DEVELOPMENT OF A NEW TILLING POPULATION OF COMMON BEAN (Phaseolus vulgaris L.)

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Mutagenesis is an important genetic tool for crop improvement. TILLING (Targeting Induced Local Lesions IN Genomes), a powerful reverse genetic strategy that allows the detection of induced point mutations in individuals of the mutagenized populations, can address the major challenge of linking sequence information to the biological function of genes and can also identify novel variation for crop breeding. Common bean is the major food legume worldwide, making it an important target for novel approaches of genetic analysis. However, no common bean TILLING populations are currently available in the world. This study analyses the use of ethyl methane sulfonate (EMS) for the generation of a mutant TILLING population in the common bean genotype PMB0225 comprising 2500 M2 families. Several phenotypes with altered morphological and agronomic traits were observed from a preliminary characterization of the M2 population. This mutant collection can be an important source of genetic resources and can be also used to identify novel genetic variants of interest for fundamental research and the development of commercial varieties.

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