

Isolation and characterization of differentially expressed transcripts from the suspension cells of oil palm (*Elaeis guineensis* Jacq.) in response to different concentration of auxins

ABSTRACT

Oil palm suspension cultures were initiated by transferring the gel-like friable embryogenic tissue onto liquid medium supplemented with auxins. In this study, transcripts that were differentially expressed in oil palm suspension cells cultured at different auxin concentrations were examined using suppression subtractive hybridization. Total RNA was first isolated from oil palm suspension cells proliferated in liquid medium with different hormone concentrations for 6 months. Four different hormone combinations: T1 (0.1 mg/l 2,4-D and 1.0 mg/l NAA), T2 (0.4 mg/l 2,4-D and 1.0 mg/l NAA), T3 (1.0 mg/l NAA), and T4 (0.4 mg/l 2,4-D) were used for the treatments. The first and second subtractions were performed using samples T1 and T2 in forward and reverse order. The other two subtractions were forward and reverse subtractions of T3 and T4, respectively. Reverse northern analyses showed that 14.13% of these clones were preferentially expressed in T1, 13.70% in T2, 14.75% in T3, and 15.70% in T4. Among the 294 cDNA clones that were sequenced, 61 contigs (assembled from 165 sequences) and 129 singletons were obtained. Among the 61 contigs, 10 contigs consist of sequences from treatment T1, 8 contigs were from treatment T2, 10 contigs were contains sequences of treatment T3 and 13 contigs contains sequences of treatment T4. Northern analyses of five transcripts that were shown to be differentially expressed in the oil palm suspension cells by reverse northern analysis revealed that transcripts 16A1 (a putative lignostilbene- , -dioxygenase, EgLSD) and 16H12 (a putative ethylene responsive 6, EgER6) were differentially expressed in oil palm suspension cells treated with different levels of auxin.

Keyword: EgLSD; EgER6; Oil palm; Cell suspension; Somatic embryo; 2,4-D; NAA