

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

The conclusions drawn from this study are as follow:

1. RS at the load of 1.5% was the most effective organic amendment for stimulating indigenous microorganisms to degrade carbofuran indicating by the shortest half-life of carbofuran and high microbial activity present in the soil amended with this amendment.
2. Inorganic amendment was found to inhibit carbofuran degradation as well as microbial activities in soil in comparison to unamended soil indicating that soil sample might have enough trace elements for indigenous microorganisms. Therefore, there is no need to add inorganic nutrients to soil.
3. Addition of 1.5% RS and 1 mL of inorganic amendment improved carbofuran degradation ability and microbial activities of indigenous microorganisms in aged soil.
4. The lowest carbofuran concentration which caused the death of C-RS, N-RS, and C,N-RS were 19.21, 17.88, and 32.00 mg/L suggesting that carbofuran concentration in the contaminated site should be lower than 17.88 mg/L which corresponds to 13.23 L/kg soil base upon  $K_d$  value of 0.74 in our soil sample in order to obtain an effective biostimulation process by these indigenous carbofuran degraders in our soil sample.

#### Recommendations

1. Microbial community in soil microcosms amended with 1.5% RS and in aged soil microcosms with 1.5% RS and 1 mL of inorganic solution should be evaluated in comparison to non-amended soil by using DGGE.
2. A growth yield of carbofuran degraders as a result from degradation of carbofuran should be determined in kinetic experiment.
3. 1.5% RS can be applied to stimulate carbofuran degradation in the carbofuran contaminated sites and the concentration of carbofuran should equal or lower than 13.23 L/kg soil.