

==== POSTER ABSTRACTS ====

Antibiosis and Antixenosis Properties of the Somatic Hybrids and Backcross Progenies *S. Chacoense* + *S. Tuberosum* Against Colorado Potato Beetle

Imola Erdelyi-Molnár¹, Enikő Besenyei¹ and Elena Rakosy-Tican^{1, ✉}

Colorado potato beetle (CPB), *Leptinotarsa decemlineata* (Say), is a leading pest of solanaceous plants, which include crop plants like potato, tomato and eggplant. Nowadays CPB spreads throughout Europe, North America, Asia, some parts of North Africa, and the temperate Southern Hemisphere. This pest develops from the egg stage to adult beetles on the host plant, and during this time they can severely damage, even completely defoliate the plant.

CPB is resistant to more than 50 insecticides worldwide and also to Bt pathotoxins.

An alternative method to control CPB could be the use of resistant wild *Solanum* species in potato breeding programs. One of the most effective sources of host-resistance mechanisms to CBP is the natural resistance of the wild species, *Solanum chacoense*. Resistance to CBP is associated with the expression of rare glycoalkaloids, the leptines, which are only produced in aerial tissues.

Somatic hybridization *via* protoplast electrofusion was used to obtain hybrid plants between *S. tuberosum* cv. Delikat and Désirée and *S. chacoense* HL (PI 458310 from the NPGS Sturgeon Bay, USA), respectively *S. chacoense* 1 G (Gross Lusewitz Genebank, Germania). Somatic hybrids with MMR deficiency were also obtained by protoplast electrofusion of cultivated potato and mutant *S. chacoense*, which was transformed with two types of *Atmsh2* gene: with antisense or complementary negative orientation.

¹ Plant Genetic Engineering Group, Faculty of Biology and Geology, "Babeș-Bolyai" University, Romania.

✉ **Corresponding author: Elena Rákosy-Tican;** Plant Genetic Engineering Group, Faculty of Biology and Geology, "Babeș-Bolyai" University, Cluj-Napoca, Romania,
E-mail: arina5744@yahoo.com

POSTER ABSTRACTS

In this study the deterrent effect of the somatic hybrids with or without MMR deficiency and backcross progenies were determined and its relation with the analyzed plants toxicity against CPB were established

For somatic hybrids and BCs antixenosis effect determination, against adult CPB, a food preference analysis (choice test) was performed. Colorado potato beetle had to choose between one type of somatic hybrid and one type of the parents (*S. tuberosum* or *S. chacoense*). To analyze the antibiosis effect of somatic hybrids against CPB, CPB larvae were fed on SHs and BCs leaves and their development and survival were monitored. The resistance of some hybrid plants was equal, or it approached the resistance degree of *S. chacoense*.

The antixenosis effect of SHs and BCs were correlated with the analyzed plants toxicity and a strong positive correlation between this two properties were observed. Some SHs possessed strong antibiosis and antixenosis effect against CPB, therefore these plants represent an important step forward in producing pre-breeding lines resistant to CBPs.

Acknowledgments: The funding from Ministry of Education and Research, the national project CNCS PNII-ID-PCE-2011-3-0586 is acknowledged.

B. E was fund by the financial support of the Sectorial Operational Programme for Human Resources Development 2007-2013, co-financed by the European Social Fund, under the project POSDRU/159/1.5/S/133391 - “Doctoral and postdoctoral excellence programs for training highly qualified human resources for research in the fields of Life Sciences, Environment and Earth”.