

## DEVELOPMENT OF AN INTROGRESSION LINES POPULATION AND GENETIC MAPPING OF NOVEL TRAITS LINKED TO KEY BREEDING TRAITS IN EGGPLANT

TOPPINO L.\*, RIBOLZI S.\*, SHAAF S.\*\*, BASSOLINO L.\*, CARLETTI G.\*, FADDA S.\*, ROSSINI L.\*\*, BOYACI H.F.\*\*\*, CALISKAN S.\*\*\*, UNLU A.\*\*\*, ROTINO G.L.\*

\*) CREA-GB-MLO, Centro per la Genomica e la Bioinformatica, 26836 Montanaso Lombardo, (Italy)

\*\*) Università degli Studi di Milano, DIPROVE, Dipartimento di Scienze Agrarie e Ambientali - Produzione, Territorio, Agroenergia (Italy)

\*\*\*) Bati Akdeniz Agricultural Research Institute, Vegetable Crops and Ornamentals, Antalya (Turkey)

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*Solanum indicum* L. is a wild relative of eggplant representing a valuable source for key breeding traits, like resistances to pathogens, plant and fruit features, and fruit biochemical composition, which made this species suitable to be employed in breeding programs aimed at the genetic improvement of eggplant for fruit quality, nutraceutical value as well as for ornamental purposes. An interspecific cross was performed between *S. indicum* and the eggplant line “67/3”, male parental of our mapping population to take advantage of all the genetic information available and to ease the molecular characterization of the newly introgressed progenies. Final aim of the work is to develop an introgression population representing a living library of the *S. indicum* genome into the background of *S. melongena* and, obviously, to transfer the favorable agronomic traits to cultivated eggplant for breeding purposes. The introgression population is currently composed by 73 BC5-BC6 plants, covering 88% of the wild genome, plus another 9%, which can be still recovered employing plants at a lower backcross level. The suitability of this population for disclosing chromosomal regions associated to key breeding traits has been confirmed by performing a deeper molecular and field phenotypical characterization of the progenies BC5S1 displaying segregation for two quality traits: fruit pigmentation near the calyx and a reduced plant height due to short internodes, which also led to the identification of the chromosomal region and strictly linked molecular markers that can be further exploited for MAS selection in the breeding programs. Interestingly, the wild species here employed (so far referred to as *S. indicum*) was confirmed to be resistant to nematodes (*Meloidogyne incognita*), thus leading to an advance in its taxonomic characterization that more correctly has to be classifiable as a strain of *S. tomentosum*. The introgression lines resistant to soil-borne diseases (nematodes, fusarium and verticillium wilt) could be promptly used as rootstock for eggplant cultivation. The BC5-BC6 and BC5S1-BC6S1 progenies have been sown and molecular analysis to disclose their genetic composition is ongoing. Plants containing a single fragment of *S. indicum* will be submitted to self-cross in order to fix the wild introgression at homozygous level while those which still contain undesired residual fragments from the wild species will be submitted to another cycle of cleaning through backcross with the recurrent parent 67/3.