Isolation, cloning and characterization of actin-encoding cDNAs from jatropha curcas L.IP-2P

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Abstrak

ABSTRACT
Actin is a major component of the plant cytoskeleton, so all cells contain this protein. Actin is expressed constitutively and is involved in basic housekeeping functions required for cell maintenance. Because of this, it has been frequently used as an internal control to normalize changes in gene expressions analysis. Actually, the information of nucleotide
sequence of actin gene of Jatropha curcas L. population IP-2P from Indonesia is not available yet. The objective of this research was to isolate, clone and characterize cDNA of actin genes of J. curcas IP-2P. Three partial actin gene sequences had been successfully isolated by PCR using total cDNA as template, and actin primer designed from conserved region of
Arabidopsis thaliana. Nucleotide sequence analysis showed that the length of JcACT fragment is 610, 534, and 701 bp encoding 203, 177, and 234 amino acids respectively. Local alignment analysis based on mRNA sequences shows that JcACT fragment shares 98% similarity with actin mRNA of Hevea brasiliensis and 99% with actin mRNA of Ricinus communis. Based on deduced amino acid sequence, JcACT is 100% identical to acting from Prunus salicina, Gossypium hirsutum, and Betula luminifera. Even though these clones of cDNA are not completed yet, they can be used as reference in J. curcas L. gene expression analysis.