LEAF PROTEOMIC ANALYSIS OF THE COMPATIBLE INTERACTION BETWEEN COWPEA AND THE COWPEA SEVERE MOSAIC VIRUS

Silva, R.G.G.\textsuperscript{1}; Medeiros, E.J.T.\textsuperscript{1}; Vasconcelos, I.M.\textsuperscript{1}; Oliveira, K.S.\textsuperscript{2}; Franco, O.L.\textsuperscript{2}; Martins, T.F.\textsuperscript{1}; Oliveira, J.T.A.\textsuperscript{1}

\textsuperscript{1}Department of Biochemistry and Molecular Biology, Federal University of Ceara; Brazil; \textsuperscript{2}Center for Proteomics and Biochemical Analysis of Catholic University of Brasilia, Brasilia, Brazil

Cowpea [\textit{Vigna unguiculata} (L.) Walp.] is an important crop cultivated in Brazil especially in the North and Northeast regions. Cowpea severe mosaic virus (CPSMV) is one of the major pathogens that attacks cowpea and hence interferes with grain production. This work aimed to study the leaf proteomic changes that occur in the compatible interaction between a susceptible cowpea cultivar (cv. CE-31) and CPSMV. CPSMV inoculation was performed in fully expanded trifoliolate leaves after 14 days of planting. Leaf proteins (2 and 6 days after CPSMV inoculation) were extracted using a Tris-phenol, pH 8.0. buffer and the extracts obtained subsequently trypsinized and analysed by label free LC-ESI-MS/MS. Only differentially represented proteins in the infected and uninfected groups (controls) were considered. At 2 and 6 days after CPSMV inoculation, 63 differentially expressed proteins were identified. At 2 days after CPSMV inoculation, 9 and 7 proteins were in greater and lower relative abundance, respectively, in the infected group compared to controls. At 6 days after inoculation, 10 and 24 proteins were up- and down-represented, respectively, in the infected plants compared to the uninfected controls. Most of these proteins were related to energy and metabolism, photosynthesis, protein folding, cell redox homeostasis, RNA metabolism and response to stress. Lower relative abundance of cowpea leaf proteins related to energy and metabolism and photosynthesis, at 6 days after CPSMV inoculation, appears to be important for the establishment of the viral disease. Moreover, the presence of the translation elongation factor 1A (eEF-1A) that plays a role in viral replication was detected. These findings provide information on some cellular mechanisms that might support the susceptible trait of cowpea when infected by CPSMV.

Key Words: \textit{Vigna unguiculata}; CPSMV; Mass spectrometry.

Acknowledgements: CAPES, CNPq, UFC and UCB.