Macrobrachium rosenbergii*. Master of Science (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Supawadee Poompuang, Ph.D. 66 pages.

The culture of freshwater prawn in central Thailand has experienced low productivity despite the rapid expansion during the past several years. Deterioration of genetic variation and inbreeding depression were blamed for slow growth rate in farmed stocks. Six microsatellite DNA loci were used to assess genetic diversity from five hatchery stocks and two wild populations of freshwater prawn. Natural populations were collected from the ChaoPraya River and the Kraburi River. Two local hatchery populations originated from the ChaoPraya River were collected from the provinces of Nakhon Pathom and Suphan Buri. Another ChaoPraya originating samples were obtained from a hatchery in Indonesia. An introduced stock of Myanmar origin was sampled from a hatchery in Nakhon Pathom province and samples of a commercial strain of unknown origin were collected in Ratchaburi province. All hatchery and wild populations exhibited relatively high genetic variation and were similar with an average allelic richness varied from 6.34 to 9.37 and average expected heterozygosities at all loci of 0.64 to 0.73. Observed heterozygosities were lower than expected in most populations except that from a hatchery stock of Myanmar origin. Pair-wise comparisons and the F_{ST} values revealed significant genetic differentiation across all populations. The UPGMA dendrogram displayed genetic relationship of four different groups. One group consisted of four populations including those from the ChaoPraya River, two local hatcheries and a hatchery in Indonesia. The wild population from the Kraburi River and the hatchery population of Myanmar were in second and third groups respectively. The fourth group, the hatchery stock from Ratchaburi province was most genetically distant from the other groups.

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Student's signature

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