

Investigating Genetic Traits in M4 Generations of Lathyrus (Sativar NLK-73)

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ABSTRACT

Lathyrus (*Lathyrus sativus* L.), an important pulse crop, is valued for a high protein content and resistance to abiotic stresses. However, it is highly susceptible to pod borer infestation. This study aimed to evaluate the genetic variability of β -ODAP, which is the seed-borne toxin, in low-toxicity progenies and related traits with reduced β -ODAP content.

INTRODUCTION

Lathyrus (*Lathyrus sativus* L.), an important pulse, is valued for its high protein content and resistance to abiotic stresses. However, it is highly susceptible to pod borer infestation. This study aimed to evaluate the genetic variability of β -ODAP, which is the seed-borne toxin, in low-toxicity progenies and related traits with reduced β -ODAP content.

METHODS

Twenty-five mutant progenies derived from gamma-ray-irradiated NLK-73, seeds, leaves, and roots were analyzed for the genetic variability of β -ODAP, plant height, and other traits. The data recorded for NLK-73 and its mutants were analyzed for the genetic variability of β -ODAP, plant height, and other traits. The data recorded for NLK-73 and its mutants were analyzed for the genetic variability of β -ODAP, plant height, and other traits.

RESULTS

Analysis of variance revealed high significant genetic variability among all high-mutants for all traits, while the genetic variability was not significant for heritability broadness/plastic (50.08% 0% (37.19%), and broadness/plastic (20.84% 4%) and pods/plant (10.89%), seed/plant (10.85%), weight, 100 seed weight, and seedling growth. High genetic variability was observed for β -ODAP content (0.209%). Ten superior mutants (e.g. 23 g/plant, 48, 49, and 19 β -ODAP content <0.209%).

Twenty-five mutant progenies derived from gamma-ray-irradiated, five hundred NLK-73, leaves/plant, heritability, heritability, heritability (e.g. 23 g/plant, 48, 49, and 19 β -ODAP content <0.209%).

CONCLUSIONS

The study demonstrated the importance of mutation breeding to enhance yield and reduce β -ODAP in Lathyrus. The results of this study will be helpful for the selection of superior mutants for further breeding and production of Lathyrus sativus.

