

# SUGAR PROFILE OF ORGANIC AND CONVENTIONAL MAIZE GRAINS

**Jelena M. Golijan<sup>1\*</sup>, Aleksandar Ž. Kostić<sup>2</sup>, Danijel D. Milinčić<sup>2</sup>, Radivoj Petronijević<sup>3</sup>, Mirjana B. Pešić<sup>2</sup>, Slavoljub S. Lekić<sup>1</sup>**

<sup>1</sup>University of Belgrade, Faculty of Agriculture, Chair of Genetics, Plant Breeding and Seed Production, Nemanjina 6, 11080, Belgrade, Serbia

<sup>2</sup>University of Belgrade, Faculty of Agriculture, Chair of Chemistry and Biochemistry, Nemanjina 6, 11080, Belgrade, Serbia,

<sup>3</sup>Institute of Meat Hygiene and Technology, Kaćanskog 13, 11000, Belgrade, Serbia,, Serbia

E-mail: [golijan.j@agrif.bg.ac.rs](mailto:golijan.j@agrif.bg.ac.rs)

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## INTRODUCTION:

There are plenty of research articles which emphasised divergences in nutrients content between organic and conventional food products.

## RESULTS:

The obtained results (content of pentoses, hexoses, non-reducing and reducing disaccharides) are expressed as % of total soluble sugars.

## AIM OF WORK AND METHODS

In order to determine possible differences between maize grains grown under organic (OM) and conventional (CM) production system sugar profile was determined by HPLC-RI analytical technique. For that purpose two samples of the Rumenka maize (*Zea mays*) variety were used. Samples were grown and collected at the experimental field of Maize Research Institute (Zemun Polje, Serbia) during three seasons (2015-2017).

Sugars %	Pentoses	Hexoses	Non-reducing disaccharides	Reducing disaccharides	Total
OM15	1.29±0.047 <sup>ab</sup>	1.74±0.075 <sup>a</sup>	1.54±0.043 <sup>ab</sup>	0.6±0.014 <sup>a</sup>	5.18
OM16	1.27±0.057 <sup>ab</sup>	1.5±0.058 <sup>b</sup>	1.67±0.083 <sup>a</sup>	0.59±0.027 <sup>a</sup>	5.04
CM16	1.11±0.044 <sup>ac</sup>	1.84±0.118 <sup>a</sup>	1.43±0.074 <sup>bd</sup>	0.76±0.039 <sup>b</sup>	5.15
OM17	1.08±0.069 <sup>ac</sup>	0.84±0.064 <sup>c</sup>	1.51±0.069 <sup>abd</sup>	0.48±0.037 <sup>c</sup>	3.91
CM17	1.48±0.125 <sup>b</sup>	1.07±0.049 <sup>d</sup>	1.17±0.077 <sup>c</sup>	0.38±0.029 <sup>d</sup>	4.1
OM17aat	1±0.089 <sup>c</sup>	0.82±0.057 <sup>c</sup>	1.45±0.064 <sup>bd</sup>	0.4±0.016 <sup>d</sup>	3.67
CM17aat	1.13±0.118 <sup>ac</sup>	0.87±0.044 <sup>c</sup>	1.33±0.051 <sup>cd</sup>	0.39±0.026 <sup>d</sup>	3.72

\* aat - accelerated ageing test



## CONCLUSION

The content of hexoses significantly differs ( $p < 0.05$ ) between grains from applied production systems during all seasons as well as the pentoses content from 2017. In both cases it was higher in conventional grains. Organic maize was a better source of non-reducing disaccharides (seasons 2016 and 2017) compared to conventional samples. Additionally, seasonal variation (2016/2017) in content of reducing disaccharides was observed in conventional maize grain.