

**PE4.92      Effects of Salt Content and Drying Periods on Weight loss and Texture Properties of Dry-Cured Ham 324.00**

*PilNam Seong (1) spn2002@korea.kr;shc0915@rda.go.kr, Soohyun Cho(), Jinhyoung Kim , Beomyoung Park  
Jongmoon Lee Donghun Kim  
(1)National Institute of Animal Science*

**Abstract:**The aim of this work was to analyze the effects of salt addition level and drying period on weight loss and texture properties of dry-cured ham. In this study, three different treatments were performed: High salt group (HS), 18 hams were salted with 7 g kg<sup>-1</sup> salt (w/w); Middle salt group (MS), 18 hams were salted with 5 g kg<sup>-1</sup> salt; Low salt group (LS), 18 hams were salted with 3 g kg<sup>-1</sup> salt. Three conditions of drying period were applied such as 180 d, 270 d and 360 d. The weight losses were highest for HS group at the curing stage and highest for LS group at the post-salting stage. After fermentation stage, weight loss of HS group was higher than those of LS group ( $p<0.05$ ). As the drying period increased, weight losses of three groups were significantly ( $p<0.05$ ) increased. In texture properties of dry-cured ham, hardness of LS group was lower than those of MS and HS groups ( $p<0.05$ ) in all drying period condition. With the increase of drying period, hardness of HS group was significantly ( $p<0.05$ ) increased. Hardness of MS and LS groups were significantly ( $p<0.05$ ) increased during 270 days of drying period. In three drying period condition, springiness and chewiness of LS group were lower than those of other groups ( $p<0.05$ ). As drying period increased, cohesiveness and gumminess and chewiness of all treatment groups were significantly ( $p<0.05$ ) increased.

P. N. Seong is with the National Institute of Animal Science, Suwon, Korea (82-31-290-1699; fax: 82-31-290-1697; e-mail: spn2002@korea.kr). J. H. Kim is with the National Institute of Animal Science, Suwon, Korea (e-mail: jhkim702@korea.kr). S. H. Cho is with the National Institute of Animal Science, Suwon, Korea (e-mail: shc0915@korea.kr). B. Y. Park is with the National Institute of Animal Science, Suwon, Korea (e-mail: byp5252@korea.kr). J. M. Lee is with the National Institute of Animal Science, Suwon, Korea (e-mail: jm9758@korea.kr). D. H. Kim is with the National Institute of Animal Science, Suwon, Korea (e-mail: kd8485@korea.kr).

**Index Terms:**salt content, drying periods, weight loss, dry-cured ham.

## I. INTRODUCTION

Dry-cured hams are common ways to keep pork in the South European countries. The traditional dry-cured hams have been produced using only pork, sea salt, fresh mountain air and time in Southern Europe for 2000 years. Dry-cured ham represents the main cured

product in Italy (Parma), Spain (Jamon), China (Jinhua), and U.S. (Country ham). Dry-cured ham is famous for its unique sensory characteristics such as the intense red colour and cured aroma. Sensory characteristics of dry cured ham are related to its physicochemical composition. Salting is one of the key steps in dry-cured ham processing; salt is bacteriostatic agent [3], contributes to the typical salty taste of dry-cured ham and influences the development of proteolysis phenomena [2]. We have good circumstances to make dry-cured ham because the resources, ham, is cheap in Korea. However, Koreans have not had raw ham traditionally and have shorter history of meat processing, so they don't sell dry-cured ham now commercially. The aim of this work was to analyze the effect of salt content and drying periods on weight loss and texture properties of dry-cured ham.

## II. MATERIALS AND METHODS

Fifty four ham were obtained from local cross-bred swine farm (5-6 months, 100-110 kg). The hams were placed on shelves in a cold room held at 1-4°C and salted in the lean part of the raw ham for four weeks. Three different treatments were formulated as follows: (1) The HS (high salt) group with 7 g kg<sup>-1</sup> salt (w/w), (2) The MS (middle salt) group with 5 g kg<sup>-1</sup> salt (w/w), (3) The LS (low salt) group with 3 g kg<sup>-1</sup> salt (w/w). All hams were held for four weeks at 1-4°C After washing to remove salt from the surface, samples were processed according to [1]. The weight difference of ham between before and after processing was measured to calculate weight losses. Biceps femoris muscles were removed from hams. The texture Analyzer (Instron Model 4465, Instron Corp, UK) was used to carry out a Texture Profile Analysis (TPA) (Bourne, 1978). The speed of load cell was 120 mm/min. The following parameters were calculated: hardness (kg), springiness (mm), cohesiveness, gumminess (kg) and chewiness (kg\*mm). Color of ). Results were analyzed using the General Linear Models (GLM) of the Statistical Analysis System [4]. Significant differences were analyzed by Duncan's Multiple Range test at  $p<0.05$ .

### III. RESULTS AND DISCUSSION

The weight losses were highest (5.62%) for HS group at the curing stage and highest (12.35%) for LS group at the post-salting stage (Table 1). After the fermentation stage, weight loss of HS group was higher than those of LS group ( $p < 0.05$ ). As the drying period increased, weight losses of three groups were significantly ( $p < 0.05$ ) increased (Table 2). Total weight loss was not significantly ( $p > 0.05$ ) different among three salt addition level (Table 3). In texture properties of dry-cured ham, hardness of LS group was lower than those of MS and HS groups ( $p < 0.05$ ) in all drying period conditions. With the increase of drying period, hardness of HS group was significantly ( $p < 0.05$ ) increased. Hardness, of MS and LS groups was significantly ( $p < 0.05$ ) increased during 270 days of drying period but it were not significantly ( $p > 0.05$ ) changed after that period. In three drying period condition, springiness and chewiness of LS group were lower than those of other groups ( $p < 0.05$ ). As drying period increased, cohesiveness and gumminess and

chewiness of all treatment groups were significantly ( $p < 0.05$ ) increased.

### IV. CONCLUSION

The result of this study indicated that salt addition level and drying period affect texture properties of dry-cured ham.

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