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PLANT/ *Pityrogramma calomelanos* / *Melastoma malabathricum*

WEERAPHAN SRIDOKCHAN : SELECTION OF ARSENIC-TOLERANT
PLANTS AND EFFECTS OF PHOSPHORUS ON THEIR ARSENIC UPTAKE.
THESIS ADVISORS: PORNSAWAN VISOOTTIVISETH, Ph. D., JUWADEE
SHIOWATANA, Ph. D., YONGYUT CHANYARAK, M. Sc., JARUPONG BOON-
LONG, Ph. D.

Soil and plant samples were collected from arsenic contaminated areas in Ron Phibun District, Nakorn Si Thammarat Province, and Bannang Sata District, Yala Province, southern Thailand during 1998 and 1999. Tin mine tailings contained high arsenic concentrations, of 14,200 mg kg⁻¹ in Ron Phibun District and 16,000 mg kg⁻¹ in Bannang Sata District. It was found that more than 40 plant species were arsenic tolerant and grew well in the arsenic contaminated areas. Among these plants, there were only 2 species, the ferns *Pityrogramma calomelanos* and *Pteris vittata*, which could accumulate arsenic in their living fronds at an average concentration of higher than 5,000 µg g⁻¹ dry weight. *Melastoma malabathricum* was the most widely distributed plant, because it grew in every sampled site. Investigations of the effect of phosphate on arsenic uptake by the selected plant species were carried out in a soil and soilless experiments, i.e., *P. calomelanos* in hydroponic culture and *M. malabathricum* in seed tissue culture. It was found that phosphate was capable of reducing arsenic uptake in the selected plants. Dry biomass and seed germination increased significantly with increasing phosphate concentration in the nutrient solutions.