**Potential endophytic bacteria for increasing**

**paddy var rojolele productivity**

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**ABSTRACT**

Paddy var Rojolele is a superior paddy come from Klaten that released by Department of Agriculture in 2003. Its superior properties are resistant to pests leaf hoppers, fluffier and fragrant. To increase the productivity of paddy that are often used by farmers is to use chemical-based fertilizers. The use of these chemicals will effect to a disruption of ecosystem balancing, reduction the amount of soil microflora which essential for plants. Endophytic bacteria are symbiotic microorganisms living with in plant tissues, and does not cause negative effects on the host plant. Endophytic bacteria have a capability increasing crop productivity by producing growth hormone, contributes to plant health, and as bio-control agents. Some endophytic bacteria which contribute to plant growth are: *Pseudomonas* sp., *Enterobacter* sp., *Staphylococcus* sp., *Azotobacter* sp., And *Azospirilum* sp., Where as endophytic bacteria that contribute to the health and plant protection several of them are: *Pseudomonas* sp., *Serratia* sp. ,*Clavibacter* sp., and *Bacillus* sp. This study was conducted to investigate potential of endophytic bacteria to increase Paddy var Rojolele productivity based on its ability to produce extracellular enzymes and resistance to multiple types of antibiotics. The method were endophytic bacteria isolation from three Paddy var Rojolele plants, extracellular enzymes detection and antibiotic resistance testing to chloramfinekol, ampicillin and kanamycin.

As the result, 43 isolates were isolated from Paddy var Rojolele. Four isolates among them have the ability to produce extracellular enzymes and resistant to ampicillin, kanamycin and Chloramfinekol. Extracellular enzyme production capability and resistance to antibiotics makes endophytic bacteria are potential to improve plant health and also as bio-control agent which then will affect to the productivity of rice. To further ensure its potential to plant, more research is needed.

*Keywords*: Paddy var Rojolele, Endophytic Bacteria, extracellular enzymes, antibiotics resistance, productivity.