The effects of dietary supplementation with natural feed additives and lysine on meat quality and sensory attributes of broiler chickens

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Introduction: For many years, the poultry industry has been focused on improving production indexes and broiler growth through breeding programs and feed nutrition. On the other hand, consumers have become more interested in the quality and nutrition of chicken meat in recent years, and it is necessary to differentiate by adding value such as higher quality and functionality. Watanabe *et al.* (2017) reported that dietary lysine (Lys) content is a regulating factor of free glutamate (Glu) in meat, and that regulation of dietary Lys induces an increase in free Glu content which improves meat taste. Therefore, it was suggested that dietary supplementation with feed additives is an attractive approach to improving meat quality in broiler chicken. However, there are few reports of dietary improvements intended to increase chicken meat quality and research on the quality of cooked meat. This study aimed to evaluate meat quality of raw and cooked meats as well as sensory attributes of processed meats of broiler chickens fed diets supplemented with natural feed additives, and further investigated the effect of combination with lysine.

Materials and Methods: Chunky strain male broiler chickens were fed either a basal diet or the basal diet supplemented with natural feed additives and Lys. Feed and water were provided *ad libitum*. After the experiment, chickens, whose body weight were closest to the average, were selected from each pen and slaughtered. Thigh muscles were taken for meat quality analyses (drip loss, cooking loss, and texture analysis) and free amino acid composition measurement. A sensory evaluation was conducted to examine whether the meat quality was reflected in the quality of cooked meat when processed into *karaage* (deep-fried chicken). It was carried out with well-trained panelists using paired difference and comparison tests.

Results and Discussion: The results showed that dietary supplementation of natural feed additives and Lys affected drip loss, shear force, and amino acid composition, and improved meat quality in several ways. Furthermore, elasticity, juiciness, and chicken taste scores revealed that meat quality is similarly improved when cooked and processed into *karaage*. Detailed results on the meat quality improvement effect will be presented and discussed. It can be suggested that supplementation with feed additives is a useful strategy to produce high-quality processed chicken products.

References:

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