Teerapat Tepkaew 2014: Photosynthetic Efficiency, Fruit Yield and Quality Affected by Kaolin Clay in Seedless Grape (*Vitis vinifera* L.) cv. Perlette. Master of Science (Botany), Major Field: Botany, Department of Botany. Thesis Advisor: Associate Professor Kanapol Jutamanee, D.Agr. 141 pages.

Commercial production of seedless grape cv. Perlette (*Vitis vinifera* L. cv. Perlette) during dry season, high temperature and solar radiation, face the reduction of grape yield problem. Kaolin can reflect the light and reduce light intensity on plants. Thus, coating plant with kaolin can reduce damage from dry season weather and maintain photosynthetic efficiency. Therefore, the effects of kaolin on maintain photosynthetic efficiency and yield qualities of 'Perlette' seedless grape were studied. Spraying kaolin from Lampang province compared with kaolin from Uttharadith province during the experiment at concentration of 50 g/L 1 time per week at the fruit age of 2 weeks were performed until harvested. The results showed that spraying kaolin from Uttharadith province maintained photosynthetic efficiency better than spraying kaolin from Lampang province and control since 5 weeks of fruit age. Both sources of kaolin maintained leaf SPAD index and maximum light quantum yield of PSII by increase electron transport rate. Photosynthetic efficiency was maintained by kaolin so glucose content in leaf was increase. Higher glucose content in leaf led to increasing trend of grape yield per plant. Spraying kaolin from Lampang province increased weight and berry size. Moreover, both spraying kaolin increased total soluble solid in grape juice but had no effected on pH and titratable acidity.

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