Visarut Chailertrit 2014: Development of Microsatellite Markers from a Siamese Fighting Fish (*Betta splendens*, Osphronemidae, Perciformes) and Cross–Species Amplification in Closely Related Species. Master of Science (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Jintana Salaenoi, Ph.D. 87 pages.

Ten novel microsatellite markers were developed and characterized from Siamese fighting fish (*Betta splendens*). Nine of ten markers were polymorphic, exhibiting an allelic number (N_A) from 2 to 6 alleles per locus. The effective number of alleles (N_E) ranged from 0.62 to 2.57 (average of 1.96). The observed (H_O) and expected (H_E) heterozygosities ranged from 0.13 to 0.67 (average of 0.39) and 0.29 to 0.63 (average of 0.50), respectively. Linkage disequilibrium was not significantly detected for any pair of loci, and only two loci (BettaMS23 and BettaMS28) showed significant deviations from Hardy–Weinberg expectations. Of these, six loci could be amplified in genomic DNA of the closely related species *B. imbellis* and three loci in *B. smaragdina*. These microsatellite markers could be used as a tool to investigate genetic diversity and population structure, as well as breeding programs in hatcheries.

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