

Lamai Srisawat 2008: Comparison of Extractants in Estimating Available Zinc in Chai Badan, Lum Narai, Chok Chai, Thap Khwang and Takhli Soil Series. Master of Science (Agriculture), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Associate Professor Jongruk Chanchareonsook, D.Agr. 72 pages.

Comparison of Diethylenetriamine Pentaacetic Acid (DTPA), Ammonium Bicarbonate-DTPA (AB-DTPA) and EDTA-Ammonium Carbonate ($\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$) extraction methods in estimating available zinc in Chai Badan, Lum Narai, Chok Chai, Thap Khwang and Takhli Soil Series was studied. The relationships between the amounts of zinc extracted by DTPA, AB-DTPA and $\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$ and total zinc uptake by corn grown in greenhouse condition were investigated. In addition, the relationships among the amount of zinc extracted by DTPA, AB-DTPA and $\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$ were also elucidated.

The results showed that the amounts of Zn extracted by DTPA, AB-DTPA and $\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$ were highly correlated and total zinc uptake by corn was highly correlated with the amount of zinc extracted by DTPA ($r= 0.976^{**}$) and $\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$ ($r= 0.947^{**}$) and correlated with the amount of zinc extracted by AB-DTPA ($r= 0.878^*$). The amounts of Zn extracted by DTPA, AB-DTPA and $\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$ could be used to predict the total-Zn uptake of corn with percentage of 95, 77 and 90, respectively. Therefore, DTPA, AB-DTPA and $\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$ can be used effectively as extraction method for the estimation of available zinc in soils. However, the efficiency of DTPA and $\text{EDTA}-(\text{NH}_4)_2\text{CO}_3$ for evaluating availability of zinc in soils was closely similar but rather higher than that of AB-DTPA.

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Thesis Advisor's signature

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