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DATA EVALUATION RECORD

STUDY 3

CHEM 128974 Quinclorac 162-4

FORMULATION--00--ACTIVE INGREDIENT

STUDY MRID 422941-02
Goetz, A.J. and V.W. Winkler. 1991. Aerobic aquatic metabolism of ^{14}C-BAS 514 H. BASF Protocol No. M9103. BASF Report No. M9127. BASF Registration Document No. 91/5208. Unpublished study performed and submitted by BASF Corp. Research Triangle Park, NC. 52 pp.

DIRECT REVIEW TIME = 2

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CONCLUSIONS:

Metabolism--Aerobic aquatic

EFGWB concludes that this study satisfies that data requirements and provides information that shows quinclorac to be very stable in the aerobic aquatic environment, since ≤12% degraded during the 30 days of the study. No further information is required at the present time related to the aerobic aquatic metabolism of quinclorac.

METHODOLOGY:

About 20 g of soil and 49 ml of well water from MS and LA (see Table A for descriptions) were place into duplicate 80 x 40 mm glass containers. ^{14}C-quinclorac (102.8 *u*g ai) was added to the well water in 1 ml of deionized water so that the resulting concentration in the soil-water syustem was 1.5 ppm. The treated samples were placed in a rack, sealed inside a large glass container and stored in darkness at 25 °C. To maintain aerobicity, a stream of air was continuously passed through the sealed containers by vacuum. The

volatiles produced were captured in 3 successive liquid traps on the outlet tube consisting of carbitol, dilute H_2SO_4 and NaOH. The traps were changed and analyzed at each sampling interval >0 days after treatment (DAT).

Duplicate soils and water samples were analyzed at 0, 3, 10, 21 and 30 DAT by the method outlined in Figure 4. At each sampling time, the soil and water were separated from each other by centrifugation. Both soils from the 30 DAT sampling interval were extracted by refluxing for two hours with borate buffer (25mM, pH 10.8), and the clay soil was further extracted by a 2 hour refluxing with NaOH.

The radioactivity in the water and trapping solutions was determined by liquid scintillation counting (LSC), and the radioactivity in the soil was determined by combustion. Radioactive residues contained in the trapping solutions and in other fractions were characterized by TLC if they contained >1% of the TRR.

The percentage of total radioactive residues (TRR) in each of the fractions was calculated relative to the total applied radioactivity (9,216,121 dpm).

DATA SUMMARY:

The mass balance for the two soil systems used in the study at the various sampling times after treatment is shown in Table 8. The mass balance for the loam soil samples ranged from 98.2 to 100.8% TRR and averaged 99.1%. Mass balances for the clay soil samples ranged from 97.5 to 103.4% TRR and averaged 100.0%.

Quinclorac was only slightly metabolized when incubated in an aerobic aquatic environment (Table 7). After 30 days of incubation in the loam soil and water experiment, 93.9% TRR was quinclorac, 1.4% was unextractable and 2.9% was distributed among 6 components, none of which were >1.0% TRR and consequently were not characterized. Similarly, after 30 days of incubation in the clay soil and water systems, 93.6% TRR was parent quinclorac, 1.3% was unextractable and 4.1% was distributed among 9 components, none of which were >1.0% TRR and consequently were not characterized.

Minimal ^{14}C-volatiles were produced after 30 days of aerobic incubation of quinclorac (Table 1) and were not characterized since the % TRR was <1.

The data indicate that quinclorac is very persistent when incubated under aerobic aquatic conditions, since after 30 days, 93.9 and 93.6% TRR was parent in the loam and clay soil systems tested, respectively. Since there was only a small change in the concentration in quinclorac throughout the study 30 day study, the half-life values of 1229 and 393 days calculated for the loam and clay soils, respectively, are only very general approximations.

REVIEWER'S COMMENTS:

Previous studies [Stewart, J. January 1991. Freezer storage stability of quinclorac and its metabolites in soil - 0, 17, 21 month analysis. Registration Document No. 91/5016. Unpublished study performed and submitted by BASF Corp., Research Triangle Park, NC. MRID 417814-32 and Eswein, R. P.

1991. Freezer storage stability of quinclorac (BAS 514 H) in water: Final report. BASF Registration Document No. 9/5151. Unpublished study performed and submitted by BASF Corp. Agricultural Products, Research Triangle Park, NC. 31 pp. 422941-10] have shown that quinclorac is stable in water and soil that has been stored frozen for up to 21 and 39 months, respectively. Although no mention was made in this report in relation to length of storage of the samples, it appears that most of the samples were analyzed within 1-2 weeks of when they were collected. Therefore, no further information is needed related to storage stability of quinclorac in water and soil in regards to this study.