

Sensomics-Driven Flavor Decoding of Roasted Chicken Meat to Guide Alternative Protein Development

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Abstract

Chicken meat is a highly valued animal protein in the global human diet, due to its widespread availability, and especially for its favorable culinary attributes. [1] Flavor is the primary driver of consumer preference for food products, playing a fundamental role in determining food choices. [2]

Despite its nutritional value, significant challenges associated with environmental sustainability, public health, and ethical considerations underscore the necessity of developing plant-based alternatives to chicken meat that closely mimic the flavor profile to ensure consumer acceptance. [2, 3] This goal requires a detailed and mechanistic understanding of the chemosensory stimuli responsible for the characteristic chicken flavor including both aroma and taste, as well as the molecular precursors and formation pathways of the key odorants and tastants.

In this study, we present a novel LC-MS/MS-based platform to quantify key chicken flavor compounds with those generated from microalgae. The outcomes of this work are intended to (1) define the authentic "flavor code" of roasted chicken meat, and (2) provide mechanistic insights to guide the production and processing of microalgal proteins towards the generation of similar meaty flavors.

References

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