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Poster Abstract – A.25

TOWARDS GENETIC ANALYSIS FOR CHLOROGENIC ACID CONTENT ON AFRICAN EGGPLANT BY USING A LARGE BIODIVERSITY

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The scarlet eggplant (*Solanum aethiopicum* group *gilo* L.) and the gboma eggplant (*Solanum macrocarpon* L.) are usually named as african eggplant in that Continent (Lester *et al.* 1990). Scarlet eggplant is rarely spread and cultivated in Europe, despite its berries are edible such as the cultivated eggplant (*Solanum melongena* L.). Scarlet eggplant is instead very spread in many African areas where it can be consumed as source of edible leaves and fruits, both for nutritional and wealthy purposes. Unfortunately, the statistics on spreading and productivity of this specie are not easily available such as the cultivated eggplant (*Solanum melongena* L.). Scarlet or red eggplant is considered of great interest for its typical productions in marginal areas in Europe or in other Continent. This species is also of interest for genetic improvement of related cultivated species (*Solanum melongena* L.), considering the presence in its germplasm of several traits of agronomic interest. Important research results have been reported in order to transfer in cultivated eggplant the tolerance to *Fusarium* spp., by using somatic hybridization techniques considering the interspecific sexual incompatibility between *S. melongena* and *S. aethiopicum.* The level of antioxidant in substances are now in progress, in order to transfer and identify the responsible genes of these traits into cultivated eggplant. Eggplant is known as a vegetable with high level of phenolic constituents. Several potential health promoting effects have been ascribed to plant phenolic phytochemicals. A first report on phenolic acid constituents in eggplant fruit from accessions in the USDA germplasm collections were reported (Stommel and Whitaker, 2003), and differences in phenolic acid content were evident between the species and among genotypes within species.

Starting from the collection of scarlet eggplant of different origin eighth accessions were selected and analysed by means of morphological traits, molecular markers and for the level of chlorogenic acid in their berry. Genetic characterization of the collection confirms the genetic origin of the accessions and the wide diversity among *gilo* genotypes, already revealed on morphological traits basis.

Phenolic acid compounds separated by HPLC were tentatively identified as hydroxycinnamic acid (HCA) derivatives based on HPLC elution times, UV absorbance spectra. These phenolics were grouped into chlorogenic acid isomers and isochlorogenic acid isomers. The total HCA content in scarlet eggplant was low relative to cultivated eggplant. Important differences in total HCA content were detected among the scarlet eggplant accessions. A segregant intraspecific population was obtained starting from low and high chlorogenic acid content genotypes in order to

map microsatellites and AFLP markers associate to the trait. The results will represent an interesting tool in order to utilize interspecific hybrids obtained by somatic hybridization (considering the sexual incompatibility between *S. melongena* and *S. aethiopicum*) to characterize this interesting trait also in cultivated eggplant.

References

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