Effect of Bamboo Charcoal on the Quality Changes of Fresh Pork Sausage during Refrigeration

Y. T. Lai[*1], T. F. Tseng[1], J. H. Yang[1], C. K. Chou[1]

[1]*Department of Animal Science, National Chiayi University ,No.300 Syuefu Rd., Chiayi City, Taiwan*

Key Words: Bamboo charcoal, fresh pork sausage, refrigeration, color, quality

Introduction

In cope with the demand for healthy food for people, the use of chemical additives is gradually reduced, so as to the meat products, the natural additives are desirable, such as the use of antioxidant. Bamboo charcoal has a lot of unique nature, e. g. deodorization, soften water quality, restrain the bacteria, anti-oxidation and filter ability. In recent years, it has been vastly used such as bacteria restrain and anti-oxidation are mostly to pay attention. In addition, add it in food can help digest and also helpful to remove internal sundries. In this experiment, adding the bamboo charcoal powder in fresh pork sausage and attempting to find the quality changes during refrigeration.

Materials and Methods

Lean meat of hog foreleg part and back fat were used for making fresh sausage, and seasoning and different percentages of bamboo charcoal powder (0, 0.1, 0.3 and 0.5%) were added. The products were placed on polypropylene trays, packed with plastic film and stored at 4℃ for 15 days. Randomly sampling was adopted at day 0, 3, 6, 9, 12 and 15 during refrigeration. The moisture content, pH value, color, TBA value, water activity and total plate count were measured.

The moisture content measured according to A.OA.C (1990), the pH value referred to Ockerman (1972), the color measured L (lightness), a (redness) and b (yellowness) value by Handy Colorimeter, the TBA value referred to Faustman *et* al. (1992), the water activity measured by PAW-KIT water activity meter, and the total plate count referred to FDA (1976).

Results and Discussion

The results were shown that both of moisture content and water activity were no difference among the treatments. The pH value of the products decreased with the storage time, but was not different among the treatments. In color aspect, the L value (Figure 1) and a value (Figure 2) of bamboo charcoal powder addition group had lower than control. The b value was no difference among the treatments, one of addition bamboo charcoal powder 0.5% group was the lowest. The TBA value among the treatments increased with storage time, however, it was depressed with bamboo charcoal powder addition level. Total plate count (Figure 3) was no difference among the treatments, but was increased with storage time.

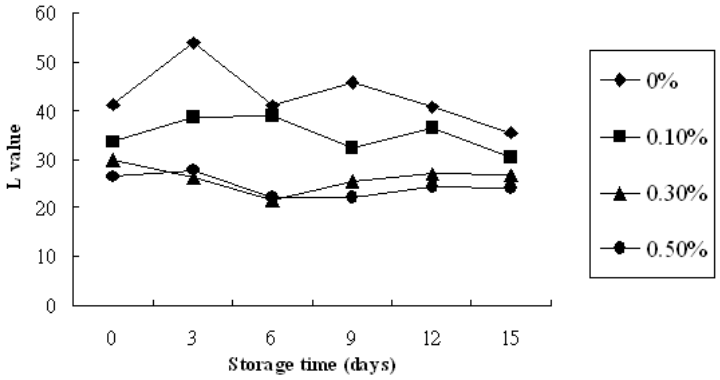

Figure 1. The L value of fresh pork sausage with different percentages of bamboo charcoal powder added during 15 days storage at 4 ℃.

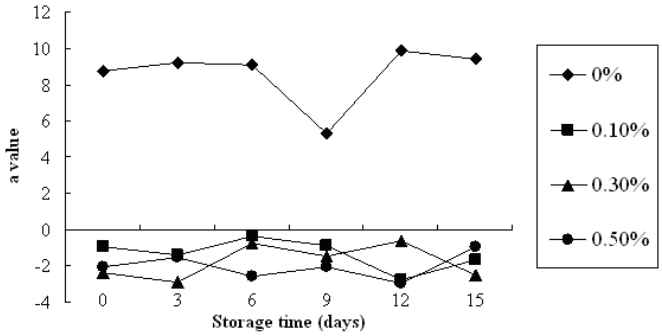

Figure 2. The a value of fresh pork sausage with different percentages of bamboo charcoal powder added during 15 days storage at 4 ℃.

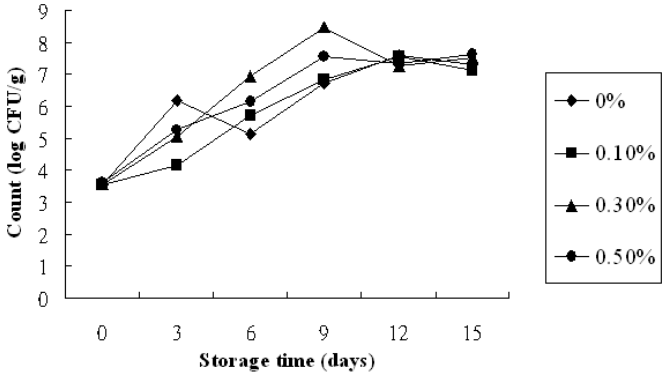

Figure 3. The change of total plate count of fresh pork sausage with different percentages of bamboo charcoal powder added during 15 days storage at 4 ℃.

Conclusions

The results indicated that adding the bamboo charcoal powder in fresh pork sausage lowered L-, a- value and depressed TBA value during refrigeration.

References

1. A.O.A.C. (1990). Official Methods of Analysis. 15th ed. Association of official Analytical Chemist, Virginia, USA.
2. Buys, E. M. (2004). Colour changes and consumer acceptability of bulk packaged pork retail cuts stored under O_2, CO_2 and N_2. Meat Sci. 68: 641-647.
3. Faustman, C., S. M. Specht, L. A. Malkus, and D. K. Kinsman. (1992). Pigment oxidation in ground veal: influence of lipid oxidation, iron and zinc. Meat Sci. 3: 351-362.
4. Haak, L., K. Raes, K. Smet, E. Claeys, H. Paelinck, and S. De Smet. (2006). Effect of dietary antioxidant and fatty acid supply on the oxidative stability of fresh and cooked pork. Meat Sci.74:476-486.
5. Martıínez, L., I. Cilla, J. A. Beltrán, and P. Roncalés. (2007). Effect of illumination on the display life fresh pork sausages packaged in modified atmosphere. Influence of the addition of rosemary, ascorbic acid and black pepper. Meat Sci. 75: 443-450.