

EFFECT OF FREEZE-DRIED KOREAN NATIVE CHINESE CHIVES (*ALLIUM WAKEGI* ARAKI) ADDITION TO THE FRIED CHICKEN MEAT

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I. INTRODUCTION

Deep-fried foods have been consumed widely up to now due to their characteristic flavor, texture, and taste [1]. Recently, as consumer consumption patterns have diversified, products that give various condiment vegetables to the batter have been developed in deep-frying food to provide a variety of flavors and tastes. Korean native Chinese chives (*Allium wakegi* Araki) are characterized by a relatively strong spicy taste and strong flavor; due to these characteristics, it has a characteristic that can give a strong characteristic spicy taste and flavor to various foods [2]. Therefore, it is valuable as a material for imparting a new flavor to fried meat products; thus, this study evaluated the quality properties of fried chicken meat with added freeze-dried Korean native chives (KNC).

II. MATERIALS AND METHODS

Korean native chives were freeze-dried (FD122008, Ilshin Bio Base, Korea). The freeze-dried Korean native Chinese chives (KNC) was added to the batter mix to 0, 3, 5, and 7%, respectively. The chicken thigh was from a Ross broiler chicken (Ross 308, 30 days old, *Gallus domesticus*); The batter for frying was mixed with batter mix and purified water in a ratio of 3:4, and the raw meat was dipped into the prepared batter mixture for 30 s, then taken out and hung for 25 s. Next, the pieces were deep-fried in soybean oil for 4 min at 180°C using a fryer and then cooled at room temperature (24°C) for 30 min. At least three independent trials were performed for all analyses. All data (except the aromatic and taste profile analyses) were statistically analyzed using analysis of variance (ANOVA) for all variables, followed by Duncan's multiple range test ($P < 0.05$) and the general linear model in SAS version 9.3 (SAS Institute, Cary, NC, USA).

III. RESULTS AND DISCUSSION

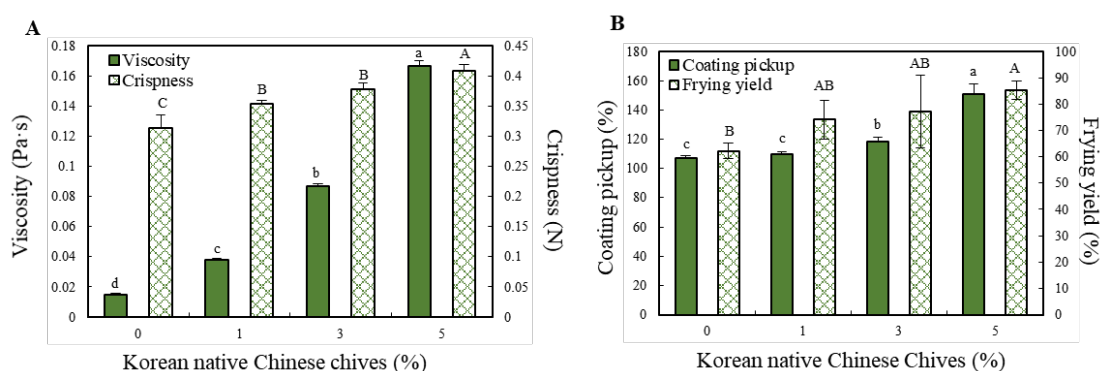


Figure 1. Viscosity and crispness (A), Coating pickup and frying yield (B) of fried chicken meat with added freeze-dried Korean native Chinese chives. a-d, A-C Means on the same bar with different letters are significantly different ($P < 0.05$)

The viscosity of the batter mixture before heating the fried chicken meat prepared by adding KNC (Figure 1-A) was 0.015-0.167 Pa·s, and it was confirmed that the 5% sample improved more than

ten times compared to the 0% sample without KNC. This improvement in viscosity is due to the high rehydration properties of the materials that have undergone the freeze-drying process [3]. According to these characteristics, KNC seems to have improved the binding force with other components in the batter mixture. The crispness of the fried batter (Figure 1-B) also increased as the amount of KNC added increased, which is thought to be because the batter mixture, which had increased viscosity, showed high hardness even after frying.

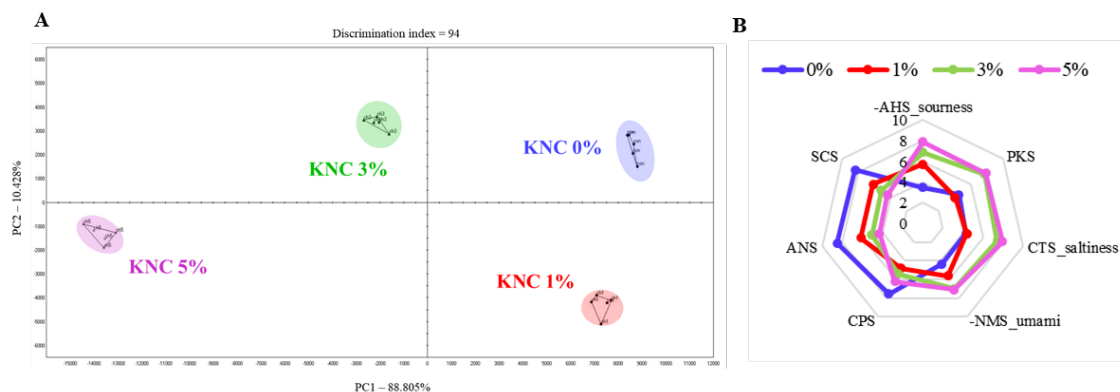


Figure 2. Principal component analysis plot for aroma profile (A) and Radial graph for taste attributes (B) of fried chicken meat with added freeze-dried Korean native Chinese chives

As a result of principal component analysis of the volatile components (Figure 2-A), the difference in flavor between samples was found to have a similar aroma between KNC 0% and 1%. It was found that samples of KNC 3% and 5% had a difference in aroma from other samples, respectively. In the PCA plot, PC1 (x-axis) and PC2 (y-axis) coordinate representing the properties of the flavor of the sample, and the similarity of flavor can be verified according to the coordinate of the samples [4]. As a result of electronic tongue analysis of fried chicken meat according to the amount of KNC added, it was found that the overall taste sensation of KNC-added samples showed different tastes compared to 0% KNC. Sourness, saltiness, and umami were all higher in the KNC-added samples than the 0% KNC sample, and accordingly, it was judged that adding KNC improved the taste sensation.

IV. CONCLUSION

The frying batter is mixed after adding a certain amount of water to form a colloid, when a material with high hydration properties is added, the viscosity increases and the overall quality characteristics are improved. For this reason, as a result of this study, it was found that adding freeze-dried Korean native chives to the batter mixture could positively affect physical properties; Also, it was confirmed that the flavor of Korean native chives could be imparted to fried chicken meat.

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