

Saifon Tiamtanong 2014: The Effects of *Glomus aggregatum* on Available Phosphorus Enhancement in Grape Orchard Acid Soil at Different level of Phosphate Fertilizer Application. Master of Science (Soil Science and Management Technology), Major Field: Soil Science and Management Technology, Department of Soil Science. Thesis Advisor: Mr. Suphachai Amkha, Ph.D. 83 pages.

To study the effect of mycorrhizal fungi with phosphate fertilizer on phosphate solubilizing and some soil properties in grapes orchard. The experimental was using 3x2x5 factorial in Completely Randomized Design (CRD) with 3 replications on as comfits factor 1 was grape varieties (Beauty Seedless, Loose Perlette and Black opal), factor 2 was mycorrhizal fungi inoculation (Non-mycorrhizal fungi inoculation and mycorrhizal fungi inoculation) and factor 3 was phosphate fertilizers application (0, 27.17, 54.34, 81.52 and 108.69 g plant<sup>-1</sup>) The data collected about that spore number, root colonization density, activities phosphatases enzyme, soil pH, available phosphorus in soil and total concentration of phosphorus in leaf grape.

The results that Beauty Seedless varietie increased spore number, root colonization density and activities phosphatases enzyme. By the time, mycorrhizal fungi combination with 27.17 g plant<sup>-1</sup> of phosphate fertilizer increased spore number and mycorrhizal fungi combination with 54.34 g plant<sup>-1</sup> of phosphate fertilizer increased root colonization density, activities phosphatases enzyme, , root colonization density, activities phosphatases enzyme, soil pH, available phosphorus in soil and total concentration of phosphorus in leaf grape. While, mycorrhizal fungi combination with 27.17 g plant<sup>-1</sup> of phosphate fertilizer effect soil pH.

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Thesis Advisor's signature