

Consumer Acceptance of Commercial Natural and/or Organic Processed Meats

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Summary and Implications

Four commercial brands each of natural/organic bacon, hams and frankfurters were evaluated for color, pigment content, pH, lipid oxidation, residual nitrate and nitrite content and sensory panel assessments. One conventionally – cured product of each type was analyzed for the same properties to provide a control for comparison with the organic/natural processed products. The results showed that some natural/organic processed meats are comparable to conventionally cured products but the variation of properties in this group of products was relatively greater than what is typically expected for cured meat products. This means that a better understanding and better processing control of the natural/organic processed meat products is necessary to provide consumers with products of consistent quality and safety.

Introduction

Consumer interest in natural and organic foods has resulted in growth of over 20% per year in market offerings of these food products. Meat and meat products have been one of the fastest growing food categories in the natural and organic markets. However, preservatives such as nitrate or nitrite are not permitted in natural or organic processed meats. This means that bacon, ham, frankfurters and similar cured meat products cannot be produced by traditional meat curing methods. Meat processors have devised alternative meat curing procedures using natural sources of nitrate from vegetables. This study was initiated to determine if quality and sensory differences exist between naturally cured processed meats and those produced by conventional commercial procedures.

Materials and Methods

Four commercial brands each of natural/organic bacon, hams and frankfurters were obtained from retail supermarkets on two separate occasions to represent two replications of the experiment. A well-recognized, high-quality commercial brand of each product that was produced by conventional curing methods was used as a control. Each product was analyzed for cured color (Hunter Lab), cured and total pigment content, pH, thiobarbituric acid analysis for lipid oxidation, residual nitrite and nitrate, and

sensory panel aroma, color, flavor, texture and overall acceptance.

Results and Discussion

Results showed that the natural/organic products were more variable for many cured meat attributes including residual nitrite and lipid oxidation than typically observed in conventionally cured products, and this variation was reflected in sensory panel assessments. Table 1 shows the sensory panel results for overall acceptance of bacon, hams and frankfurters.

Table 1. Overall acceptance scores* by sensory panels for natural/organic bacon, hams and frankfurters. (Brands A-D) relative to conventionally cured products (Brand E)

Product	Brands **				
	A	B	C	D	E
Bacon	5.91 ^{fh}	3.58 ^g	6.35 ^{eh}	6.89 ^{de}	7.05 ^d
Ham	6.09 ^f	5.22 ^g	6.89 ^d	4.45 ^e	6.77 ^d
Frankfurters	4.51 ^{fg}	3.98 ^f	5.00 ^{deg}	4.87 ^{dg}	5.66 ^e

* Panelists used a 9-point scale where 1 = dislike extremely and 9 = like extremely

**Means within a row with different superscripts are different (P<0.05).

In each of the product types of bacon, ham and frankfurters, there was at least three of the natural/organic products that were scored significantly lower than the conventionally-cured control for overall acceptance by the sensory panels. Therefore, the alternative processes used to achieve natural/organic processed meats result in greater variation of cured product properties than the conventional curing process, and this is reflected in sensory panel scores. Consequently, quality differences in these products are obvious and are likely to be detected by consumers. It is critical that processing procedures for natural/organic processed meats be standardized so that consumers are provided with products of consistent quality and assured safety.