

PE7.25 Effect of Gelatin Level on the Quality Characteristics of Cooked Seasoned Chicken Meat with Red Pepper Paste and Soy Sauce 244.00

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Abstract—The objective of this research was to investigate the effect of gelatin level (0%, 2.5%, and 5%) on the quality characteristics of cooked seasoned chicken meat with red pepper paste and soy sauce. The higher gelatin level showed a lower pH, TRA, a^* and b^* values, hardness, and a higher ORP, TBARS content. The addition of soy sauce showed a lower ORP, TBARS content, a^* and b^* values, and a higher pH, TRA, L^* value, hardness.

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Index Terms—gelatin level, cooked seasoned chicken meat.

I. INTRODUCTION

GELATIN is a water-soluble protein mixture of high molecular weight and is produced from animal skin and bones by heat treatment [1, 10]. It enhances the elasticity, consistency, and stability of foods [1]. Moreover, its hydrolysates contain some peptides, which have free-radical scavenging activity [6].

Seasoned meat products can be processed with various seasonings, such as red pepper paste, soy sauce, soybean sauce, pickled shrimps sauce, onion

sauce, and *Kimchi* sauce. Many studies on seasoned meat with different seasonings have been reported previously [2, 3, 4]. However, there is little information on the effect of gelatin in seasoned meat.

Therefore, the objective of this research was to investigate the effect of gelatin level on the quality characteristics of cooked seasoned chicken meat with red pepper paste and soy sauce.

II. MATERIALS AND METHODS

A. Sample preparation

Experimental seasoned meat was processed with two seasoning (red pepper paste and soy sauce) and three levels of gelatin (0%, 2.5%, and 5%). Sixty-five point ninety-two percent of commercial fresh chicken leg meat/gelatin (65.92/0, 63.42/2.50, and 60.92/5.00), 21.86% of seasoning, 2.50% of refined sugar, 3.51% of Cheongyang green pepper, 3.12% of hot sauce, 1.23% of onion, 1.23% of garlic, and 0.63% of curry were mixed using a vacuum mixer, stuffed in a $\varnothing 90$ mm PVDC casing (Teepak Co., USA), and steam-heated until an internal temperature of 85°C was reached. Following slightly freezing at -20°C, samples were cut into about 2 cm thickness.

B. Experimental methods

The pH was measured by a pH meter (SevenEasy pH, Mettler-Toledo GmbH, Switzerland). Oxidation-reduction potential (ORP) was determined as described by Nam and Ahn [7] and expressed as mV. Total reducing ability (TRA) was determined as described by Lee et al. [5] and expressed as absorbance of 1 mM potassium ferricyanide minus absorbance of sample. Lipid oxidation was performed by the TBARS (2-thiobarbituric acid reactive substances) method of Sinnhuber and Yu [9] and expressed as mg malonaldehyde (MA) per kg meat. CIE L^* , a^* , and b^* values were measured by a chroma meter (CR-

400, Konica Minolta Sensing, Inc., Japan. Texture profile analysis (TPA) was determined by a texture analyzer (TA-XT2i version 6.06, Stable Micro Systems, UK) equipped with a ϕ 75 mm aluminium platen. Data was analyzed by the General Linear Model procedure of SAS program [12].

III. RESULTS AND DISCUSSION

The effect of gelatin level on the pH of cooked seasoned chicken meat with red pepper paste and soy sauce is presented in Fig. 1. The pH of the red pepper paste was significantly ($P<0.05$) decreased by the addition of 5% gelatin and that of the soy sauce was significantly ($P<0.05$) decreased by the addition of 2% and 5% gelatin. The soy sauce had a higher ($P<0.05$) pH than the red pepper paste.

The ORP (Fig. 1) of the red pepper paste was significantly ($P<0.05$) increased by the addition of 2.5% gelatin and that of the soy sauce was significantly ($P<0.05$) increased by the addition of 5% gelatin. The soy sauce had a lower ($P<0.05$) ORP than the red pepper paste.

The TRA (Fig. 2) of the red pepper paste and the soy sauce were significantly ($P<0.05$) decreased by the higher level of gelatin. The soy sauce showed a higher ($P<0.05$) TRA compared with the red pepper paste.

The TBARS content (Fig. 2) of the red pepper paste and the soy sauce were significantly ($P<0.05$) increased by the higher level of gelatin. The soy sauce showed a lower ($P<0.05$) TBARS content compared with the red pepper paste.

The L^* value (Fig. 3) of the red pepper paste and the soy sauce were significantly ($P<0.05$) decreased by the addition of gelatin regardless of gelatin level. The soy sauce got lighter ($P<0.05$) than the red pepper paste.

The a^* and b^* values (Fig. 3) of the red pepper paste and the soy sauce showed the tender to be decreased by the higher level of gelatin. The soy sauce got less ($P<0.05$) red and yellow than the red pepper paste.

The hardness among TPA (Fig. 4) of the red pepper paste and the soy sauce were significantly ($P<0.05$) increased by the addition of 5% gelatin. The soy sauce showed the tender to be harder compared with the red pepper paste.

IV. CONCLUSION

The effect of gelatin level on the quality characteristics of cooked seasoned chicken meat with red pepper paste and soy sauce was investigated in this research. The higher level of gelatin decreased the oxidation stability and color quality but improved the textural quality. Moreover, the addition of soy sauce improved the oxidation

stability and textural quality but decreased the color quality.

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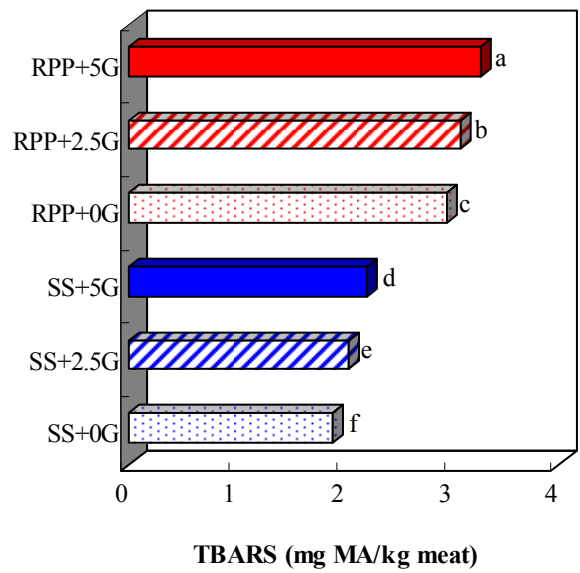
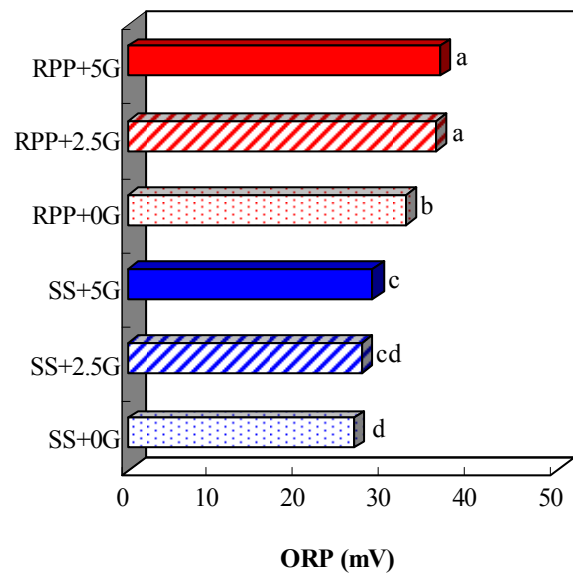
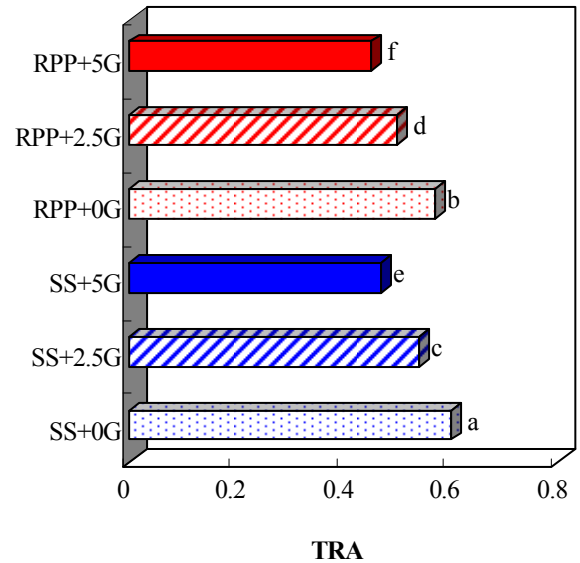
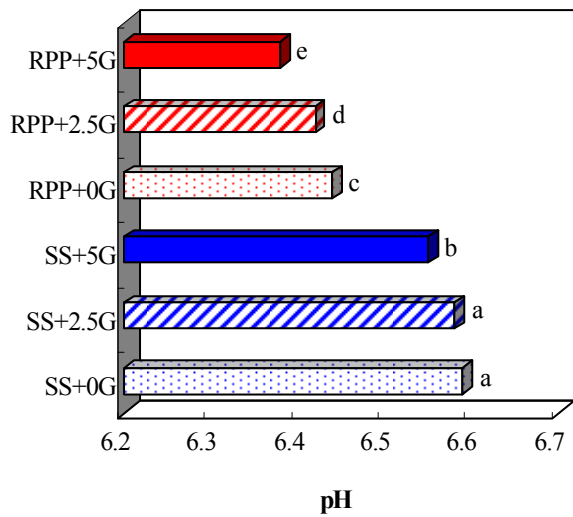


Fig. 1. The effect of gelatin level on the pH and ORP of cooked seasoned chicken meat with red pepper paste and soy sauce.

Fig. 2. The effect of gelatin level on the TRA and TBARS content of cooked seasoned chicken meat with red pepper paste and soy sauce.

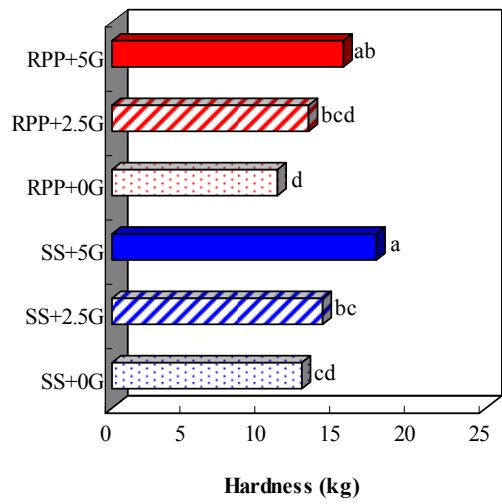
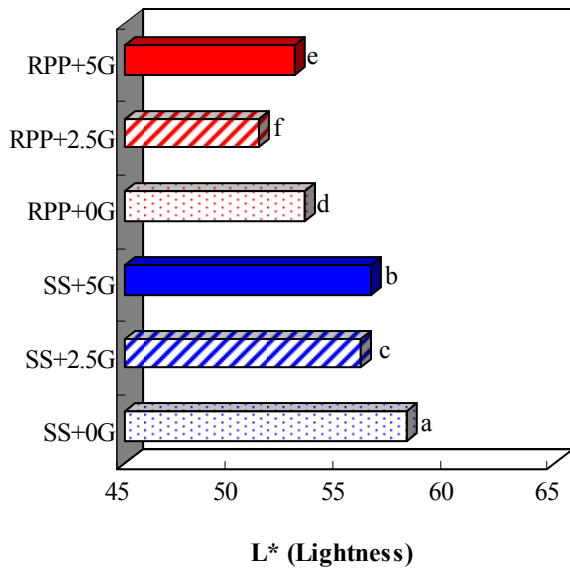


Fig. 4. The effect of gelatin level on the TPA of cooked seasoned chicken meat with red pepper paste and soy sauce.

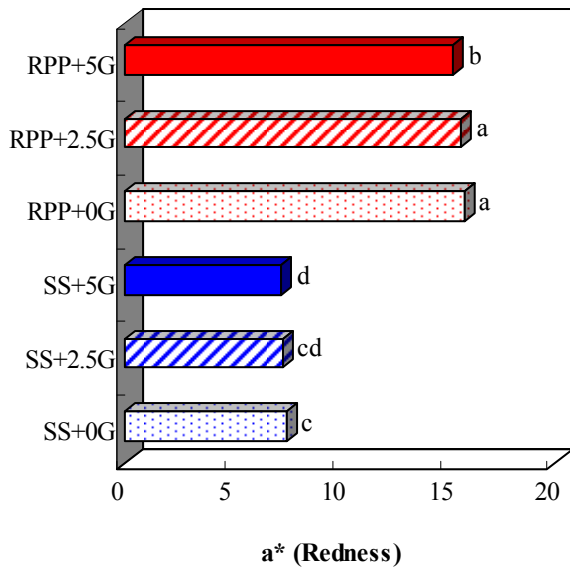


Fig. 3. The effect of gelatin level on the color of cooked seasoned chicken meat with red pepper paste and soy sauce.