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GENE EXPRESSION DURING RESPONSE TO NUTRIENT DEFICIENCY IN LEAF-MINER RESISTANT AND SUSCEPTIBLE GENOTYPES

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Several physiologic factors affect the defense response of coffee trees to the leaf-miner (*Leucoptera coffeella*), including nutrient availability during plant growth. Resistant coffee plants may exhibit leaf-miner infection when field nutritional status is critical. Knowledge of how biological mechanisms associated with transport of macronutrients and defense to leaf-miner infection interact may provide insights to elucidate the resistance response. In this study, we investigated the expression profile of genes from potassium and nitrogen metabolism, oxidative stress and defense response, in coffee seedlings submitted to limiting nutritional conditions. Young plants from both resistant and susceptible genotypes were irrigated with solutions containing variable macronutrients (N^+K^+ , N^+K^- , N^-K^+ , N^-K^-). After treatment, leaves were collected, total RNA extracted and gene expression was evaluated by qRT-PCR. All assessed genes exhibited differential expression between susceptible and resistant plants in response to nutritional stress. In addition, genes directly involved with defense mechanisms and oxidative stress exhibited the most significant expression differences when compared with genes from nutrient metabolism. These preliminary analyses suggest that regulation of nutrient up-take and/or transport may not play a central role during coffee response, and instead the activation of defense mechanisms is the initial response to low nutrient availability.