

Poom Preedakon 2009: Discovery of Plant Hormone Signal Transduction Homologs in Oil Palm (*Elaeis guineensis* Jacq.) Master of Science (Agricultural Biotechnology), Major Field: Agricultural Biotechnology, Interdisciplinary Graduate Program. Thesis Advisor: Mr.Hugo Volkaert, Ph.D. 129 pages.

Oil palm protein coding genes that are involved in hormone signal transduction and responses through the ubiquitin proteasome degradation pathway and genes involved in auxin transport were characterized. Genomic DNA fragments were amplified using primers targeting conserved regions for each of the *Arabidopsis thaliana* and *Oryza sativa* homologs of the auxin (TIR1, ARF1, AXR2, and AXR3), gibberellins (GID1), abscisic acid (ABI3 and ABI5), ethylene (EBF1, EBF2, ETR, ERS), jasmonate (COI1), brassinosteroid (BAK1 and BRX) and strigolactone (MAX2 and MAX4) signal transduction pathways and the auxin transporter family (PIN). In addition, HECT and MYB homologs which are shared among several signal transduction pathways were targeted. Twenty-nine gene fragments were characterized. Eighteen gene fragments included one or more introns. For eight of them, specific primer pairs were designed to study polymorphism among twelve different oil palm seedlings. TIR1, ARF1, AXR, and ABI3 specific primer pairs amplified a unique product but results from their SSCP (single strand conformation polymorphism) showed they didn't have any polymorphism. Four PIN specific primer pairs amplified four different loci and their sequences showed some polymorphism. A phylogenetic comparison of the amino acid coding regions of each of the gene fragments indicated that the oil palm sequences usually grouped with sequences from other monocots such as the grasses *Oryza* and *Zea*.

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Student's signature

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Thesis Advisor's signature