031301

COPY

Shaughnessy No.:031301

Date Out of EAB: 05 JUL 1983

To: Henry Jacoby
Product Manager 21
Registration Division (TS-767)

From: Richard V. Moraski, Head (acting)
Review Section #1
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)

R. Moraski

Attached, please find the EAB review of...

Reg./File No.: 2F 2607

Chemical: 2,6-dichloro-4-nitroaniline

Type of Product: Fungicide

Product Name: Botran 75W

Company Name: Upjohn

Submission Purpose: Amendment with data

ZBB Code: other

Action Code(s): 232

Date In: 5/2/83

EAB #(s): 3346

Date Completed: 7/5/83

TAIS (level II)	Days
63	2.0

Deferrals to:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 The registrant, Upjohn agreed in writing on 4/21/83 to provide any and all EF data required to satisfy current subpart N guidelines requirements. A review of the current EAB Botran files (Reg. No. 1023-36) suggests that no data requirements have yet been satisfied for this already registered herbicide. File correspondence dates back to 1966. The current submission (in accession 071566) contains several open-literature articles.

2.0 STRUCTURE AND DIRECTIONS FOR USE

See review of 1/28/82.

3.0 REVIEW OF SUBMISSION

3.1 Kuthubutheen, A.J. and G.J.F. Pugh. 1979. The Effects of Fungicides on Soil Fungal Populations. in Soil Biology Biochemistry, Vol. 11, pp 297 to 303. Pergamon Press. 33 references.

Conclusion

Subpart N does not currently require this type of study. Since the issue of pesticide-microbe interaction is currently under review by the Agency, EAB will defer its review until the issues are resolved.

3.2 Groves, K. and K. S. Chough. 1970. Fate of the Fungicide, 2,6-Dichloro-4-nitroaniline (DCNA) in Plants and Soil. J. Agr. Food Chem. Vol 18, No. 6. pp 1127-1128. 7 references.

Discussion

Bean plants in the laboratory were treated with Chlorine-36 labeled DCNA, then solvent-extracted and quantified by GC/TC.

Conclusion

This article is grossly deficient in detail, and does not contain sufficient information to draw any valid conclusions.

3.3 Van Alfen, N.K. and T. Kosuge. 1974. Microbial Metabolism of the Fungicide 2,6-Dichloro-4-nitroaniline. J. Agr. Food Chem. Vol 22, No. 2. pp 221-224 18 references

Conclusion

Subpart N does not currently require this type of study. Since the issue of pesticide-microbe interaction is currently under review by the Agency, EAB will defer its review until the issues are resolved.

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3.4 Van Alfen, N.K. and T. Kosuge. 1976. Metabolism of the Fungicide 2,6-Dichloro-4-nitroaniline in Soil. J. Agr. Food Chem. Vol 24, No. 3. pp 584-588 10 references

Introduction

This study attempted to identify the principal products of DCNA metabolism in soil, as well as to determine if any of these products was harmful to soil microorganisms.

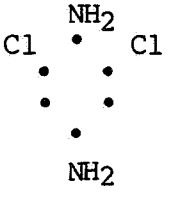
Experimental

DCNA was prepared as a ^{14}C-ring labeled compound, having a specific activity of 0.98 uCi/uMole, and a purity of 99.7% by TLC. A dry Yolo loam (pH 8.6) was ground in a mortar, and 2 gram aliquots added to 10 ml beakers. These were then put into 100 ml beakers containing 15 ml sterile KOH (to trap evolved CO_2). Each soil sample was flooded with 2ml of heat sterilized glucose solution containing 10 ug/ml [^{14}C]DCNA. Each beaker was sealed with parafilm, and stored in the dark, at 25°C. Samples of KOH solutions and soils were taken at intervals and analysed by LSC.

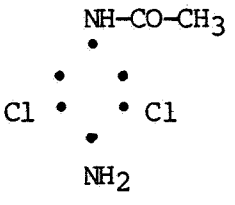
Metabolites were identified as radioactive spots by TLC/radioautography. Then, a large-scale preparation of metabolites was conducted involving 100 ug of DCNA/g soil+glucose under flooded conditions. After 5 days incubation (23°C) in a 4L metal container, the soil was solvent extracted. Various fractions were recrystallized. Confirmation of the identity of metabolites was by R_f comparision with prepared standards.

Results

The two metabolites identified were 2-chlorophenylenediamine (DCPD) and 4-amino-3,5-dichloroacetanilide (ADCAA). Structures are shown below.



DCPD



ADCAA

Conclusion

The procedures used in this study are confusing, at best. It is not clear, for example, whether anaerobicity was maintained during the experimental period.

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In general, the study either did not contain sufficient detail for evaluation (such as soil characteristics, controls, raw data, etc.) or the techniques used for identification were not sufficiently sensitive to detect the majority of degradates. No material balance was provided.

Also, without precedent studies such as hydrolysis and aerobic soil metabolism, it is really not possible to determine what degradative mechanisms are in force.

Therefore, the study is unacceptable.

3.5 Reference 5, several untitled pages.

These pages contain apparent soil monitoring data from treated peanut field. Since no discussion was included with the tables, no review was possible.

4.0 CONCLUSIONS

We are anxious to receive suitable EF data to support current and proposed uses of Botran. To date no acceptable data have been reviewed. Until at least a minimum data base is generated, the registrant should not request any additional uses for this chemical.

5.0 RECOMMENDATION

The registrant should provide EAB with all appropriate EF data as soon as possible. The registrant should also be advised that a preliminary review of to-be-submitted studies by suitable company scientists would be appropriate, and would serve to avoid the submission of inappropriate, or incomplete studies. Attempts to review such submissions is not an efficient use of the limited resources available.

E. Regelman
Chemist
EAB/HED (TS-769c)
July 5, 1983

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