

Identification of Potential Biofertilizer and Bioremediator Bacteria from Upland Soil Based on 16s rDNA Sequence Analysis

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| Title | Identification of Potential Biofertilizer and Bioremediator Bacteria from Upland Soil Based on 16s rDNA Sequence Analysis |
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| Abstract | <p>The long-term presence of synthetic pesticides on agricultural land can lead to a decline in soil fertility. Synthetic pesticides inhibit the activity of essential enzymes in the soil and suppress beneficial microbial populations for plants. One potential approach to mitigate the extent of contamination caused by synthetic pesticides involves the utilization of indigenous pesticide-resistant bacteria. Several upland soil bacteria from Banyumas Regency, Central Java Province, Indonesia, were successfully isolated from a previous study. The isolated bacteria have the potential to be developed as pesticide bio-remediators and biofertilizers. The bacterial isolates are expected to have characters that support plant growth through their ability to provide dissolved phosphate. However, the potential bacterial isolates need to be identified by molecular approaches. This study was conducted to identify bacterial isolates of GT2, SR1, SW1, and PA1 by 16S rDNA sequencing analysis. The results showed that isolate GT2 was placed within a group of reference strains of <i>Bacillus proteolyticus</i>, isolate SR1 was placed within a group of <i>B. paramycoides</i>, isolate SW1 was set within a group of <i>B. albus</i>, and isolate PA1 was placed within a group of <i>Acidovorax delafieldii</i>. The genetic distance of isolate GT2 and <i>B. B. proteolyticus</i>, isolate SR1 and <i>B. paramycoides</i>, isolate SW1 and <i>B. albus</i> were 0.0000 each, and isolate PA1 and <i>A. delafieldii</i> were 0.0061.Â,Â</p> |
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