

Mutants of grasspea (*Lathyrus sativus* L.) obtained after use of chemomutagens.

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Abstract

The growing of grasspea (*Lathyrus sativus* L.) has a long tradition in Europe ⁽²⁾. The recent production of new genotypes with a low content of neurotoxin has opened new possibilities of broader use of grasspea in many breeding programmes as well as for feeding purposes ⁽¹⁾. In Poland, the grasspea is an agricultural plant of marginal importance. However, in recent years the popularity and importance of this crop has increased. One of the factors limiting the use of grasspea in breeding is the narrow genetic variability of traits ⁽³⁾. Mutagenesis can be used to create additional genetic variability that may be utilised by plant breeders in the development of cultivars for specific purposes or with specific adaptation.

The initial material used for mutagenic treatment constituted two Polish cultivars- Krab and Derek. The seeds were treated with different doses of two chemomutagens: N-methyl-N-nitrosourea (MNU) and

sodium azide (NaN₃). Biological injuries of M₁ plants observed in the field were a measure of reaction to the mutagens. Selection of morphological mutants was conducted on the M₂ progeny.

The measured morphological traits and yield showed that the sensitivity of M₁ plants depended on the mutagen, dose concentration and genotype. Sodium azide induced a lower level of injuries compared to MNU. The cultivar Derek showed a higher susceptibility to MNU than the cultivar Krab, the opposite was observed for NaN₃.

In M₂ a wide spectrum of chlorophyll mutations (*albina*, *xantha*, *chlorina* and other types) were observed. Morphological mutants showed changes in stems, leaves, flowers and seeds. Particularly interesting were semi-dwarf and dwarf mutants, although many were completely sterile. Others flowered and ripened early compared with control plants. All mutants could be distinguished by yield characteristics, 1000 seed weight was particularly affected. The mutants will be retained in our plant collection and those with desirable agricultural traits will be used for breeding purposes.

References

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