Enzyme Assay for Pesticide Resistance in *Tetranychus urticae* (Acari: Tetranychidae)

Dongyoung Shin, Sung-Eun Lee[1] and Kijong Cho[2]

Department of Agricultural Biology, Korea University,

[1]Department of Agricultural Chemistry, Kyungpook National University,

[2]Division of Environmental Science & Ecological Engineering, Korea University

Biochemical mechanism and genetics involved in the resistance of *Tetranychus urticae* to METI acaricides of fenpyroximate (FR) and pyridaben (PR) along with susceptible strain (S). The FR or PR strain was crossed with susceptible strain and established two reciprocal progeny for each crossing combination. Therefore, seven generations were established; FR, PR, S, and 4 F1s. For the biochemical assay, general esterase and glutathione-S-transferase (GST) activities of male and female were determined spectrophotometrically. Esterase and GST activity was measured with p-nitrophenyl acetate (PNPA) and 1-chloro-2,4-dinitro benzene (CDNB) as substrate, respectively. The activity of esterase among generations was not significant different seven groups. Whereas the activity of GST in PR strain was 10-fold higher than the others. Individual zymogram patterns of esterase varied between generations. Activity of Cytochrome P_{450} was tested aldrin-epoxidase reactions and total cytochrome P_{450} contents was measured. Aldrin-epoxidase activity was appeared high in F1 generation from PR strain. Regardless of the enzymes and the generations, the activities were not significantly different between male and female of *T. urticae*.