

DATA EVALUATION RECORD

STUDY 4

CHEM 128974

Quinclorac

162-4

FORMULATION--00--ACTIVE INGREDIENT

STUDY MRID 422941-03

Goetz, A.J. 1992. Further identification analysis of samples generated in an aerobic aquatic metabolism of ¹⁴C-BAS 514 H. BASF Protocol No. 91161. BASF Report No. M9201. BASF Registration Document No. 92/5022. Unpublished study performed and submitted by BASF Corp. Research Triangle Park, NC. 31 pp.

DIRECT REVIEW TIME = 1

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A previous study¹ (DER for Study 3) demonstrated that quinclorac is stable under aerobic aquatic conditions. After 30 days of incubation, ¹⁴C-residues representing >93% TRR exhibited the same R_f as the analytical standards of quinclorac in three TLC systems. To provide further evidence and to confirm that the ¹⁴C-residues which cochromatographed with the analytical standard of quinclorac is the parent compound, the 30-DAT (days after treatment) water fractions and the 30-DAT clay soil borate buffer extraction solution obtained in the previous study were analyzed by additional methods in this study.

¹Goetz, A.J. and V.W. Winkler. 1991. Aerobic aquatic metabolism of ¹⁴C-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 Unpublished study performed and submitted by BASF Corp.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. (422941-02)

CONCLUSIONS:

Metabolism--Aerobic aquatic-Supplemental study

This study provides supplementary data that shows the ^{14}C -residues produced during aerobic aquatic incubation of quinclorac were indeed the parent.

METHODOLOGY:

The duplicate samples obtained from Study 3 were combined to ensure enough compound for mass spectral analysis. The specific samples analyzed were the water fractions from the 30-DAT clay-soil and loam-soil water systems and the borate buffer extraction solution from the 30-DAT clay soil.

The water fraction from each sample was cleaned using a μC_{18} column. The final eluate was evaporated to dryness and redissolved in acetone. The ^{14}C -residues were methylated with diazomethane. After methylation, the diazomethane was allowed to evaporate without heat or nitrogen, and the ^{14}C -methylated residues were redissolved in acetone. TLC analysis of the residues was conducted before and after methylation. A portion of the quinclorac analytical standard was also methylated and used as the analytical standard for the methylated ^{14}C -residues and the methylated quinclorac analytical standard. GC/MS analysis was conducted on the methylated ^{14}C -residues and the methylated quinclorac analytical standard.

The ^{14}C -residue in the borate buffer extraction solution was acidified to pH 1.0 with HCl, centrifuged to separate humic materials from the supernatant, passed through a μC_{18} column, evaporated to dryness and redissolved in 10 ml dilute NaOH. The NaOH solution was acidified to pH 1.0 with HCl, and partitioned 3 times with ethyl acetate. The ethyl acetate was removed by evaporation, and the sample was redissolved in acetone. The ^{14}C -residues in the acetone were then methylated with diazomethane, the diazomethane was allowed to evaporate and the methylated ^{14}C -residues were redissolved in methylene chloride. The methylene chloride was partitioned 2 times with 10 ml of water, and then the methylene chloride was allowed to evaporate and the ^{14}C -methylated residues were redissolved in acetone. TLC analysis of the ^{14}C -residues was conducted before and after methylation. GC/MS was conducted on the methylated ^{14}C -residues.

DATA SUMMARY:

The 30-DAT water fractions from the clay-soil and loam-soil water samples contained 87.1 and 95.4% TRR, respectively. The distributions for both samples were identical; and for each sample, 99.3% of the radioactivity was recovered in the methanol/ NH_4OH eluate. TLC analysis showed that 100% of the ^{14}C -residues in the methanol/ NH_4OH eluate cochromatographed with an analytical standard of quinclorac in three different systems. The results also showed that 100% of the methylated ^{14}C -residues in cochromatographed with a methylated quinclorac standard. The identify of the methylated ^{14}C -residues were confirmed as being identical to the MS spectrum of the methylate quinclorac standard. These results confirm that the only ^{14}C -residue present

in the water fraction following aerobic aquatic incubation was quinclorac (Tables 1-3).

Similar results were obtained for soil extractions, since the results showed that the only significant ¹⁴C-residues extracted from the soil after 30 days was parent quinclorac (Tables 4-7).

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 week 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.