

Characterization of wound responsive genes in *Aquilaria malaccensis*.

Abstract

We report on the isolation and characterization of several genes responsive to wounding in the tropical endangered tree *Aquilaria malaccensis*. Wounding triggers the formation of a fragrant substance inside the tree stem. Deduced amino acid of the cloned sequences exhibited sequence similarities to their respective homologs: transcription factors of the WRKY gene family (AmWRKY) and β -1,3-glucanase (AmGLU). A homolog to phenylalanine ammonia-lyase (AmPAL) from previous work was also included. All cDNA sequences were of partial lengths. We studied their expression profiles in a wounding-stress experiment. Mechanical wounding induces AmWRKY in an early response to wounding (3 h), and elevates AmPAL and AmGLU expressions after 16 h. It is possible that AmWRKY mediates early wounding response while AmPAL mediates response to fungal infection by co-inducing AmGLU. Their homologs in other plants are known to inhibit fungal growth. Our data provide the first insight into the mechanisms of wounding responses in *Aquilaria*.

Keyword: Agarwood; *Aquilaria malaccensis*; Genes; Wounding.