

Sausages Sensory Analysis

Gulmira Kenenbay, Urishbay Chomanov, Tamara Tultabayeva, and Aruzhan Shoman

Abstract--- A technology sausages with natural taste and spicy aroma of food ingredients and vegetables. The dynamics of changes in the sensory indicators sausages with natural taste and spicy aroma of food ingredients and vegetables during storage.

Keywords---sausage, sensory analysis, taste and spicy flavor ingredients.

I. INTRODUCTION

MODERN industrial sausage production is impossible without the use of fragrances, builders and other ingredients. Increasing attention is being paid to improving the odor, taste, and structural and mechanical properties of foods consumed.

Kazakhstan is not allowed aromatization organic food fragrant synthetic substances to enhance the natural flavor. Furthermore, the introduction of flavors are not permitted in the products for infant nutrition, and to falsify. Obviously, from the standpoint of safety it is necessary to limit the use of synthetic flavorings and enhance the production and use of natural food ingredients.

In connection with this technology has been developed sausages using natural spicy aroma and taste of food ingredients and vegetable crops [1.2].

The purpose of the work was to study the dynamics of changes in the sensory indicators sausages with natural taste and spicy aroma of food ingredients and vegetables during storage at a temperature of -18°C .

II. MATERIALS AND METHODS

The objects of study in this work we used 4 different sausages using emulsion taste and spicy flavor ingredients and vegetables, 1, 2 version to 3, 4 version and storage after storage (4 months) at a temperature of minus 18°C and 5 variant Turkish sausage. Studies of sensory characteristics of sausages was performed on a zNose TM, a gas chromatograph

Gulmira Kenenbay is PhD with «The Kazakh scientific research institute overworking and the food-processing industry» Ltd Almaty, Kazakhstan, (corresponding author's phone: +7(727) 3960419; fax: +7(727) 3960419; e-mail: gkenenbay@mail.ru).

Urishbay Chomanov, is member of the NAS Academy, professor, doctor with «The Kazakh scientific research institute overworking and the food-processing industry» Ltd Almaty, Kazakhstan, (e-mail: chomanov_u@mail.ru).

Tamara Tultabayeva is higher doctorate technical sciences with «The Kazakh scientific research institute overworking and the food-processing industry» Ltd Almaty, Kazakhstan, (e-mail :tamara_tch@list.ru).

Aruzhan Shoman is M.Sc.Eng. with «The Kazakh scientific research institute overworking and the food-processing industry» Ltd Almaty, Kazakhstan., (e-mail: shoman_aruzhan@mail.ru).

Agilent 6890N fitted with a flame ionization detector (FID) and Thermo Scientific Trace TR-FAME together with scientists of the Izmir Institute of Technology, Izmir, Turkey in Department of Food Engineering.

III. RESULTS AND DISCUSSION

Studies of the dynamics changes smell of sausages during prolonged low temperature storage showed that the 4th month of storage the intensity of the sausages smell is not reduced, as evidenced by the data in Fig. 1.

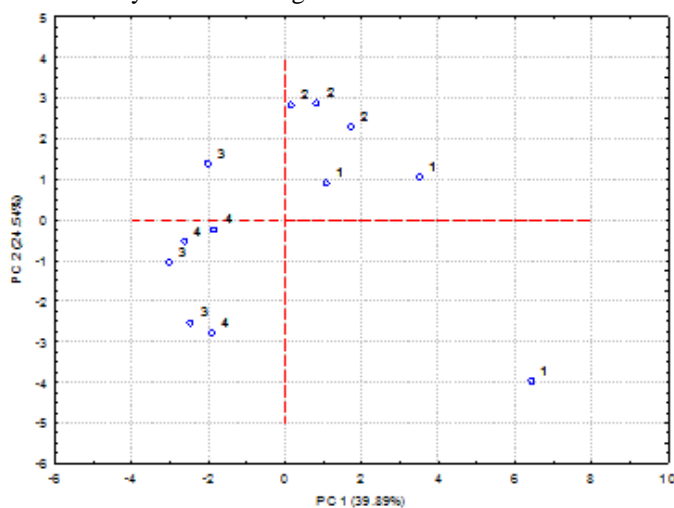


Fig. 1 PCA plot for Kazakh sausages based on e-nose aroma profiles

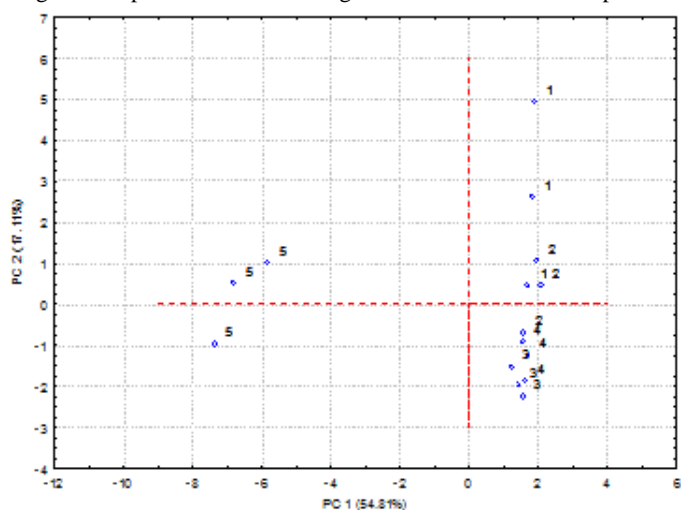


Fig. 2 PCA plot for Turkish fermented dry sausage and Kazakh sausages based on e-nose aroma profiles

For samples 1,2,3,4 options sausages first two principal components PC1 and PC2, accounted for 71.92% of the total difference, 54.81% and 17.11%, respectively. Fig. 2 shows a comparison of the flavor profile of Kazakh with Turkish sausage.

According PC1 Turkish dry sausage had negative values, and all other samples of Kazakh sausage had positive

indicators according to PC1. The studies showed that the flavor profile of Turkish sausage is completely different from the flavor profile of the samples of Kazakh sausages.

Also investigated the fatty acid composition of sausages (1,2,3,4 Kazakh sausages and 5 Turkish) (Tabl.1).

TABLE I
FATTY ACID PROFILES OF TURKISH AND KAZAKH SAUSAGES (%AREA)

Fatty Acids	1	2	3	4	5
C6:0	0.05±0.01 ^a	0.03±0.01 ^a	0.04±0.00 ^a	0.04±0.00 ^a	0.06±0.01 ^a
C10:0	0.05±0.01 ^a	0.03±0.01 ^a	0.04±0.00 ^a	0.04±0.00 ^a	0.06±0.01 ^a
C12:0	0.13±0.00 ^a	0.13±0.00 ^a	0.09±0.00 ^b	0.10±0.00 ^b	0.06±0.01 ^c
C14:0	0.08±0.01 ^b	0.08±0.01 ^b	0.20±0.00 ^a	0.21±0.00 ^a	0.06±0.01 ^b
C14:1	2.55±0.09 ^c	2.37±0.02 ^d	3.80±0.01 ^a	3.88±0.00 ^a	3.26±0.02 ^b
C15:0	0.39±0.00 ^c	0.28±0.01 ^d	0.50±0.00 ^b	0.52±0.01 ^b	0.63±0.02 ^a
C15:1	0.83±0.02 ^a	0.96±0.07 ^a	0.45±0.01 ^b	0.50±0.01 ^b	0.44±0.02 ^b
C16:0	0.12±0.00 ^c	0.13±0.00 ^{bc}	0.14±0.01 ^{bc}	0.15±0.01 ^b	0.21±0.00 ^a
C16:1	23.80±0.14 ^c	23.80±0.04 ^c	25.39±0.00 ^b	25.18±0.01 ^b	27.68±0.03 ^a
C17:0	2.43±0.07 ^b	2.28±0.11 ^b	5.94±0.03 ^a	5.94±0.04 ^a	2.20±0.00 ^b
C18:0	2.68±0.05 ^b	3.36±0.16 ^a	0.82±0.00 ^c	0.87±0.00 ^c	1.09±0.01 ^c
C18:1n9t	16.15±0.15 ^b	15.99±0.27 ^b	7.84±0.12 ^c	7.88±0.06 ^c	24.56±0.03 ^a
C18:1n9c	0.46±0.00 ^b	0.40±0.02 ^{bc}	0.29±0.00 ^d	0.33±0.02 ^{cd}	0.68±0.05 ^a
C18:2n6t	42.92±0.43 ^b	44.66±0.16 ^a	41.21±0.08 ^c	42.26±0.03 ^b	34.55±0.01 ^d
C18:2n6c	0.22±0.03 ^b	0.20±0.00 ^b	0.12±0.02 ^c	0.13±0.00 ^c	0.33±0.01 ^a
C20:0	6.17±0.01 ^b	4.50±0.19 ^c	6.80±0.00 ^a	6.23±0.00 ^b	3.57±0.02 ^d
C18:3n6	0.22±0.05 ^a	0.20±0.02 ^{ab}	0.10±0.00 ^{bc}	0.08±0.00 ^c	0.04±0.01 ^c
C20:1	0.47±0.00 ^c	0.38±0.00 ^c	5.85±0.05 ^a	5.30±0.02 ^b	0.22±0.01 ^d

The studies found that the storage of Kazakh sausage for 4 months, the number of unsaturated fatty acids increases (C_{18:2}n6, C_{18:3}n6, C_{18:3}n3). This indicates that the enzyme activity when stored cold meats developed primarily as lipase and dehydration.

IV. CONCLUSION

Based on the results of studies found that after storage of 4 months of sausages using emulsion taste and spicy flavor ingredients and flavor profile of vegetable crops are stored.

REFERENCES

- [1] Chomanov U.Ch., Tultabayeva T.Ch., Kenenbay G.S., Shoman A.E. Formulation of food ingredients from plant material // Proceedings of National Academy of Sciences of Kazakhstan. Series of Agricultural Sciences, №1. 2013 - p. 29-32.
- [2] Kenenbay G.S., Chomanov U.Ch., Tultabayeva T.Ch., Shoman A.E.. Technology development of receiving food ingredients from vegetable raw materials // 2nd International conference on food and agricultural engineering, Penang, may 8-9, 2013.

ACKNOWLEDGMENT

I would like to express the deepest appreciation to General Director of "The Kazakh scientific research institute overworking and the food-processing industry" prof., Academician of Agricultural Sciences Academy, Zheksenkul Alimkulov and to department head Academician of Kazakhstan NAS, prof., Urishbay Chomanov, who has shown the attitude and the substance of a genius: he continually and persuasively conveyed a spirit of adventure in regard to research and scholarship, and an excitement in regard to teaching. Without his supervision and constant help this scientific paper would not have been possible. I also want to

thank to The Kazakh scientific research institute overworking and the food-processing industry for their financial support. Grateful acknowledgment is also Izmir Institute of Technology, in particular Prof.Dr. Mustafa Güden, Vice Rector Prof. Dr. Sedat Akurt and Prof. Dr Sebnem Harsa and Assoc. Prof. Figen Korel.

Gulmira Kenenbay is head of the laboratory «Technology of processing and storage of plant products» In 2001 graduated from technological faculty of Almaty technological institute, as an engineer-technologist catering. Since 2006 she has been working the «Kazakh scientific research institute overworking and the food-processing industry» in the position of leading research assistant.

In 2010 she passed Ph.D. defense on the theme «Working out of technology of the combined meat products with a long shelf life». She has more than 40 scientific papers in national and international publications, the author of 3 inventions on the national and combined meat products.

Gulmira Kenenbay is Ph.D. The general experience of work makes 11 years, including research experience - 7 years.