

## CHAPTER V

### CONCLUSION AND SUGGESTION

#### 5.1 Conclusion

Based on the result and discussion of this research, it can be conclude that :

1. Untreated POMED® contain ammonia-oxidizing bacteria (AOB) of the genus *Nitrosomonas* with a relative abundance of 0.128% with 5 species. The identified nitrite-oxidizing bacteria (NOB) genus in untreated POMED® were *Nitrospina* with a relative abundance of 0.020% with 1 species.
2. Soil treated with untreated POMED® at half dose (T2) and normal dose (T3) showed 5.27% and 19.32% increase in nitrate ( $\text{NO}_3^-$ ) concentration respectively. Nitrification rate both ammonia and nitrite oxidation showed  $\text{T3} > \text{T2} > \text{T1}$ . This confirms that untreated POMED® can accelerate nitrification rates and increase nitrate concentrations.
3. Based on the results of soil chemical property measurements, the pH of soil applied with untreated POMED® showed a decrease from 6.9 to 5.0 due to the oxidation of ammonia and nitrite (nitrification). However, this pH is still suitable for nitrification activity. In addition, the application of untreated POMED® resulted in a high soil C/N ratio (36-69), which causes microbial immobilization. The increase in the C/N ratio is negatively correlated with the concentration of inorganic nitrogen.

#### 5.2 Suggestion

Based on the research that has been done, suggestion for further research are:

1. Bacterial identification using 16S rRNA analysis should also be performed on soil samples applied with untreated POMED® to observe the presence and activity of nitrifying microorganisms.
2. The application of untreated POMED® to soil with an ideal C/N ratio must be supplemented by additional nitrogen input.
3. It is recommended to perform repeated incubation tests and replicated inorganic nitrogen measurements to improve the accuracy of the results.

4. Heavy metal analysis should be conducted to determine the potential toxicity of untreated POMED<sup>®</sup> as fertilizer.
5. Future studies are recommended to use a 2×2 factorial design with treatments consisting of: (a) Control, (b) Untreated POMED<sup>®</sup>, (c) Urea, and (d) Untreated POMED<sup>®</sup>+ Urea. This arrangement allows for a clearer comparison between treatment effects.

