

Incorporation of dry distilled rose petals extract in food matrix of cooked functional sausages with reduced nitrite content (#256)

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Introduction

In recent years, the attention of a large number of consumers has been focused on eating of healthier foods, but without significantly altering their eating habits (Menrad, 2003). To alleviate this, a variety of functional foods are introduced into the market as a means of reducing the risk of so-called “metabolic diseases”, which seeks to eliminate or strongly reduce the fat content of various supplements (Fernandez-Ginès et al., 2005) and nitrites (Balev et al., 2015). The objective of this work was to develop a new technology for incorporation of dry distilled rose (*Rosa damascena* Mill) petals extract (DDRPE) in food matrix of functional cooked sausages.

Methods

The dry distilled rose petals was provided by Nara Geo Company (Otets Paisievo, Bulgaria). After pressing in laboratory conditions, they were dried (60°C, 6 h). Polyphenol copigments were extracted with a water-alcohol mixture (70% ethanol) of finely ground (particle size < 0.4 mm) dry pressures in a hydromodule 20:1 (v/w). After continuous stirring (20 rpm) for 1 hour at room temperature, the extraction mixture was filtered, eluted with ethanol. The organic solvent was evaporated in vacuum at 30°C and lyophilized for 72 h. The DDRPE was added in an amount of up to 0.05, 0.03 or 0.01 g/kg to the sausages filling mass produced with addition of 0.01, 0.03 or 0.05 g NaNO₂/kg. Six sample types were studied (Table 1).

Table 1. Receipts of examined sausage samples

Ingredients, g/kg	Samples						
	Controls		Experimental samples				
C	C½	RPE1	RPE2	RPE3	RPE4	RPE5	
Beef	500	500	500	500	500	500	500
Pork	500	200	200	200	200	200	200
Salt	20	20	20	20	20	20	20
Sodium nitrite	0.10	0.05	0.01	0.01	0.05	0.05	0.03
DDRPE	-	-	0.01	0.05	0.01	0.05	0.03
Polyphosphates	2	2	2	2	2	2	2
Flaky ice	200	200	200	200	200	200	200

The protein oxidation was measured by the content of carbonyls using 2,4-dinitrophenylhydrazine by using two-lantern UV-VIS spectrophotometer

Camspec, model M 550 (Camspec Ltd., Cambridge, UK) by the method of Santé-Lhoutellier et al. (2008).

The 2-thiobarbituric acid (TBA) reactive substances were determined by the method of Botsoglou et al. (1994). The ANOVA analysis was used to estimate the significant ($p < 0.05$) differences (SAS Institute Inc.).

Results

The DDRPE was found to reduce protein (Figure 1) and lipid (Figure 2) oxidation in the cooked sausages and can be successfully used in the production of functional meat products with 50% reduced nitrite content. The DDRPE used in an amount of up to 0.05% does not change the sensory characteristics (smell, taste, color, consistency) and stabilizes the color of the cross-cutting surface of the produced functional sausage with 50% reduced nitrite content.

Conclusion

The conclusion was made that the recovery of the by-product from rose oil production solves significant environmental problems related to environmental pollution and helps to realize waste-free technologies, achieving significant economic, environmental and social and health effects.

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References

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Notes

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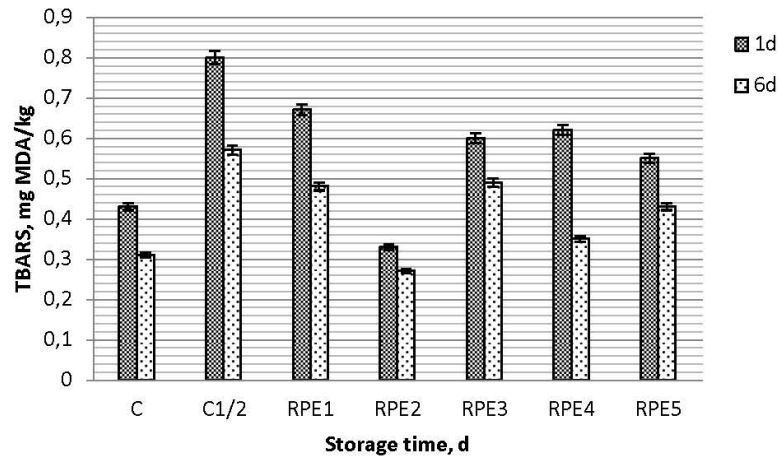


Figure 2. Effect of DDRPE on sausage TBARS during 6 d refrigeration

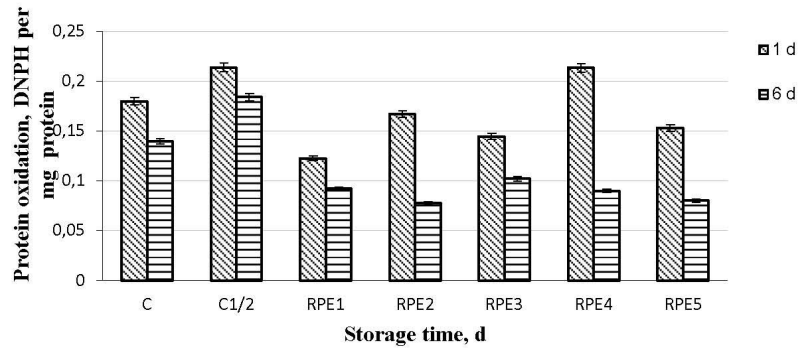


Figure 1. Effect of DDRPE on sausage protein oxidation during 6 d refrigeration

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