PB230 Expression Analysis Ofdrebsubfamily Genes in Leaves and Roots of *Coffea canephora* Conilon Subjected to Drought.

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Coffea canephora is one of the most economically important coffee species and in Brazil, Conilonbeing the most widely cultivated plant of this species. Abiotic stresses such as temperature variations and drought periods are factors that significantly affect their production and tend to worsen with globally recognized climate changes.

Rationale

In an attempt to understand the molecular responses of coffee plants in water deficit conditions, recent studies have identified candidate genes as *CcDREB1D*(Dehydration Responsive Element Binding Protein). This gene showed increased expression in response to drought in the leaves of clone 14 (drought tolerant) in relation to the clone 22 (drought susceptible) of*C. canephora*Conilon (Marraccini*et al.*, 2012).

Methods:

The main objectives of this work were (1)to identify*DREB* genes and their subgroups (SGs) of *C. canephora*, and (2) to analyze their expression by reverse transcription-quantitative PCRin leaves and rootsof drought-tolerant(14, 73 and 120) anddrought -susceptible (22) clones of*C. canephora*Conilonsubmitted (or not) to drought stress.

Results

Among the four subgroups (I-IV) of coffee *DREB* genes (Alves, 2015), we identifiedseveral*DREB*genes showing differential expression profiles in leavesin response to drought. For several of them, differential expression profiles under drought were observed between drought-tolerant and drought-susceptibleclones of *C. canephora*. This was the case for*Cc05_g06840*(SG-I) and *Cc08_g13960*(SG-III) *DREB* that were highly up-regulated by drought in leaves of drought-tolerant clones 14 and 73, but not in those of the drought-susceptibleclone 22.

Conclusions & Perspectives

The fact that several *DREB* genes were differentially expressed under drought between drought-tolerant and drought-susceptible clones of *C. canephora* highly suggests that these genes play a key role in response of coffee plants to this abiotic stress.

References

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2. Marraccini, P. *et al.* (2012). Differentially expressed genes and proteins upon drought acclimation in tolerant and sensitive genotypes of *Coffea canephora*. *J Exp Bot* 63: 4191-4212.