CHAPTER VI

CONCLUSION

In this study, the responses of three different soybean varieties to endophytic actinomycetes and Bradyrhizobium on growth, nodulation, nitrogen fixation and seed yield were obtained the following results:

(1) The single inoculation of EA did not showed significant in the whole plant dry weight of the tested soybeans. But in tested three different soybeans, the effect of EA showed a trend to increase nodule dry weight while combination with all *Bradyrhizobia* at both V6 and R3.5 stages. There was no significant different in root dry weight, the use of EA combination with all *Bradyrhizobium* strains produced increased root dry weight in both V6 and R3.5 stage in three soybean varieties except in R3.5 stage of Myanmar that was only in USDA 110 and THA 7. In all soybean plant, the dual combination of EA with all *Bradyrhizobia* showed a trend to increase shoot dry weight except in V6 stage of Thailand soybean.

(2) It also showed a trend to increase in relative ureide index (RUI), % P-fix, shoot N accumulation and amount of fixed N when combination with all *Bradyrhizobia* in the tested soybean plants at R 3.5 stage although EA was not significantly differ from the untreated control.

(3) In all tested soybean, the single inoculation of *Bradyrhizobia* showed no significant different in root dry weight in both V6 and R3.5 stage. At V6 stage, the single *Bradyrhizobium* MB found the best in Myanmar and Thailand soybean though USDA 110 was the best in Cambodian soybean variety. At R3.5 stage, the single

inoculation of MB was the best in Myanmar, THA 7 was the best in Thailand and MA was the best in Cambodian variety.

(4) The relative ureide index, % P-fix, shoot N accumulation and amount of fixed N showed different results for three soybean varieties. In Myanmar, among the single inoculation of *Bradyrhizobium,* MB, showed higher in N-fixation than the others at R3.5 stage. Single *Bradyrhizobium*,THA 7 gave the best in Thailand soybean, and MA found the significant improvement of N-fixation in Cambodian soybean variety.

(5) The use of N-applied treatment with or without EA did not showed beneficial effect in plant dry weight and N- fixation in all tested soybean variety. Though the significant effects of the tested treatments on root dry weight of Myanmar soybean at V6 and R3.5 stages were not found, all single Bradyrhizobial inoculated treatments including N applied treatment and EA+N showed a trend to improve root dry weight at both growth stages compared to that of the control.

(6) N- applied treatment and EA+N did not show significant improvement on RUI%, % P-fix, shoot N accumulation and amount of N fixed in all soybean varieties except one case EA+N treatment was slightly improvement in shoot N accumulation about 33% over the control in Cambodian soybean.

(7) Though the use of EA did not showed significant effect on seed yield, there was a trend to increase seed yield in the combination of EA with all *Bradyrhizobia* in Myanmar, Thailand and Cambodian soybean. Among all treatments, EA+USDA110 observed the highest seed yield in Myanmar; EA+ THA 7 was the best in Thailand and MA in Cambodian soybean variety.