CHAPTER VI

Conclusion

Altogether, this study revealed that *ctl* and *alrc2* genes isolated from *Clitoria ternatea* L. and *Artocarpus lakoocha* Rox., respectively, encoded HPT enzyme which is an important enzyme in α-tocopherol biosynthesis. Both genes were identified and characterized based on their protein structure which appeared to consist of 9 transmembrane α-helixes, N-signaling transit peptide at N-terminal and Asp rich regions as substrate binding site. Both genes were highly expressed at 1 dpa and their proteins were highly expressed at 3 dpa in transient tomato. These overexpression genes in tomato leaves resulted in the increase of MPBQ (the product of HPT activity) and DMPBQ and consequently enhance α-tocopherol accumulation The MPBQ and DMPBQ that are the intermediates in pathway were also detected to be increased by GC-MS chromatogram. Furthermore, the overexpression of *CTL* and *ALRC2* induced chlorophyll degradation and released free phyltol that is the precursor of α-tocopherol.