

GENE EXPRESSION ANALYSIS INVOLVED WITH CUTICLE BIOSYNTHESIS IN SOYBEAN SEEDS

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RESUMO

Soybean (*Glycine max*) is one of the most economically important legume crops, with great relevance for global feeding. Part of the regulation required to start germination is based on seed permeability, which is provided by the cuticular layer. The cuticle is a layer that covers aerial organs of plants and seeds avoiding excessive water loss and protecting against biotic and abiotic stresses. Despite this functional importance, little is known about the role of cuticle in seed germination. Thus, the objective of this work was to identify the genes involved in cuticle biosynthesis in the soybean genome and to evaluate the expression in seeds during development and germination. First, we conducted a survey of the genes involved with cuticle biosynthesis in *Arabidopsis thaliana*. Forty-eight genes participating in cuticle biosynthesis in *Arabidopsis* were identified. For the analysis of homologous genes in soybean, the genomic annotation available on the Phytozome website was used. In soybean, 151 genes are related to cuticle biosynthesis. These genes were used in the soybean expression atlas database (available in: http://venanciogroup.uenf.br/cgi-bin/gmax_atlas/search_gene_list.cgi) in order to identify the tissues in which these genes are being expressed. Seed tissues were evaluated during the early maturation phase and embryonic axis during germination. The tissues that showed the highest expression in the maturation phase were palisade and hilum layer of the seed coat and, the plúmula, epidermis, and apical meristem of the embryonic axis. The Genes DCR and LTPG1 were the most expressed in this phase. On the embryonic axis during germination, the genes KCR1 and LACS1 seem to play an important role in the synthesis of wax in seedlings since these genes increase their expression along with the germination. With these results, we hope to contribute to the knowledge of the role of cuticle and genes related to its biosynthesis in soybean seeds.

PALAVRAS-CHAVE: cuticle biosynthesis, seeds, maturation and germination, soybean

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