

INTISARI

PGPB (*Plant Growth Promoting Bacteria*) penghasil *Aminocyclopropane-1-Carboxylate Deaminase* (ACCD) dapat dimanfaatkan untuk mengatasi hambatan pertumbuhan tanaman yang terpapar cekaman. Penelitian ini bertujuan untuk identifikasi dan analisis gen penyandi ACCD (*acdS*) pada bakteri *Raoultella terrigena* PCM8. Karakter strain PCM8 dikonfirmasi dengan uji morfologi, fisiologi, dan sekuen gen 16SrDNA. Identifikasi gen *acdS* pada strain PCM8 diperoleh dari hasil WGS (*Whole Genomic Sequencing*) dan karakterisasi ACCD dilakukan dengan analisis *in silico*. Hasil uji morfologi, fisiologi dan sekuen gen 16SrDNA memberikan pembenaran bahwa strain PCM8 adalah bakteri *Raoultella terrigena*. Berdasarkan anotasi WGS diketahui bahwa gen *acdS* strain PCM8 terletak pada lokus 19090 dalam DNA genom dan tersusun atas 978 nukleotida. Analisis *in silico* menunjukkan bahwa enzim ACCD strain PCM8 memiliki 325 asam amino, berat molekul 34,95 kDa, pI 5,06, dan residu katalitik berupa Lys51, Ser78, Tyr287, dan Thr288.

Kata kunci: *Raoultella terrigena*, gen *acdS*, ACC Deaminase, *Whole Genome Sequencing*, *In Silico*

ABSTRACT

PGPB (Plant Growth Promoting Bacteria) producing Aminocyclopropane-1-Carboxylate Deaminase (ACCD) could be applied to overcome plant growth inhibition due to any stresses. This study aims to identify and analyze the ACCD encoding gene (*acdS*) in the bacterium, *Raoultella terrigena* PCM8. The character of the PCM8 strain was confirmed by morphological, physiological, and 16SrDNA gene sequencing tests. Identification of the *acdS* gene in the PCM8 strain was obtained from the results of WGS (Whole Genomic Sequencing) and the characterization of ACCD enzyme was carried out by *in silico* analysis. The results of the morphology, physiology and gene sequence of 16SrDNA confirmed that the PCM8 strain was the bacterium of *Raoultella terrigena*. Based on the WGS annotation, it was known that the *acdS* gene of the PCM8 strain is located at the locus 19090 of genomic DNA and contains 978 nucleotides. *In silico* analysis showed that the ACCD enzyme of PCM8 strain has 325 amino acids, molecular weight of 34.95 kDa, pI value of 5.06, and catalytic residues consist of Lys51, Ser78, Tyr287, and Thr288.

Key words: *Raoultella terrigena*, *acdS* gene, ACC Deaminase, Whole Genome Sequencing, In Silico