

Poonyaporn Borivetanan 2012: Cloning, Expression and Characterization of *AGAMOUS* Gene in *Jatropha curcas* L. Master of Science (Genetics), Major Field: Genetics, Department of Genetics. Thesis Advisor: Ms. Sompid Samipak, Ph.D. 72 pages.

The *AGAMOUS* (*AG*) is a floral organ identity gene in C class of ABCE model which specifies stamen and carpel development. In this study, *JcAG* which is an *AGAMOUS* homologue gene of physic nut (*Jatropha curcas* L.) was cloned and reported a contig of nucleotide sequence which has 1,063 base pairs in length with 726 base pairs of open reading frame corresponding to 241 amino acid residues of predicted protein sequence. The amino acid sequence, *JcAG*, was compared with related sequences in GenBank protein database using protein blast. The result showed that the deduced *JcAG* sequence has 88% identity with *TcAG* (*AGAMOUS*-like protein of cocoa, *Theobroma cacao* L.) and shows the presence of MADS superfamily and K-box superfamily domains. Confirming by phylogenetic analysis, *JcAG* was situated in *AGAMOUS* dicotyledon subclade and was clearly separated from *SHATTERPROOF* (*SHP*) and *SEEDSTICK* (*STK*) subclades which are also MADS box family members. Southern blot hybridization indicated that the *JcAG* gene is a single copy gene in *J. curcas* genome. Relative quantification real-time PCR was used to detect the expressions of the gene in different organs of *J. curcas*. The data revealed that the expression level of *JcAG* in 4-6 millimeter flower bud was higher than in 1-3 millimeter flower bud, while the expression in anther was higher than in ovary. Low level of *JcAG* expression was also detected in vegetative tissues such as young leaf and shoot tip.

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Student's signature

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Thesis Advisor's signature