



RESULTS OF THE GENE POOL RESEARCH OF OILSEED POPPY (*PAPAVER SOMNIFERUM* L.) AND THEIR PATENT PROTECTION



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ABSTRACT

The research of poppy gene pools (*Papaver somniferum* L.) was focused on the marginal populations of poppy. The main goal was to find interesting poppy germplasm with the possibility of their application in creating new varieties with better parameters for the food industry. For this purpose, the monitoring of poppy cultivation was carried out in small areas (gardens and small fields) mainly in the northeastern part of Slovakia, also in other parts of the Slovak Republic, or in the Czech Republic. Subsequently, harvesting expeditions were carried out to obtain seed material. Experiments were established from seeds in which individual genotypes were assessed in accordance with the methodology based on the National Program for the Protection of Plant Genetic Resources for Food and Agriculture. Morphological, biological and economic traits and properties were evaluated against reference varieties. Basic phenological phases during growth and development were also recorded. Collecting expeditions yielded 51 poppy genotypes (49 of domestic origin, 2 genotypes from abroad). A different degree of variability was found depending on the evaluated trait. Selected was a perspective material possible for food utilization GZ Azurit, which achieved in the production test higher poppy seed yield of 9.02% compared to the reference varieties (Opal and Major). Based on these results, the genotype was submitted to the State Variety Trials to register the variety. In the years 2016 – 2018 this genetic resource was tested under the designation PU-01 at the Central Institute for Supervising and Testing in Agriculture. On the basis of good economic results - higher poppy seed yield compared to reference varieties, as well as good quality parameters considering the suitability for food use - the decision to register a new variety called Azurit was issued. Based on this decision, for the issue of a breeder's certificate, an application has been submitted, which ensures the legal protection of the variety in the Slovak Republic. Subsequently, the Czech institution, the Central Institute for Supervising and Testing in Agriculture, will be asked to issue the legal protection in the Czech Republic, where the main commercial application of the new poppy food variety is expected.

Key words: genotype, legal protection, *Papaver somniferum* L., poppy seeds, variety Azurit

INTRODUCTION

During the years 2010 - 2014 the research of marginal poppy populations was carried out within the project APVV-0248-10, "Poppy plants producing seeds with enhanced properties for food processing industry". The aim of this project was to find in local poppy populations interesting genotypes for the purpose of developing new varieties with better properties. Plant genetic resources (PGR) of poppy were collected previously in north-east of Slovakia and also from other localities, where poppy cultivation for seeds in small plots has been in tradition.

MATERIAL AND METHODS

The research was carried out in the following stages:

- Monitoring of poppy cultivation in small areas - gardens and small fields,
- Harvesting expeditions at the time of poppy ripening - seed collection,
- Establishment of experiments and evaluation of poppy genotypes in according the methodology of the National Program for the Protection of Plant Genetic Resources for Food and Agriculture on three levels - preliminary, basic and special evaluation,
- Selection of best lines - mainly based on by poppy seed production and their quality,
- Preparation of technical documentation - application and technical questionnaire for State Variety Experiments.



Field experiments at the Presov university experimental school field

RESULTS

Totally were collected 51 PGR, 49 of them were domestic origin; one genotype was obtained from India and one sample of unknown origin. There were evaluated morphological and biological characters as well as phenology during the vegetation season. Detailed evaluation of the morphological characters and yield parameters of seeds and capsules of individual plants showed diverse level of variability. Two genetic resources were selected for the purpose of verification of their yield of seeds. One PGR Azurit was selected and registered into State variety experiments for purpose to register a new variety under the name PU-01.

CONCLUSION

After a successful evaluation during the years 2016 – 2018, the oilseed poppy was registered as new variety with the name "AZURIT". Based on this decision, for the issue of a breeder's certificate, an application has been submitted, which ensures the legal protection of the variety in the Slovak Republic. Legal protection outside the territory of the Slovak Republic will be dealt within the Czech Republic, where commercial application of the new food variety is expected.

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Statement of new plant variety registration

REFERENCES

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