

EUCARPIA

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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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**OIL CROPS BREEDING FOR IMPROVED SEED COMPOSITION –
ACHIEVEMENTS OF NS BREEDING PROGRAM**

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Following the trends of food and non-food industries, breeders succeeded in significantly changing the seed composition of oil crops, especially the composition of fatty acids and tocopherols, as well as protein content. Oil crops breeding at the Institute of Field and Vegetable Crops in Novi Sad, Serbia (IFVCNS) has a successful 50-year long tradition. Over the years, the breeding program resulted in creating collection of 7000 sunflower inbred lines and substantial collection of rapeseed and minor oil crops genotypes with changed oil and protein quality and content.

In sunflower, IFVCNS was among the first institutions in Europe to create hybrids with high oleic acid content in sunflower oil using classical breeding methods. These are the hybrids Olivko and Oliva in Serbia, hybrids Goleador and Olinca registered in Italy and Saša in Russia. Furthermore, genotypes with a high content of saturated fatty acids were developed by mutagenesis, presenting a valuable material for the creation of special purpose hybrids.

Continuous work on the creation of new highly productive low-oil sunflower hybrids of the confectionery type resulted in the change of assortment in the Serbian market. Domestic and foreign confectionery varieties with large black seeds have been replaced by NS confectionery hybrids, such as NS Gricko, NS Slatki, NS Garavi and NS Leviathan. These hybrids have lower oil content compared to standard (below 40%) with protein content of over 20% and good stability and adaptability.

At IFVCNS, the only Serbian research institute dealing with rapeseed breeding, 11 varieties and 20 lines of spring type, and 56 varieties and 980 lines of winter type rapeseed have been developed, so far. One of the main breeding goals is to create genotypes with a specific level and combination of different fatty acids and tocopherols. This resulted in genotypes rich in essential fatty acids as well as water-soluble vitamins (α - and γ -tocopherols) making the NS varieties, such as high-oleic variety Kata, not only desirable for biodiesel production, but also nutritionally valuable.

The results obtained so far at IFVCNS showed that combination of several quality traits in a single phenotype can enable tailoring specialty oils providing essentially “new oilseed crops” for specific uses in the food and non-food industry, thus guaranteeing a promising future for oil crops on the global market.