COBISS: 1.08
Agris category code: E73

CONSUMERS ACCEPTABILITY OF SLAVONIAN "KULEN" SAUSAGE: INFLUENCE OF PIG BREED INFORMATION

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ABSTRACT

This research examined the influence of information about pig breed (Black Slavonian pig breed (BSB) or modern white breeds (MWB) on consumer acceptability of traditional Slavonian "kulen" sausage. Hedonic evaluations of two "kulen" samples were obtained from 100 consumers under both blind and informed tasting conditions. Additionally, consumers reported their quality expectations regarding BSB and MWB "kulen". An expectancy test revealed higher quality expectations of BSB "kulen" compared to MWB "kulen". The share of respondents preferring BSB "kulen" in a blind test was significantly lower than in the expectancy test (negative disconfirmation). In contrast, the consumers found MWB "kulen" tasted better than expected (positive disconfirmation). Providing the information about pig breed affected consumer preferences; positively towards BSB and negatively towards MWB "kulen". However, the assimilation of information was complete for MWB, but not for BSB "kulen", implying that, apart from extrinsic cues, intrinsic cues have an impact on actual (informed) preferences for "kulen" sausage.

Key words: consumers / assimilation model / dry sausages / Slavonian kulen / pig breed / Black Slavonian pig

1 INTRODUCTION

In recent years, traditional meat products, very often produced from local breeds and in sustainable production systems, are gaining a renewed and increased interest from consumers across Europe (Iaccarino *et al.*, 2006). This trend is also evident in the use of local Black Slavonian pigs in Croatia for the production of traditional meat products. This pig breed, with its origin in Slavonia, an eastern region of Croatia, has over time been largely replaced by more productive pig breeds and crossbreeds. Among typical meat products, one of the best-known is Slavonian "kulen" – a traditional dry sausage that is greatly appreciated among consumers and holds excellent position in the local markets. Slavonian "kulen" is nowdays, however, produced mainly from the meat of more productive modern pigs. Marketing strategies for traditional product diffusion often emphasize product attributes generated by geographical characteristics of manufacturing area or the use of traditional and distinctive production practices, including traditional animal breeds or plant varieties, in order to communicate with consumers about product quality. Several recent papers deal with the influence of product information such as origin, label or manufacturing practice on consumers' acceptability of traditional meat products, like dry-cured hams (e.g. Resano *et al.*, 2007) and salami (e.g. Iaccarino *et al.*, 2006). Influence of sensory information test explained by an assimilation model (Deliza and MacFie, 1996) shows that preferences move towards expectations when external information is given compared to tasting without external information. This article gives an outline of the study in which information about pig breed (traditional vs. modern) used in sausage production was given and its influence on consumers expected, perceived and actual preferences of Slavonian "kulen" was investigated (Cerjak *et al.*, 2011).

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2 MATERIAL AND METHODS

Details about products, consumers' socio-demographics, and testing procedure are given in Cerjak *et al.* (2011). Briefly, a face-to-face survey with a sample of 100 consumers was organized in a food specialty shop in Zagreb. Effect of pig breed on consumers' acceptance of Slavonian "kulen" was examined in a three-step procedure. The three tests were used to determine perceived (1), expected (2) and actual (3) sausage preference (Table 1).

In the first test participants had to taste and evaluate two different samples of "kulen" produced from the meat of the Black Slavonian breed (BSB) and the modern white breed (MWB). Both "kulen" samples were about 6 months old and were produced by one small-scale facility in the Slavonia region of Croatia following the same technological parameters and using the same types of ingredients (selected pork and back fat, table salt and spices such as red paprika and garlic). A 5-point hedonic scale was used to measure the overall acceptability of the coded, randomly ordered samples on the basis of their overall taste, smell and appearance (perceived liking). In the second step, the participants were asked to express their opinion about "Which "kulen" is better – one made from meat of BSB or "kulen" made from meat of MWB?", e.g. to express their expectation on quality of such products (expected liking) using a close-ended question with four possible answers: "BSB kulen", "MWB kulen", "both kulens are the same", and "I do not know". Finally, the respondents tasted two additional samples of "kulen" marked with the pig breed they were made from. The respondents again were asked to indicate their opinion of the two samples of "kulen" tasted on the same scale (actual liking). The consumers were not informed that the samples of "kulen" in the two sensory tests were the same.

A paired t-test was used to compare the differences in sensory evaluations of "kulen", either between two products (BSB and MWB kulen), or for the same product under different information conditions (tasting only, tasting with information). Values are presented as mean ± standard deviation. In order to test the differences between expected, perceived and actual preference, the respondents of each test conditions were divided into three groups: those preferring BSB "kulen" (higher scores for BSB kulen in sensory tests), those preferring MWB "kulen" (higher scores for MWB kulen in sensory tests) and respondents having no preferences regarding pig breed. The differences between three test conditions were examined by means of a Chi-square test.

3 RESULTS AND DISCUSSION

Results of sensory evaluations of BSB and MWB "kulen" are given in Table 2. Both samples of "kulen" tasted in blind tests received high scores (above the central point); however, a significant difference between perceived liking of different samples of "kulen" existed ($P < 0.001$): "MWB kulen" was evaluated with a higher average mark compared to "BSB kulen".

Scores indicating actual liking of both "kulen" types were also above the central point. Participants showed significantly higher preference ($P < 0.001$) towards "BSB kulen" (4.5) compared to "MWB kulen" (3.8) in this informed sensory test. Analysis confirmed that information about pig breed significantly changed the absolute evaluation of both types tested ($P < 0.001$). Breed information tests showed increased consumer acceptance of "BSB kulen" and decreased acceptance of "MWB kulen". Shares of respondents divided into three groups (preferring "BSB kulen", preferring "MWB kulen", and no preference) reflecting three test conditions perception (P), expectation (E) and actual (A) are presented in Table 3.

The percentage of respondents preferring "BSB kulen" in the expectation test was significantly higher than the percentage of respondents in the blind test ($P < 0.001$), i.e. the product was worse than expected ($E - P > 0$) indicating that a negative disconfirmation occurred. In contrast, a significant difference between the percentage of respondents preferring "MWB kulen" in the expectancy and the blind test ($P < 0.001$) shows positive disconfirmation ($E - P < 0$) meaning that "MWB kulen" taste in blind test was better perceived than expected. The present study indicates that information about traditional pig breed being used in "kulen" production can positively influence consumer expectancy regarding its quality, while information on modern industrial breeds can reduce consumers' expectations regarding "kulen" quality. Similarly, Resano

Table 1: *Summary of the experimental design for the consumer sensory study*

Test	Stimulus presentation	Type of evaluation
1	BSB "kulen" + MWB "kulen"	Tasting without information
2	Information about pig breed	Expectation
3	BSB "kulen" + MWB "kulen" + information about pig breed	Tasting with information

BSB – Black Slavonian breed, MWB – modern white breed

Table 2: *Results of sensory evaluations of "kulen" made from BSB and MWB meat (n = 100)*

Sensory evaluation[a]	BSB	MWB	Average difference	P–value[b]
Blind – perceived liking	3.93 ± 0.81	4.39 ± 0.69	−0.48	< 0.001
Informed (pig breed) – actual liking	4.47 ± 0.72	3.80 ± 0.85	0.67	< 0.001
Average difference	−0.54	0.59		
P–value[b]	< 0.001	< 0.001		

BSB – Black Slavonian breed, MWB – modern white breed; [a] 5 – point hedonic scale: 1 – dislike very much, 2 – dislike, 3 – neither like nor dislike, 4 – like, 5 – like very much; [b] paired t-test

et al. (2007) showed that recognition of Spanish origin and Iberian breed positively affect the hedonic evaluation of dry-cured ham. Discrepancy between expected and perceived product quality can affect the acceptability of the product during the informed test, which is indicative of the actual preference, when expected and experienced qualities are integrated. The share of respondents preferring "BSB kulen" in the blind test was significantly lower compared to the share of respondents in the informed test (A–P = 39, $P < 0.001$), whereas the share of respondents preferring "MWB kulen" was lower in informed sensory tests (A–P = −44, $P < 0.001$). The effect of information on food acceptance could be explained by the assimilation model (Deliza and MacFie, 1996) which predicts that either when expectations are high but sensory quality of the product is low (a state of negative disconfirmation) or when expectations are low but sensory quality is high (a state of positive disconfirmation), the perceived acceptability will assimilate the (higher) level of the expectation and judgment will move toward expectations. The assimilation model is applicable to both BSB and MWB "kulen" types because in both cases respondent preferences moved towards the expectations when the information concerning pig breed was given, as compared to tasting of samples without breed information. However, as indicated in the Table 3, participants did not fully assimilate in the direction of the expectations regarding "BSB kulen". The percentage of respondents preferring BSB was higher in the expectancy test compared to the informed test (A–E = −21, $P < 0.001$). This means that both extrinsic (information about breed) and intrinsic (sensory properties) attributes had an impact on actual preference for "kulen" type and that sensory evaluation remains very important when consumers judge the products knowing the origin of the raw material. This result agrees with studies on other products where incomplete assimilation has been demonstrated (e.g. Siret and Issanchou, 2000, Iaccarino *et al.*, 2006). On the contrary, despite the good eating quality of "MWB kulen", as indicated by the high percentage of respondents preferring it in blind conditions, respondents completely assimilated towards MWB expectations (A–E = 14, $P > 0.05$). Namely, most consumers have developed rather negative attitudes towards "modern breeds". This is a good indicator of the changing context of consumption culture and the growing consumer interest for the so-called "typical" or culturally traditional foods.

4 CONCLUSIONS

Results confirm that information evoking the traditional origin of raw material (local pig breed) creates a favorable expectation for taste by consumers. In blind sensory tasting consumers preferred "kulen" from mod-

Table 3: *Share (%) of respondents with different preferences in three test conditions*

	% of respondents	
Preferred "kulen"	BSB	MWB
Blind test – perceived preference (P)	27	63
Expected preference (E)[a]	87	5
Informed test – actual preference (A)	66	19
E–P	60*, negative disconfirmation[b]	−58*, positive disconfirmation[c]
A–P	39*, assimilation[d]	−44*, assimilation[d]
A–E	−21*, incomplete[e]	14, complete[f]

BSB – Black Slavonian breed, MWB – modern white breed; [a] Excluded respondents answering "I don't know" (39 respondents); [b] Product is worse than expected; [c] Product is better than expected; [d] Actual liking moves towards the expectations; [e] Assimilation occurs, but actual liking is still different from expectations; [f] Assimilation occurs, and actual liking is similar to expectations; * $P < 0.001$, Chi-square test

ern pig breeds over "kulen" from Black Slavonian breed. Nevertheless, tasting accompanied with information about pig breed changed consumers preferences towards "kulen" from Black Slavonian breed meaning that information on breed influenced their preferences. However, the hedonic discrepancy between blind and informed tests was only partially assimilated in favor of "kulen" from Black Slavonian breed showing that both sensory properties and information about pig breed influence consumers' preferences. It can be concluded that information about local pig breeds and implied traditional value can significantly influence consumers' expectations and therefore can be used as a differentiation tool in marketing of traditional meat products such as Slavonian "kulen".

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