Sensory Analysis of Dehydrated Plums and Pears

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Abstract

Smoked plums and pears are highly appreciated in Romanian food culture as traditional healthy dessert. Safety concerns about smoked fruits led to the application of slow dehydration at low temperatures (SDLT) as gentle method to prologue the product shelf life. The aim of this study was to evaluate the consumers' expectations and perception both prior and after tasting of dried plums and pears obtained by SDLT. A questionnaire of 15 questions with 5 point Hedonic scale was addressed to regular consumers of dried fruits (N=97). Alongside with willingness to buy and perception of product quality, the respondent's expectations were evaluated before tasting the product (for product general appearance, colour and expected taste) and after tasting (for taste and consistency). Promising results were obtained for both pears and plums, thus concluding that the respondents are open to accept new processing methods for traditional products as long as there is a beneficial sensorial advantage in the perceived quality of the product.

Keywords: *consumer, dried pears, dried plums, sensory analysis.*

Introduction

Smoked dried plums and pears are considered a traditional healthy dessert in European food culture, consumed especially during cold seasons (White, 2011, Sadler, 2015). Fruits are an important source of nutrients like vitamins, minerals and dietary fibers as well as antioxidants (Caballero *et al.*, 2012, Sadler, 2015). However, their contribution to human health is greatly influenced by consumption rate, which in turn is influenced by consumer's preference. Consumer's preference is strongly influenced by postharvest factors like product flavor and development of off-flavors during drying (Caballero *et al.*, 2012). Usually, the fruit drying process includes smoking or addition of sulphites which alter the taste and appearance of dried fruits. Fruit preservation by smoking arouses safety issues due to development of toxic compounds and fixation in the product (Caballero *et al.*, 2012).

Aims and objectives

The research aims to evaluate for the first time in Romania the consumers' expectations and perception of dried plums and pears obtained through slow dehydration at low temperatures (SDLT). The first objective was to assess the consumers' expectations about the products prior to tasting. The second objective was to evaluate their perception after the tasting.

Materials and methods

A questionnaire (15 questions) was applied in two specialized shops for natural and bio products in Deva and Cluj-Napoca, between 1st and 23rd of October 2013. The questionnaire was adapted after Dătculescu, 2013 and responses were indicated on a 5 point Hedonic scale: 1– extremely unpleasant, 2 – unpleasant, 3 – neither like nor dislike, 4 – like, 5 – like very much (Lawless and Heymann, 2010). The survey was addressed to 97 respondents, regular

Tab 1. Hedonic scores of consumers' evaluation before and after tasting the SDLT plums and pears

Sensory evaluation	Pears		Plums	
	Before tasting	After tasting	Before tasting	After tasting
Overall appreciation	3.87±0.69	4.40±1.10	4.64±1.47	4.64±1.47
Color	4.07±1.08	-	4.50±1.30	-
Texture	-	2.60±0.77	-	3.00±1.08
Taste	3.86±0.83	4.80±1.68	4.57±1.28	4.71±1.50

consumers of dried fruits. The passive observation of consumers' behavior at shelf was the tool used for the sample selection. There were selected only consumers interested in buying dried fruits. In order to evaluate the respondents' expectations, they were asked first to evaluate the appearance, color and texture before tasting the product. Secondly, they were asked to evaluate the taste and texture of the product and record the score on the same scale. Statistical data interpretation (average, standard deviation, Pearson correlation) was performed on Microsoft Excel 2010.

Results

High hedonic scores were recorded for color of the products (4.07 ± 1.08 for pears and 4.50 ± 1.30 for plums, which places the products between "like" and "like very much" on hedonic scale). The respondents indicated scores above 3 for overall appreciation and taste of the products, both prior and after tasting (Table 1). Texture of the products was not highly appreciated (only scores below 3 were obtained, see Table 1). It can be noticed that consumers are much more familiar with dried plums than pears; therefore, the hedonic score for plums prior and after tasting are similar. Still, a high appreciation score after the tasting of pears is stimulatory for producers to develop new products similar to traditional ones. The lower score recorded prior tasting proves the precautionary principle of consumers.

The SDLT pears were perceived as "high quality product" by 53% of respondents and "very nourishing" by 87% of respondents. The SDLT plums were perceived as "high quality product" by 71% of respondents and "very nourishing" by 97% of respondents. These results positively correlated with the willingness to buy SDLT pears (r^2=0.92) and SDLT plums (r^2=0.80). Other studies focused on instrumental analysis of different sensorial characteristics (e.g. color and texture: Rodriguez et al, 2015) or sensory analysis of fresh fruits (Nisar et al, 2015).

Conclusion

This original study is the first in Romania that reports the expectations of consumers before product tasting (dried fruits) and evaluation of the same sensorial characteristics after tasting. Insignificant differences were identified before and after tasting of known product (dried plums), and small differences were recorded before and after tasting of unknown product (dried pears). Still, a positive outcome for new product tasting experience is encouraging for producers. These findings are useful for both social economy enterprises interested to obtain new types of natural dehydrated fruits and for consumers.

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