

# Comparative characterization of nutrition, taste substances, aroma compounds in breasts and thighs of Daokou red-cooked chicken

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**Objectives:** Daokou red-cooked chicken (DRC) is a traditional flavour meat product and has been enjoyed for more than 300 years since it was invented in the Qing Dynasty (in 1661). Electronic nose (E-nose), and electronic tongue (E-tongue) have been widely applied for flavour analyses and quality control of food industry (Zhang et al. 2021a). Although single analytical method has been used to understand the flavour profile of food, the multi analytical method was a more comprehensive method to present the comprehensive information on the flavour profile. However, systematic and comprehensive studies on the nutrition, aromatic and taste properties of breast and thighs of DRC are limited. Therefore, the objective of this study was to comprehensively understand nutrition, taste, and aroma profiles of the DRC breast and thighs. The experimental results will help in improving the development of the poultry industry and broadening the economic benefits of China's traditional braised chicken.

**Materials and Methods:** DRCs were bought from Yixingzhang Daokou braised chicken co., LTD. Breasts and thighs (all with skin) was stored at -80 °C. The AA content was determined using the determination method of amino acids in food (GB/T 5009.124- 2016). The method of 5'-nucleotide analysis described previously by Qi et al. (2021). The method of E-nose was described previously by Zhang et al. (2021b). The method of E-tongue was described previously by Xiang et al. (2021). **3.**

**Results and Discussion:** Compared with thighs, breasts had higher content of total amino acids (TAAs) and essential amino acids (EAAs). The ratio of EAA/TAA in breasts was 42.47%, which was an ideal protein model. Interestingly, we found that the content of flavor nucleotides in breasts was about five times that in thighs. Thighs and breasts were classified into two main groups based on sensors of E-nose, showing that the sensors effectively discriminated between thighs and breasts. Thighs and breasts were classified into two main groups based on taste profiles showing that the e-tongue effectively discriminated between thighs and breasts. Also, the separation of data points for thighs and breasts was due to the sourness, saltiness, umami, and bitterness difference. **4.**

**Conclusions:** E-nose and e-tongue could be used to effectively discriminate between thighs and breasts. It was concluded that breasts of DKBC had better taste and aroma profiles compared with thighs, and were an ideal protein model. The experimental results will help improve the development of the poultry industry more broadly, attract more consumers and enhance economic benefits.

## References:

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**Key words:** E-nose, E-Tongue, Taste, Aroma