In order to investigate the expression level in *E. coli* BL21 DE3 of gene encoding amidase amplified from *Rhodococcus erythropolis* PR4 DNA genome, we expressed and purified recombinant amidase from E. coli BL21 DE3. 1038 bp amidase – encoding sequence was published on Gene bank with its accession being ACNO01000111. After designing primer and amplifying successfully gene, we cloned in *E. coli* DH5α and expressed in *E.coli* BL21 DE3 based on using pGEM-T và pET28a vectors. Having a mass of approximately 38 kDa, amidase was expressed optimally in E. coli using 1 mM IPTG as an inducer, at 37 °C, for 4 h. We were successful in purification of recombinant enzyme amidase using Macro-Prep High Q (BIO-RAD) and superdex^{TM} 200 10/300 (GE Healthcare) columns.

Keywords: *Amidase; Escherichia coli; Acrylamide; Recombinant enzyme; Expression vector*

An effective reverse transcription quantitative pcr analysis of *dhdps1/4* isogene expression in leaf and root of *medicago truncatula* under nacl and mannitol stress

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ABSTRACT

The optimum assays conditions for reverse transcription quantitative -polymerase chain reaction (RTqPCR) technique together with the built-in gene expression analysis module in CFX ManagerTM software were combined to determine the *DHDPS1/4* isogene expression in leaf and root of *Medicago truncatula* under NaCl and mannitol stress. *M. truncatula* plants were grown up in hydroponic system and the three weeks old plants were short term treated by 200 mM NaCl and 180 mM manitol. Both the leaves and roots of *M. truncatula* were collected after NaCl and mannitol treated 2h and 24h and they were used for analyzing the expression of the *DHDPS1/4* isogene under stress conditions by quantitative real-time polymerase chain reaction (qRT-PCR). Three biological replicates for each time points, including the control sample without NaCl or mannitol treated were conducted. The results show that NaCl and mannitol stress treatment caused a different effected on the expression of the *DHDPS1/4* isogene between leaves and roots of *M. truncatula*. The *DHDPS1/4* isogene expression were significantly increased in roots but decreased in leaves by treated of 180 mM mannitol or 200 mM NaCl at 2h and 24h in comparing with roots and leaves control samples, respectively. The relatively different expression of *DHDPS1/4* isogene between roots and leaves in this study provides evidence that *DHDPS1/4* isogene has a physiological function in responsing to stress condition in *M. truncatula*.

Key words: *DHDPS1/4 isogene, dihydrodipicolinate synthase, expression, mannitol, Medicago truncatula, NaCl*

Generation of rabbit single chain fragment variable (scfv) antibody for specific detection of nitrogen-fixing bacteria

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ABSTRACT

Bradyrhizobium spp. DOA9 is a bacterial strain originally isolated from the root nodules of *Aeschynomene americana* in Vietnam. This strain was classified as *B. yuanmingense* based on its multilocus DNA sequence analysis of 16S rRNA and