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GY-181/71-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGRICULTURE DEPARTMENT
AGRICULTURAL RESEARCH SERVICE
ENTOMOLOGY RESEARCH DIVISION

AGENCY'S NO. (OPTIONAL)

0018121

00ENTM1101210200

TITLE OF PROJECT:

METHODS OF ANALYSIS FOR PESTICIDES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

KR HILL PESTICIDE CHEMICALS RES BR

RECIPIENT INSTITUTION:

U.S. DEPT. OF AGRICULTURE
ENTOMOLOGY RESEARCH DIVISION
BELTSVILLE, MARYLAND 20705

PERIOD FOR THIS RNPI:

7/70 TO 6/71
FY71 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: Develop sensitive, accurate, specific methods for analysis of insect control chemicals and for their residues, metabolites, or breakdown products in crops, animal tissues, milk, poultry, eggs, and soils.

APPROACH: Study chemical and physical properties and reactions of new insect control chemicals and their metabolites to find specific measurable characteristics; develop quantitative analytical methods based on these characteristics. Develop efficient procedures for extraction and cleanup of residues from plant and animal tissues, milk, and soils preliminary to analysis. Develop gas chromatographic detectors with improved specificity for different chlorinated and carbamate-type insecticides. Develop scanning and measuring instruments for sensitive quantitative thin-layer chromatographic analysis of pesticide residues.

PROGRESS: An improved colorimetric method for the analysis of hydrogen cyanide residues in vegetables was developed. It is more accurate and consistent at the 0.01 ppm level than the titrimetric methods currently in use. A fluorescence method for determining carbaryl in mixed formulations and 2-naphthol impurity in carbaryl manufactured outside of the United States was developed which is superior to existing methods based on infrared spectrometry. A method was developed for the analysis of pyrethrum extracts using quantitative thin layer chromatography. "P" Values were determined for the gas chromatographic peaks of 8 Arochlor mixtures (polychlorinated biphenyls) in 2 pairs of solvent systems for distinguishing these compounds from pesticides during residue analyses.

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