



Differentiation of four strains of Chinese soft-shelled turtle (*Pelodiscus sinensis*) based on high-resolution melting analysis of single nucleotide polymorphism sites in mitochondrial DNA

H.Q. Zhang^{1,2}, C. Zhang^{2,4}, X.J. Xu², J.J. Zhu³, Z.Y. He² and J.Z. Shao¹

¹College of Life Sciences, Zhejiang University, Hangzhou, Zhejiang, China

²Zhejiang Fisheries Technical Extension Center, Hangzhou, Zhejiang, China

³Huzhou University, Huzhou, Zhejiang, China

⁴Nanxun Agriculture Technical Extension and Service Center, Huzhou, Zhejiang, China

Corresponding author: H.Q. Zhang

E-mail: zmk407@126.com

Genet. Mol. Res. 14 (4): 13144-13150 (2015)

Received April 30, 2015

Accepted July 14, 2015

Published October 13144-13150

DOI <http://dx.doi.org/10.4238/2015.October.26.10>

ABSTRACT. The Chinese soft-shelled turtle (*Pelodiscus sinensis*) has been one of the most economically important aquatic animals in China for thousands of years, and several breeding strains have been formed. Since the morphological characteristics of some strains are similar, a rapid and accurate molecular method to differentiate between strains is required. In this study, partial sequences of mitochondrial DNA from four turtle strains, Taihu Lake Strain, Taiwan Strain, Japanese Strain, and Yellow River Strain, were amplified and sequenced based on selected strain-specific single nucleotide polymorphism (SNP) sites. The corresponding primers were designed and a high-resolution melting (HRM) technique was employed for genotyping these SNPs. The results indicated that a total of seven SNPs can be detected by HRM. Among these SNPs, one can be used for identifying the Taihu Lake Strain, one for the Japanese Strain, two for the

Taiwan Strain, and three for the Yellow River Strain. This method is rapid and convenient, which offers technical support for strain identification and selective breeding in Chinese soft-shelled turtles.

Key words: Chinese soft-shelled turtle; Mitochondrial DNA; Differentiation; Single nucleotide polymorphism; High-resolution melting curve analysis