

**A COMPARATIVE STUDY ON THE CADMIUM AND ZINC UPTAKE BY
KANGKONG (*Ipomoea aquatica* Forsk.) AND PECHAY (*Brassica chinensis* L.)
GROWN IN NATURAL SOIL AND COCONUT COIR DUST
TREATED WITH CADMIUM SULFATE
OR ZINC SULFATE**

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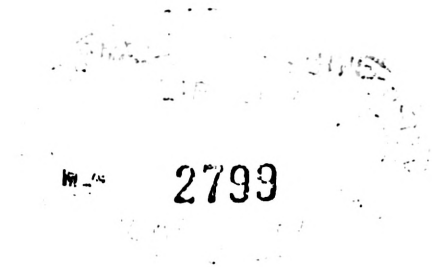
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JESUS S. GUZMAN, JR.

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By

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ABSTRACT

The study was conducted at Ungka I, Pavia, Iloilo from May to June 2006. The plant tissue samples were prepared at Central Philippine University and then analyzed by atomic absorption spectroscopy at the University of the Philippines Visayas. This study aimed to determine the effects of zinc and cadmium treatments on pechay and kangkong and to compare the results from the two experimental plants. It also aimed to study coir dust as a soil substitute.

Results of the study showed that pechay and kangkong can grow without showing any serious symptoms of toxicity in growing media containing toxic levels of zinc (100 ppm) and cadmium (8 ppm). The negligible insect damage observed on cadmium treated plants supports the theory that certain plants hyper-accumulate heavy metals for defense.

Data on biomass production show that coir dust can be a good substitute for soil in potted plants especially for plants that respond to high levels of organic matter like kangkong.

Data reveal a few similarities in the uptake of zinc and cadmium by pechay and kangkong. Literature identify pechay as a hyper-accumulator with the characteristic shoot > root trend in its uptake of metals. But in this study, pechay manifested this trend only in its zinc levels for plants grown in artificial medium. On the other hand, kangkong grown in soil showed the shoot > root trend.

Results contradicted cited literature about the competition of zinc and cadmium in plant uptake. Zinc levels of cadmium treated plants were relatively high implying an enhancement of zinc uptake rather than competition.

Although the shoot > root trend was not consistently observed in kangkong, data show that it can hold high levels of cadmium and especially zinc in its root even with the short growing period involved. The tolerant and hardy characteristics observed plus the high levels of the metals in its root make kangkong a potential material for rhizo-absorption.