

EUCARPIA

European Association for
Research on Plant Breeding



Scientific Society of Geneticists
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INTERNATIONAL CONGRESS ON OIL AND PROTEIN CROPS

*Meeting of the EUCARPIA
Oil and Protein Crops Section*

ABSTRACT BOOK



*May 20-24, 2018
Chisinau, Republic of Moldova*

European Association for Research on Plant Breeding

Scientific Association of Geneticists and Breeders of the Republic of Moldova

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Meeting of the EUCARPIA Oil and Protein Crops Section

*The congress is dedicated to the 50th anniversary of Scientific Association
of Geneticists and Breeders of the Republic of Moldova*

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GENOTYPIC VARIATION OF OIL AND PROTEIN CONTENT IN SEEDS OF CAMELINA (*Camelina sativa* (L.) Crtz.)

Ana MARJANOVIĆ JEROMELA¹, Nada GRAHOVAC¹, Svetlana GLOGOVAC¹, Sandra CVEJIĆ¹, Dragana MILADINOVIĆ¹, Ankica KONDIĆ ŠPIKA¹, Johann VOLLMANN²

¹*Institute of Field and Vegetable Crops, Novi Sad, Serbia*

²*University of Natural Resources and Life Sciences (BOKU), Vienna, Austria*

Camelina sativa (L.) is an ancient oilseed crop that belongs to the Brassicaceae family. Camelina's adaptation to enormous areas of the world has resurfaced interest for this crop, due to its unique oil composition of seed and attributes useful for the production of food. The oil of seed camelina has excellent nutritive value due to the abundance of essential fatty acids, while the meal is a high quality protein-rich component for animal feed. Additionally, camelina oil has a lot of potential benefits for human health and can be used as salad or cooking oil. Also, some reports point out that intake of camelina oil reduces cholesterol in blood serum. Evaluation of health-beneficial chemicals in camelina seed, such as oil and proteins, is important for the breeding.

This study was carried out to estimate the variability of oil and protein content in a collection of 20 camelina genotypes from different selections. A field experiment was conducted on the location of Rimski Šančevi (Vojvodina Province, Serbia or 45°20'N, 19°51'E, 87 m altitude). The protein and oil content of the camelina samples were analyzed by near-infrared reflectance spectroscopy (NIRS). Cluster analysis was used to sort the genotypes according to the degree of similarity.

Significant differences were found for the investigated genotypes. Oil content ranged from 29.90% to 36.73%, with the mean of 33.22% and coefficient of variation (CV) 5.75%. Protein content ranged from 29.02% to 35.59% with average value of 32.84% and the CV of 5.91%.

The analysis of variance showed statistically significant differences between the genotypes in the investigated traits ($p < 0.001$). Cluster analysis indicated that camelina genotypes were grouped in three clusters, the first cluster with 6 genotypes, the second cluster with 11 genotypes was also the largest cluster containing two groups (consisted of 4 and 7 genotypes) and the third cluster with 2 genotypes. One genotype did not belong to any group. The tested techniques should be useful for selection and exploitation of camelina genotypes with desirable traits.

The considerable variability between the genotypes detected by the study indicates the possibility for an additional enhancement of the tested property.

These results suggest that camelina genotypes contain important health-beneficial chemicals and could be of great interest for camelina breeders.

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