



A14 - Light sensing in grapevine: conserved and unique strategies of a *Heliophilous liana*

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Light is an important abiotic cue used to synchronize plant growth and development to the most favorable environmental conditions, thus, maximizing fitness and adaptation. Photoreceptors, their signaling partners, and the endogenous time keeping mechanism play a crucial role in perceiving the environment and integrating exogenous conditions to the plant development and metabolism. The perception and integrative pathways are virtually unknown in *Vitis*, a genus consisting of perennial and commercially important vines. In the current work, we have employed large-scale transcriptome to determine the genetic framework for light-mediated responses in grapevine. Weighted correlation network analysis was used to identify modules of co-regulated genes, and to associate their expression with light conditions. Photoreceptor and circadian clock gene families were identified and their expression profiles determined under short and long-day photoperiods. The majority of light sensing and clock component genes described in *Arabidopsis* are present in *Vitis*, although probably molded by distinct evolutionary events. Expression patterns of the genes in light-mediated responses are also common to other species, however, distinctive features are also found, suggesting that they may contribute to the heliophilous growth habit. Our results also indicate the existence of variable degrees of coupling between the environmental sensing pathways and grapevine metabolism, indicating that the perception networks may contribute to the phenotypic plasticity of the genus. These findings may contribute to candidate gene and genome wide selection strategies for grapevine breeding in tropical conditions.

Keywords: Circadian clock, cryptochrome, LOV domain, phytochrome, *Vitis*

Acknowledgments: Embrapa SEG (02.11.01.014.00.00) to VQ

A15 - Regulation of ethylene biosynthesis in response to brassinosteroid

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Sugarcane (*Saccharum* hybrids) is a very efficient biomass producer and has the capacity to accumulate high concentrations of sucrose in the stem. Ethylene is a phytohormone that plays an important role in the regulation of growth and sucrose accumulation in sugarcane. The rate limiting step of ethylene biosynthesis is mediated by the enzyme 1-aminocyclopropane-1-carboxylase synthase (ACS). In several hormone biosynthesis and signaling pathways, protein turnover has emerged as a common regulatory element. These proteins may function as cross-talk points, interconnecting hormone signaling pathways with molecular mechanisms regulating various aspects of plant physiology. Brassinosteroids (BR)