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IDENTIFICATION OF GENES THAT ENCODES TO THE RNA SILENCING MACHINERY IN CITRUS AND ANALYSIS OF THEIR DIFFERENTIAL EXPRESSION DURING THE INTERACTION WITH *Phytophthora parasitica*<sup>1/</sup> Identificação dos genes codificadores da maquinaria de silenciamento de RNA de Citrus e análise da expressão diferencial durante a interação com *Phytophthora parasitica*. C.G. LITHOLDO JR<sup>2</sup>; H.J. MÁXIMO<sup>2</sup>; J. FERRETI<sup>2</sup>; R. MONTELATTO<sup>2</sup>; R.J.D. DALIO<sup>2</sup>; M.A MACHADO<sup>2</sup>. <sup>2</sup>Centro de Citricultura 'Sylvio Moreira', Instituto Agrônômico de Campinas, Cordeirópolis, Brazil. E-mail: celso@ccsm.br

Small RNAs (sRNAs) are non-coding protein RNAs that regulate negatively the expression of target-genes, which are recognized by nucleotide sequence complementarity. The role of sRNAs, especially microRNAs (miRNAs), has been extensively demonstrated during plant development and in biotic and abiotic stress responses. Plants use the RNA silencing machinery as a defence mechanism against pathogen infection, which was first identified in the plant-virus interaction, and later, observed in different pathosystems. Plant defence responses are mediated by activation and repression of a wide range of genes and endogenous host-derived sRNAs are essential to reprogram gene expression. *Phytophthora* root-rot is economically important and one of the most serious diseases that affects citrus worldwide. However, the role of the RNA silencing machinery in the response of citrus against *P. parasitica* still remains elusive. Therefore, the aim of this work was to identify and evaluate the changes in the expression of genes that encodes to the main enzymes of the sRNAs biosynthesis in citrus, such as Dicer-like (DCL) and Argonaute (AGO) proteins, during the infection with *P. parasitica*. Plant tissues were harvested in six different time-points after infection, and compared with non-inoculated samples. Additionally, we compared the differential expression responses between *Citrus sunki* (susceptible) and *Poncirus trifoliata* (resistant) species. Our results showed that the *P. parasitica* infection deregulate the plant RNA silencing machinery and that may contribute to the contrasting outcomes related to susceptibility between the two citrus species. This work should potentially contribute to our knowledge on sRNAs and the molecular mechanisms involved during oomycete-citrus interaction.

Key words: Small RNAs; RNA silencing; Citrus; Phytophthora

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