

Effects of Selected Endophytic Actinomycetes (*Streptomyces* sp.) and Bradyrhizobia from Myanmar on Growth, Nodulation, Nitrogen Fixation and Yield of Different Soybean Varieties

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ABSTRACT

*Effects of endophytic actinomycetes and Myanmar Bradyrhizobia on growth, nodulation, nitrogen fixation and seed yield of three recommended soybeans from Myanmar (Hinthada), Thailand (SJ 5) and Cambodia (DT 84) were studied in pot experiments at Chiang Mai University during November, 2008 to March 2009. Sterile soil by autoclaving was used for cultivation under open field using tap water. In each pot trial, one soybean variety was tested, using randomized complete block experimental design with 3 replications and 6 treatments. The tested treatments were as follows: uninoculated control treatment, two Bradyrhizobial inoculated treatments with MA and MB, Bradyrhizobial isolates from Myanmar, single inoculated treatment with a selected endophytic actinomycetes, EA (*Streptomyces* sp.) and two dual inoculated treatments with EA+MA and EA+MB. N₂ fixations of soybean plants were evaluated by ureide technique, using root bleeding sap. We found out that the tested treatments had no significant effects on nodule dry weight of the tested soybean varieties at both V₆ and R_{3.5} growth stages. Single inoculation with MB resulted in significant improvement of shoot N uptake at R_{3.5} stage, amount of seasonal fixed N and seed yield of all tested soybean varieties compared to uninoculated control but MA was effective only for Cambodian soybean. Single inoculation with EA had no significant effects on all studied parameters and dual inoculation with EA+MB even showed significant depressive effect on amount of seasonal fixed N of all soybean varieties compared with single inoculation with MB treatment. The effects of dual inoculation with EA and MA on all studied parameters were not significant but this treatment tended to be more effective than single inoculation with MA.*

Key words: Bradyrhizobium, Endophytic actinomycetes, Nitrogen fixation, Nodulation, Soybean