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Characterization of wheat (*Triticum aestivum* L.) mutants for improved agronomic traits and disease resistance

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Induced mutation holds promise as a strategy for creating new variations. In this study, we analysed mutant lines of cultivar HD 3086 selected for its extensive cultivation in India, at both morphological and molecular levels. A total of 150 M_4 mutant lines exhibited improved yield attributes, enhanced disease resistance and other agronomically important traits. Evaluation of mutant lines against leaf rust race 77-9 and stripe rust race 238S119 identified four and six highly resistant lines, respectively. SNP genotyping of rust-resistant mutants using 35K Axiom array revealed polymorphism rates ranging from 7.1 to 11.9% compared to the parent line, HD3086. Several induced point mutations were observed that may underlie key genes involved in disease resistance. The identified mutant lines, particularly the rust-resistant ones, have strong potential as valuable donors in breeding programs and as a resource for fundamental genetic studies in the future.

Keywords: biotic stress, leaf rust, mutation, stripe rust, *Triticum aestivum*

Wheat (*Triticum* spp.) is