Contribution of *Arabidopsis* WAX Genes in Response to Drought

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Surfaces of land plants are covered by a hydrophobic barrier exclusively synthesized by epidermal cells named the cuticle. This barrier appears to be involved in several processes such as reflection of UV-light, protection against desiccation, fungal and bacterial pathogens, reduction of water and pollutant deposition, plant-insect interactions and prevention of post-genital organ fusion. Despite its involvement in many fundamental aspects of plant development, the biogenesis and regulation of the cuticle remains poorly understood.

The cuticle contains two major constituents, a lipophilic polymer, the cutin, and embedded within this latter as well as on top of it, cuticular waxes. Waxes are a complex mixture of very long-chain fatty acid derivatives and are thought to be mainly responsible for the hydrophobicity of the cuticle. In *Arabidopsis* leaves, the major wax components are alkanes and alcohols. In order to learn more about the role of the cuticle in a situation of water deficit, we developed a systematic analysis of the expression of genes involved in waxes biosynthesis (WAX genes) using real time PCR and WAX genes promoter::*GUS* transgenic *Arabidopsis* lines. Furthermore, transcriptional modulation of WAX gene expression was investigated under modification of environmental conditions. In particular we showed that alkane formation is regulated at the transcriptional level in response to drought in an ABA-dependent manner suggesting an important contribution of the cuticle in the adaptive response developed by the plant in a situation of water deficit.