

Study on genetic structure in germplasm-conserved White Tsaiya duck and Ilan White Tsaiya TLRI NO.1 by microsatellite markers ⁽¹⁾

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Abstract

In this study, we applied the 11 Brown Tsaiya duck-derived microsatellite markers to conduct a genetic analysis to the 11th (WTg11) and 15th (WTg15) generation of germplasm-conserved White Tsaiya ducks and made comparison with the 27th generation of Ilan White Tsaiya TLRI NO.1 (L102g27). Compared with the WTg11 population, the WTg15 population had lower genetic diversity, and there was slight genetical difference between the two generations; this may be caused by one-time pulse of rotation crossbreeding system. In the comparison between the selected (L102g27) and conserved (WTg11 and WTg15) populations, the F_{ST} values indicated that there was nearly high differentiation between the two homologous populations, supposed to be resulted from the long-term selection over 20 generations for the body size and white feather color after the isolation of conserved line; it may also lead to obviously lower genetic diversity in selected White Tsaiya ducks than other Tsaiya breeds (lines). For ensuring genetic diversity of local duck breeds and achieving sustainable production, in the future, the result of genetic analysis in this study would be applied as a baseline for following monitoring.

Key words: Microsatellite markers, Genetic structure, Germplasm conservation, White Tsaiya duck, Ilan White Tsaiya TLRI NO.1.

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