

# Variability in amylopectin content among diverse panel of rice (*Oryza sativa* L.) genotypes

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## ABSTRACT

Rice starch quality, as determined largely by its amylopectin composition, influences cooking, eating sensory qualities and glycemic response. In this study, we have evaluated the variability in the amylopectin content among 178 diverse rice germplasm. The amylopectin content ranged from 26.91 % to 57.40 %, with a mean of 42.73 %. The coefficient of variation (15.6 %) indicate moderate to high genetic variability, suggesting ample scope for selection and improvement. The cluster analysis classified the genotypes into three distinct non-overlapping groups based on amylopectin content, low (26.91–39.69%), medium (39.81–46.44%) and high (46.46–57.40%), reflecting clear variation among genotypes. The genotypes, Burma Black (57.4%) and Basmathi-370 (26.91%), were identified as contrasting genotypes representing the high and low amylopectin extremes which can be used as donor parents for breeding programs targeting specific amylopectin profiles. Comprehensive statistical analysis revealed excellent experimental precision with tight confidence intervals and high reliability of genotype comparisons. Overall, the study revealed substantial genetic diversity for amylopectin content within rice germplasm and provides a valuable foundation for developing rice cultivars with customized cooking qualities, improved nutritional value and low glycemic index, contributing to the design of functional and health-oriented rice varieties.

**Keywords:** *Amylopectin, Breeding, Cooking quality, Glycemic index, Germplasm and Rice*