



Evaluation of Physiological and Morphological Traits in Nine Rapeseed (*Brassica napus* L.) Genotypes for Identification of Superior Genotypes

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Abstract

This study assessed genetic diversity and key traits in nine rapeseed genotypes. Genotype G6 had the highest photosynthetic rate and plant height, G8 produced the most siliques, and G1 had the highest harvest index. Strong correlations were found between plant height and siliques, and between stomatal conductance and harvest index. The top genotypes (G6, G8, and G1) are ideal for breeding and commercial production.

Introduction

Rapeseed (*Brassica napus* L.) is an important oilseed crop, essential for edible oils, industrial oils, and biofuels. With over 70 million tons produced globally, improving yield is crucial. Factors like photosynthetic rate, stomatal conductance, chlorophyll content, and traits like plant height and siliques influence yield. This study evaluates genetic diversity and key traits in nine rapeseed genotypes to identify the best for breeding programs.

Materials and methods

Nine rapeseed genotypes were grown at Shahid Chamran University, Ahvaz, under optimal conditions. Twelve traits were measured at pre- and post-flowering stages, including chlorophyll content, photosynthetic rate, stomatal conductance, and yield-related traits. Statistical analysis was done using ANOVA, Pearson correlations, and Duncan's test at a 5% significance level with R software.

Results and discussion

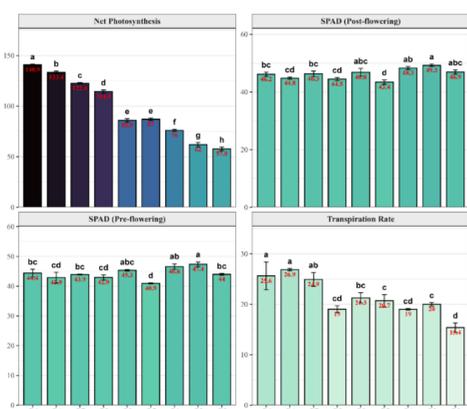


Figure 1. Comparison of mean values of physiological traits in nine rapeseed genotypes

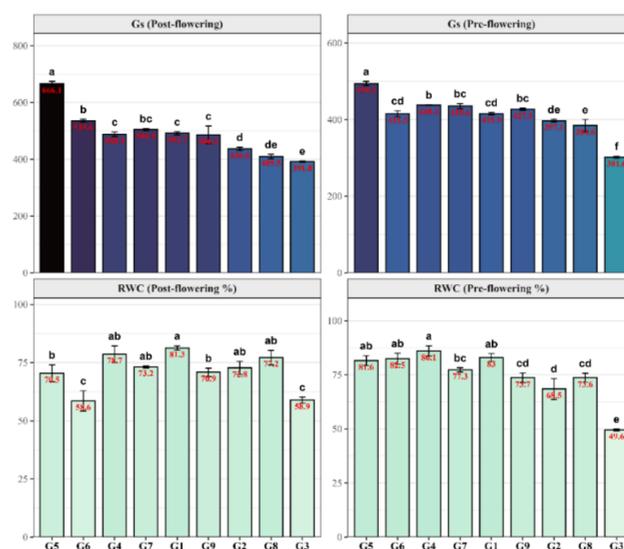


Figure 2. Comparison of mean values of stomatal conductance and relative water content in nine rapeseed genotypes

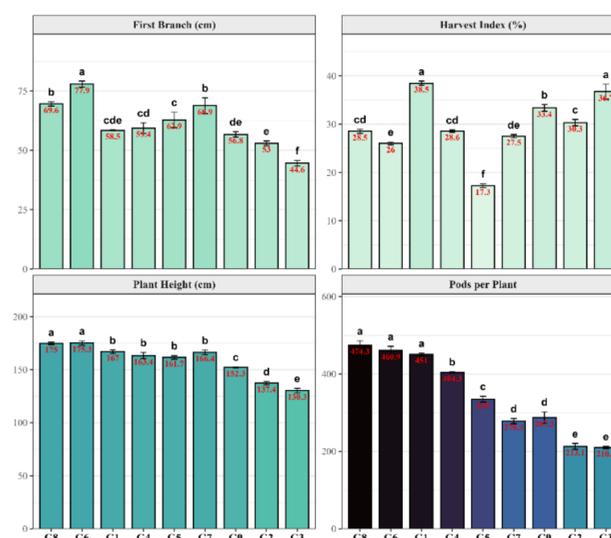


Figure 3. Comparison of mean values of morphological and agronomic traits in nine rapeseed genotypes

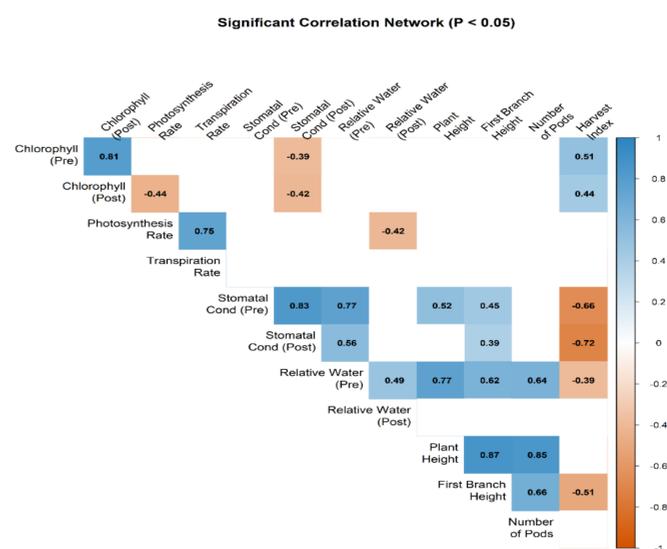


Figure 4. Correlation Analysis and Trait Relationships

References

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