

Supanun Ngennoy 2014: Effect of Humic Acid Extracted from Leonardite on Growth and Development, Yield and Plant Nutrition of Maize (*Zea may L.*). Master of Science (Botany), Major Field: Botany, Department of Botany. Thesis Advisor: Associate Professor Kanapol Jutamane, D.Agr. 116 pages.

The study on an application of humic acid (HA) extracted from leonardite Mae Moh Mine, Lampang province, with chemical fertilizer (NPK) affected on growth, development, yield and plant nutrition of maize. The results showed that HA had high organic matter and cation exchange capacity. Moreover, HA had heavy metals lower than standards of Pollution Control Department. Application of NPK and HA gave the available phosphorus and potassium contents in soil higher than treatment of NPK. Total nutrient contents in leaves such as nitrogen and manganese contents had higher than NPK treatment. The treatment of 100% NPK with HA 25 kg/rai and 75% NPK with HA 50 kg/rai caused the same result in higher plant height, collar height, SPAD index, and yield than application of NPK only. Furthermore, the heavy metal such as chromium, cadmium, lead, arsenic, nickel and mercury were not found in grains. Finally, the results indicated that HA could increase the adsorption of phosphorus and potassium in soil as well as improve efficiency uptake of nitrogen and manganese in leaves. Meanwhile HA could promoted plant growth, SPAD index and yield. Thus, the application of HA with NPK could increase efficiency of chemical fertilizers in maize production.

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