Bacterial Colony Growth and Morphological Characteristics Of Sugarcane Root Bacteria In Fermented Liquid

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ABSTRACT

The main problem in the sugar industry is the production of white crystal sugar (GKP) which cannot meet national needs. To improve the quality and production of sugar cane, sugar cane cultivation techniques need to be considered, especially on soil fertility. Soil fertility can be improved by using Plant Growth Promoting Rhizobacteria (PGPR). This PGPR can be taken from around the plant roots and multiplied so that later it can be applied back to the plant. This study aims to determine the growth of bacterial colonies, bacterial morphology and identification results of sugarcane root bacteria in fermented liquid. The method used in this research is an observation method and descriptive data analysis, namely by taking the results of data in the laboratory which will then be explained descriptively. The results of research on the growth of sugarcane root bacteria in fermented liquid obtained data on the number of colonies in week 1 was $7,7 \times 10^7$ CFU / ml and the highest number of colonies in week 2 was $28,8 \times 10^7$ CFU / ml and the lowest number of colonies in week 3 was $5,8 \times 10^7$ CFU / ml. Characteristics of sugarcane root bacteria colonies include yellow, pink, blue, milky white, pink, yellow, and blue colony colors in the middle; colony size characteristics are large, point and medium; colony shape characteristics are circular and irregular; colony elevation characteristics are convex and flat; colony surface characteristics are mucoid and smooth; colony edge characteristics are regular and irregular; overall cell shape characteristics are bacilli and gram + staining. Identification of sugarcane root bacteria in fermented liquid obtained bacterial types namely *Pseudomonas* spp., *Azotobacter* spp., *Rhizobium* spp., and *Lactobacillus* spp.

Keywords: *Plant Growth Promoting Rhizobacteria* (PGPR), Bacteria, Sugarcane, Bacterial Morphology