PMSD/ESB (1)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 27 1988

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: PP#3F3252/FAP#6H5479 (No RCB Number) Ethyl 2-[4-(6-chloroquinoxalin-2-yl oxy)phenoxy] Propanoate (Quizalofop Ethyl) on Soybeans, Liver, and Milk - Results from EPA Method Validation Dated May 25, 1988

FROM: Gary F. Otakie, Chemist
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THRU: Charles L. Trichilo, Ph.D., Chief
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TO: Robert J. Taylor, PM 25
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Background

EPA's Analytical Chemistry Section (ACS/COB/BUD) has completed a method validation (MV) on ethyl 2-[4-(6-chloroquinoxalin-2-yl oxy)phenoxy]propanoate (quizalofop ethyl, Assure®, DPX-Y6202, NC-302) and its metabolite 2-[4-(6-chloroquinoxalin-2-yl oxy)phenoxy]propanoic acid (quizalofop, DPX-Y6202 acid, NC-302 acid) in soybeans, liver, and milk. The method validation was reported by BUD/COB (Rafael Sarmiento) on May 25, 1988. The following three procedures were tested:

1. Soybeans - Dupont Method No. AMR-153-83 Revision 3 (MRID No. 403224-10).

2. Liver Tissue - Dupont Method No. AMR-627-86 (MRID No. 403224-03).

3. Milk - Dupont Method No. AMR-515-86 Revision A (MRID No. 403224-08).

Results of Method Validation

All three of the above methods required the use of switching valves for analysis of the parent compound and/or its metabolite. Since ACS at Beltsville had only one HPLC system that would perform this task and due to time contraints, the validation of the liver and milk procedures and a recheck of the soybean procedure were done at the Dupont Experimental Station in Wilmington in 3 days. All of the particulars relating to the running of the method validation are spelled out in the BUD/COB report. The following results were obtained:

Commodity	Chemical Added	ppm Added	ppm Found	% Recovery
Soybeans	DPX-Y6202	0.05	.039	78
			.035	70
	DPX-Y6202 Acid	0.05	.037	74
			.0405	81
Milk	DPX-Y6202	0.01	.0082	82
			.0074	74
	DPX-Y6202 Acid	0.01	.0097	97
			.0083	83
Liver	DPX-Y6202	0.05	.051	102
			.058	115
			.032	66
	DPX-Y6202 Acid	0.05	.047	86
			.035	94
			.034	70

Although requested by RCB in the Method Trial Request, analyses of samples fortified with another metabolite in animal commodities, methyl 2-[4-(6-chloroquinoxalin-2-yl oxy) phenoxy]-propanoate (quizalofop methyl, ME-DPX-Y6202, NC-302 methylester) were not performed in liver and milk, because the analyses of the parent compound quizalofop ethyl, like quizalofop methyl undergoes an enzymatic hydrolysis. The methyl and ethyl esters are similar in their hydrolysis reactions.

Analysis of DPX-Y6202 in soybeans will require the injections of standards before and after the injection of the sample to ensure good qualitative and quantitative results (due to peak patterns).

In conclusion, BUD/COB judged the procedures suitable for regulatory purposes; however, the method's complexity may require an analyst to perform several practice runs.

Recommendations

1. RCB recommends that the proposed methods for soybeans, tissue, and milk (i.e., Dupont Method Nos. AMR-153-83 Revision 3, AMR-627-86 and AMR-515-86 Revision A, respectively) be included in PAM II as Methods I, II, and III for soybeans, tissue, and milk, respectively. Further, RCB recommends that proposed methods for cream, fat, and eggs (i.e., Dupont Method Nos. AMR-845-87, AMR-846-87, and AMR-623-86, respectively) be included in PAM II as letter methods.

2. Per RCB's review of PP#3F3252/FAP#6H5479 (see May 9, 1988 review of G. Otakie) and the method trials discussed in this report, RCB concludes that deficiencies No. 5 (pertaining to EPA method validation) and 7a (pertaining to the adequacy of the field trial data) are resolved for the proposed use on soybeans only, and if TB and EAB considerations permit, RCB thus recommends for establishment of the various tolerances for quizaflop ethyl and its metabolites listed in that review.

3. Additional methodology work on plant and animal commodities will be necessary in the event that tolerance proposals for other crops or proposals to revise the use pattern on soybeans so as to increase likely residue levels are submitted. The petitioner is advised to fully investigate the possibility of simplifying the analytical methodology to reduce the time required to conduct the analyses and to enhance their duplicability. These efforts may include attempts to convert the esters and acid to compounds more easily separated by HPLC. However, in the event that the petitioner submits exhaustive studies indicating that simplification of the proposed methodology is not possible, then the MVs should be conducted again on the approved methods, but will entail completion at EPA laboratories without any consultation with

the petitioner and will include multiple fortifications, analyses of all the metabolites, and a complete analysis of response factors and peak resolution.

Notes to PM

1. Since the attached methods are presently acceptable only for the current proposed use on soybeans, a copy of this Method Validation Report should be provided as expeditiously as possible to the petitioner, in the event that new uses for quizalofop ethyl are planned, so that more simplified analytical methodology can be developed.

2. The analytical methods for soybeans, tissue, milk, fat, cream, and eggs will be forwarded by RCB to FDA for publication in PAM II after the tolerances are published in the FEDERAL REGISTER (FR). In the interim, a copy of the methods with supporting information is being sent to ISB/PMSD so that the methods will be immediately available to anyone interested in enforcement.

   The availability of the methods in the interim prior to publication in PAM II will also be cited in the FR publication of tolerances.

Attachments (1 thru 6):

1. Determination of Residues of DPX-Y6202, DPX-Y6202 Acid, and DPX-Y6202 Acid Conjugates In Soybeans and Soybean Fractions (No. AMR-153-83 Revision 3); January 1987; E.I. du Pont de Nemours and Company, Inc.; MRID No. 403224-10.

2. Determination of DPX-Y6202, DPX-Y6202 Acid, and ME-DPX-Y6202 Residues in Tissues (No. AMR-627-86); May 5, 1987; E.I. du Pont de Nemours and Company, Inc.; MRID No. 403224-03.

3. Determination of DPX-Y6202, DPX-Y6202 Acid, and ME-DPX-Y6202 Residues in Bovine Milk (No. AMR-515-86 Revision A); April 13, 1987; E.I. du Pont de Nemours and Company, Inc.; MRID No. 403224-08.

4. Determination of DPX-Y6202, DPX-Y6202 Acid, and ME-DPX-Y6202 Residues in Bovine and Poultry Fat (No. AMR-846-87); May 12, 1987; E.I. du Pont de Nemours and Company, Inc.; MRID No. 403224-05.

5. Determination of DPX-Y6202, DPX-Y6202 Acid, and ME-DPX-Y6202 Residues in Cream (No. AMR-845-87); April 20, 1987; E.I. du Pont de Nemours and Company, Inc.; MRID No. 403224-09.

6. Determination of DPX-Y6202, DPX-Y6202 Acid, and ME-DPX-Y6202 Residues in Eggs (No. AMR-623-86); April 3, 1987; E.I. du Pont de Nemours and Company, Inc.; MRID No. 403224-04.

cc: (With Attachments): E. Eldredge (ISB/PMSD)

cc: (Without Attachments): Otakie (RCB), PP#3F3252/FAP#6H5479, M. Bradley (RCB), D. Marlow (COB), R. Ellis (USDA), P. Corneliussen FDA (HFF426), Circulation (7), R.F.

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TS-769C:RCB:G. Otakie:CM#2:Rm. 810:557-7484:Typist Kenco:6/16/88:
Edited BY:MT:6/21/88