Sukanda Silpachai 2009: Growth Enhancement of Physic Nut (*Jatropha curcas* L. cultivar India) Infected by *Glomus aggregatum* as Apply with Different Levels of Organic Fertilizer, Chemical Fertilizer and Phosphatic Rock in Kamphaeng-Saen Soil Series. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Associate Professor Thongchai Mala, Ph.D. 102 pages.

A study on growth enhancement of physic nut cv. India after pruning by *Glomus aggregatum* and different levels of organic and phosphate fertilizer. The treatments were arrange in 2x2x4 factorial in randomized complete block with 3 replications. Two levels of VA-mycorrhizal fungi were non-inoculation and inoculation, while, two levels of organic fertilizer were 2 and 4 kg/plant and four levels of phosphate fertilizer were 204 and 408 g/plant of rock phosphate and 27 and 54 g/plant of triple superphosphate. Laboratory analyses on their number spore and root colonization density of VA-mycorrhizal fungi, growth and yield of physic nut, some chemical properties and nutrient contents in plant and soil.

The results revealed that VA-mycorrhizal fungi inoculum, organic and phosphate fertilizer affected spore number, root colonization density, plant height, branch number, dry weight of plant, root length, fruit/branch, fruit/plant, seed/plant, dry weight of fruit, seed weight, 100 seed weight, some chemical properties in soil; total N, available P and exchangeable Ca and nutrient contents in leaf and shoot of plant; total N, P, K and Ca. In addition, the application of VA-mycorrhizal fungi applied with 4 kg/plant of organic fertilizer and VA-mycorrhizal fungi applied with 408 g/plant of rock phosphate increased more growth, yield of physic nut, spore number and root colonization density than other treatments.

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