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Morphological and Meat Quality of Breast Muscle of Wild Red Jungle Fowl and Malaysian Indigenous Chicken

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Abstract

The aims of this study were to define the morphological structure, to evaluate the collagen distribution and to determine the meat quality traits of breast muscle in wild Red Jungle fowl and Malaysian indigenous chickens. The Red Jungle fowl is the ancestor of the domestic fowl. The Malaysian indigenous or *Gallus gallus Domesticus*, commonly known as village chicken are crossbreed of the RJF with mixed exotic domestic breeds. Seven samples of breast muscle (*Pectoralis major*) from adult RJF (n=7) and Malaysian indigenous chickens (n=7) were used in this study. The wild RJF were captured from the secondary forests in Peninsular Malaysia, while the Malaysian indigenous chicken were collected from Jenderam Hilir, Sepang, Selangor. The parameters of meat quality evaluated were moisture and ash content, crude protein and fatty acids profile, pH and colour measurement, percentage of cooking loss and shear force value. For the morphological characteristics, the mean diameter of muscle fiber, cross-sectional area of muscle bundle and total number of muscle fiber were evaluated. The results revealed there were significant ($p < 0.05$) differences in the morphology and collagen distribution of the breast muscle between the wild RJF and Malaysian indigenous chickens. The muscle bundles area and diameter of muscle fibers of Malaysian indigenous chickens were larger compared to those of the wild RJF. However, the total number of muscle fibers was less in Malaysian indigenous chickens as compared to wild RJF. The findings for the meat quality traits revealed wild RJF had higher protein and ash content, low shear force value and higher pH value than the Malaysian indigenous chickens. Thus, based on the findings of this study, the RJF fowl had better meat quality than the Malaysia indigenous chickens.

Keywords: Red Jungle fowl, Malaysian indigenous chicken, breast muscle, morphology, collagen distribution, meat quality