

Evaluation of MTU 1121 introgressed lines for direct-seeded conditions in rice (*Oryza sativa* L.)

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ABSTRACT

Early seedling vigour (ESV) is a key determinant of successful crop establishment in direct-seeded rice systems. The present study evaluated genetic variability and mean performance of BC₂F₂ lines for ESV related traits using analysis of variance (ANOVA). The experimental material consisted of BC₂F₂ lines derived from MTU1121 as the recurrent parent and evaluated under a completely randomized design with three replications. Observations were recorded on shoot length, root length, seedling length, shoot and root fresh weight, total fresh weight, root-to-shoot ratio and seedling vigour index (SVI). ANOVA revealed highly significant differences among BC₂F₂ lines for all traits, indicating substantial genetic variability. Mean performance analysis identified several introgressed lines with superior root growth, biomass accumulation and higher SVI compared to MTU1121. These superior BC₂F₂ lines offer valuable breeding material for improving early seedling vigour in direct-seeded rice systems.

Keywords: *ANOVA, Direct-seeded, Early Seedling Vigour, Mean performance and Rice*