




Maize Research Institute
ZEMUN POLJE
Serbia, Belgrade



International Conference

**The Frontiers of Science and
Technology in Crop Breeding and
Production Conference**

**8 – 9 June, 2021
Belgrade, Serbia**

BOOK OF ABSTRACTS

International Conference The Frontiers of Science and Technology in Crop
Breeding and Production
June 8 - 9, 2021; Belgrade, Serbia

Publisher

Maize Research Institute, Zemun Polje
Slobodana Bajića 1, 11185 Belgrade - Zemun, Serbia

Editor in Chief

Dr. Vesna Kandić

Technical Editors

Dr. Vesna Kandić
Milena Šenk, MSc
Marko Mladenović, MSc

Circulation

60
Online on the website <http://zpconference75.com>

ISBN

978-86-80383-11-8

05 - 04 Poster

**BIOCHEMICAL CHARACTERIZATION OF SOYBEAN
GENOTYPES FOR GRAIN QUALITY IMPROVEMENT**

Danijela Ristić*, Vesna Perić, Mirjana Srebrić, Marija Kostadinović, Natalija Kravić, Anika Kovinčić, Snežana Gosić Dondo

Maize Research Institute, Zemun Polje, Slobodana Bajića 1, 11185 Belgrade, Serbia

*Corresponding author e-mail address: dristic@mrizp.rs

Soybean is one of the most economically important grain crops. As the source of plant protein and vegetable oil, it is widely used as food and industrial crop. Quality of soybean oil is determined by fatty acid (FA) composition. Biochemical variation of different varieties significantly facilitates genetic screening of kernel traits and grain quality attributes, thus leading to one of the most important breeding strategies - improvement of the grain composition. The main objective of this work was to evaluate whole kernel biochemical composition of eight soybean varieties and eight lines from different breeding programs. Phytochemical characterization was conducted for total protein and oil content, as well as for fatty acids content (e.g. palmitic, stearic, oleic, linoleic and linolenic acid). According to Kjeldahl method, total protein content ranged from 37.01% to 39.91%. The obtained results showed that the lowest and the highest values for oil content were 19.00% and 21.34%, respectively. Gas Chromatography/Flame Ionization Detector (GC-FID) was used for FA quantification and determination. The most abundant FA was linoleic acid with a range from 47.45 to 55.7 g/100g, followed by oleic acid with detected range from 22.59 to 29.07 g/100g of total FA content. Palmitic, linolenic and stearic FA showed a significantly lower level varied from 9.57 to 11.51 g/100g, 5.42 to 7.18 g/100g and 3.73 to 5.86 g/100g, respectively. This variability observed in kernel quality among soybean genotypes can provide valuable information for future breeding.

Key words: *fatty acid, oil content, total protein content, Glycine max (L.) Merr.*