

10-14-82

Bidlack's comment

DATA EVALUATION RECORD

CASE GS 0096

PICLORAM

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CHEM 005101

BRANCH EEB DISC Aquatic Organism: Residue Study

FORMULATION Powder

Bidlack, H. D. 1980. Kinetics of "Aged" Picloram in a Model Aquatic Microcosm. Agricultural Products Department. The Dow Chemical Company. Midland, Michigan.

SUBST. CLASS = S

DIRECT RVW TIME = (MH)

REVIEWED BY: M. A. Mayes, Ph.D.  
TITLE: Aquatic Toxicologist  
ORG: Health and Environmental Sciences  
LOC/TEL: The Dow Chemical Company

SIGNATURE: *Mante A. Mayes*

DATE: 10-14-82

APPROVED BY:  
TITLE:  
ORG:  
LOC/TEL:

SIGNATURE:

DATE:

CONCLUSIONS

This study is scientifically sound. Picloram has a bioconcentration factor of less than one and thus will not accumulate in aquatic organisms. This test is not required for the registration of picloram.

DATA EVALUATION RECORD

1. CHEMICAL: Picloram (4-amino-3,5,6-trichloropicolinic acid)
2. FORMULATION: Picloram 99.6% Pure Lot #188.
3. CITATION: Bidlack, H. D. 1980. Kinetics of "Aged" Picloram in a Model Aquatic Microcosm. Agricultural Products Department. The Dow Chemical Company. Midland, Michigan.
4. REVIEWED BY: M. A. Mayes, Ph.D.  
Aquatic Toxicologist  
Health and Environmental Sciences  
The Dow Chemical Company
5. DATE REVIEWED: July 19, 1982
6. TEST TYPE: Aquatic Organism: Residue Study
  - A. Test Species: Ictalurus punctatus (Channel Catfish)
7. REPORTED RESULTS: The bioconcentration factor for picloram is less than one.
8. REVIEWER'S CONCLUSIONS: This study is scientifically sound. Picloram has a bioconcentration factor of less than one and thus will not accumulate in aquatic organisms.

MATERIALS AND METHODS:

Test Material

Picloram (99.6% pure)  $^{14}\text{C}$  ring-labeled in the 2 and 6 position. Specific activity 10  $\text{mCi}/\text{mM}$ .

Londo sandy loam was used as the substrate. Sample M-65; pH 7.22, organic carbon 2.25%, sand 74%, silt 14%, and clay 12%.

Water

Midland, Michigan city water passed through an "Ozonair" ozone device followed by filtration through activated charcoal. Water characteristics were: temperature 18°C, pH 6.6 and hardness 200 ppm expressed as  $\text{CaCO}_3$ .

Test Organisms

Channel catfish were obtained from Osage Catfisheries, Osage Beach, Missouri. Upon arrival, fish were dip treated in a solution of 150 ppm 37% formaldehyde +0.5 ppm malachite green. The following day the fish were given a second treatment with a solution of 25 ppm formaldehyde and 0.05 ppm malachite green. Fish were held for more than 10 days before use.

### Experimental Design

The study was conducted with soil treated at the rate of 1 ppm, 0.1 ppm and an untreated control. The soil was prepared by applying the appropriate amount of  $^{14}\text{C}$  picloram in an acetone solution to 2,000 gm of soil. The control was treated with 2 ml of acetone. All samples were mixed in a stainless steel blender for at least 8 hours. Aliquots of mixed soil were frozen and held for analysis. The remaining soil was spread in a 2.5 cm layer in 35-liter aquaria provided with glass covers and aged for 28 days at 22°C.

After aging each aquarium was flooded with 30 liters of water; two days later 60 catfish were placed in each aquarium; each aquarium was aerated by gentle bubbling ( 1 cc/minute). Exposure lasted 28 days followed by a 28 depuration period.

Fish, water and soil were sampled periodically and analyzed for  $^{14}\text{C}$  picloram or metabolites.

Total radioactivity in the water was determined by counting 2 ml aliquots in 18 ml of Aquasol in a Packard 3255 scintillation counter. Soil and fish radioactivity was determined by combusting 1-2 g of soil or whole or sum total parts of fish in a Harvey Biological Materials Oxidizer. Carbon dioxide was trapped in 15 ml of a 2:1 mixture of Carbosorb and Permafluor V prior to scintillation counting.

Picloram in the water was identified by High Performance Liquid Chromatography.

DISCUSSION/RESULTS:

Two control fish died during the course of the experiment. A bioconcentration factor of <1 was determined as a result of this study.

REVIEWER'S EVALUATION:

This study indicates that picloram does not bioconcentrate in the tissue of the channel catfish.

VALIDATION:

Category: Supplemental

Rationale: Test is not required for registration

Repairability: N.A.