PB232

Differential Expression of Candidate Genes to Resistance *Tomeloidogyne paranaensis* in Clones of *Coffea canephora*.

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The nematode-plant interactions, as physiological processes of this parasitism and the *Coffea canephora* genes involved in the resistance to *Meloidogyneparanaensis*, are still poorly understood. Previous work reported that the drought-tolerant "clone 14" of *C. canephora*conilon was resistant to six different populations of root-knot nematodes, while the drought-sensitive "clone 22" was susceptible to nematode infections (Lima et al., 2015).

Rationale

The objectives of the present study were to analyze the expression profiles of candidate genes putatively involved in nematode resistance in roots of clones 14 and 22 infected by nematodes.

Methods

Total RNAs from roots of clones 14 and 22 wereextractedatsix different days after inoculation with*M. paranaensis*, converted in cDNAs and used in RT-qPCR experiments to check the gene expression profiles of the *Cc00_g16260* and *Cc10_g14530* genes of unknown function, *CcCPI1*(*Cc03_g09540*) coding for a cysteine protease inhibitor, and ***Cc01_g13400***codinga protein phosphatase (PP2C) putatively involved in the abscisic acid (ABA) signalization pathway.

Results

The results were standardized using the constitutive expression of the *CcUBQ10* gene coding for ubiquitin. For the genes *Cc00_g16260*, *Cc10_g14530* and *CcCPI1*, expression profiles were up-regulated by nematode infection and higher in roots of clone 14 than in those of clone 22. Regarding the PP2C-encoding gene, expression decreased in roots of clone 22 inoculated by *M. paranaensis* but increased upon infection in those of clone 14.

Conclusions & Perspectives

Our results support the idea that *no hits*, CPI1 and also ABA pathway are involved (directly or indirectly) in the responses of the drought-tolerant clone 14 of *C. canephora*conilon to *M. paranaensis* infection.Our results also suggest that "cross-talks" between biotic and abiotic signaling pathways occurred specifically in this coffee clone.

References

1. Lima*et al.* (2015). The multi-resistant reaction of drought-tolerant coffee 'conilon clone 14'to*Meloidogyne* spp. and late hypersensitive-like response in *Coffea canephora.*Phytopathol,105: 805-814.