

***IDENTIFICATION of Plant Growth Promoting Rhizobacteria INDIGINEOUS
RHIZOSPHERE OF WELSH RICE PLANTS (Oryza sativa L.) WITH
POTENTIAL AS A BIOELISITOR***

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ABSTRACT

Soil microorganisms in each plant rhizosphere play an important role in the plant nutrient cycle (fixation, solvent, and nutrient provider), phytostimulator production, and plant resistance to pathogenic organisms. The population and diversity of Plant Growth Promoting Rhizobacteria (PGPR) are highly dependent on the management of the soil during plant cultivation. This study aims to identify the types of PGPR in the rice rhizosphere and to study the secondary metabolite compounds of microorganisms that have the potential as elicitors. This study was conducted in two stages, namely soil sampling and laboratory analysis. Soil samples were taken randomly from two rice plant rhizospheres, namely organic and inorganic rice rhizospheres. Soil sampling of inorganic rice rhizospheres was carried out in Kebonsari while organic rice rhizosphere soil samples were in Sumberjambe. This study was conducted using observation methods and descriptive analysis by comparing inorganic and organic rice rhizosphere PGPR. The results of this observation method show that in the inorganic rhizosphere sample there are 3 types of bacteria, namely Azotobacter, Acetobacter, and Bacillus subtilis. while in the organic rhizosphere sample there are also 3 types of bacteria, namely Bacillus aerophilus, Acetobacter, and Azotobacter. The results of descriptive analysis of the GC-MS test, the highest secondary metabolite compounds in Inorganic PGPR Acetic acid and 2-Pyrrolidinone while the highest secondary metabolite content in organic PGPR is Acetic acid and 1,2,3 Propanetriol. The content of metabolite compounds that have the potential as elicitors is found in Organic PGPR, namely 1,2,3 Propanetriol or Glycerol because it is able to activate plant resistance signals.

Keyword: characterization, rhizobacteria, secondary metabolites, soil