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Poster Abstract - C.22

TOWARDS THE TILLING IN TOMATO: CONSTRUCTION OF A MUTANT PHENOTYPE DATABASE

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EthylMethaneSulfonate (EMS) mutagenesis is a standard technique used to induce point mutations in DNA and to create a genetic background for exploring gene function and for isolating new genotypes with traits of interest.

In order to create new genetic resources ("core collections"), we developed two mutant populations by treating the *Red Setter* tomato seeds with two different EMS concentration (0.7% and 0.1%). A total of 18000 M2 plants, grown in greenhouse soil and open field, are being phenotypically analyzed and their data and images organized in a database.

0.7% and 1% EMS tomato mutants are being assigned to categories such as: 1) number and colour of cotyledons, 2) shape and size of tomato plant, 3) leaf morphology and colour, 4) flower morphology and colour, 5) flowering time, 6) colour, size, morphology and fertility of the fruits.

Most of the mutant phenotypes result to fall in more than one category. A high percentage of the mutations affect: 1) tomato leaf morphology and 2) size and shape of the plant while a low percentage of mutations have been found to affect flower structure and colour.

The phenotyped populations will be utilized for reverse genetic analysis (TILLING) and for the identification of tomato lines carrying agronomic and nutritional traits of interest.