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MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Subject: PP#1E2459: Bayleton in Chick peas. Amendment of 7/20/82.

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The amendment contains additional residue data for chick peas and a residue method which determines both bound and free residues of Bayleton. These data are in response to questions raised in our memo of 5/18/81 (A. Smith).

Conclusions

1. The nature of the residue in plants is adequately delineated. The parent compound Bayleton and its metabolite KWG0519 (free and conjugated) are the significant components of the residue.
2. Adequate analytical methods are available for residue determinations. The results of pending method trials (PP#1F2474) should determine the method's adequacy for enforcement.
3. Residues in or on chick peas are not likely to exceed the proposed tolerance.
4. No feed items are involved in this petition. Therefore, no residues will occur in eggs, milk, and meat of livestock.

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Recommendation

TOX and EFB considerations permitting, we recommend for the proposed tolerance for residues of Bayleton, 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazol-1-yl)-2-butanone, and its metabolite beta-(4-chlorophenoxy)-alpha-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol in or on chick peas at 0.1 ppm.

This recommendation is contingent upon the results of the method trials now underway.

Analytical Method

In our memo of 5/18/81, we indicated that the residue method did not determine bound or conjugated residues. We further stated that the method should be modified to determine conjugated residues.

The petitioner has modified the analytical method to include steps which permit the determination of the parent compound Bayleton and free and conjugated forms of the metabolites KWG0519, KWG1323, and KWG1342.

A ground sample is initially homogenized with a methanol/water solution and refluxed. The cooled solution is filtered, and the filtrate is evaporated to the aqueous phase.

The aqueous phase is diluted with a sodium acetate buffer solution and incubated with the enzyme cellulase. (This frees conjugated components). The freed components are extracted from the cooled solution with dichloromethane which is evaporated.

The residue is taken up with chloroform and cleaned up using gel permeation chromatography. The eluate is evaporated to dryness.

The residue is taken up with a petroleum ether/ethyl ether solution and further cleaned up on a florisil column. The residues are eluted with a mixture of hexane/ethyl acetate. (This eluate contains Bayleton, KWG0519 and traces of KWG1323). The remaining KWG1323 and KWG1342 are eluted with an ethyl acetate/methanol solvent mixture.

All eluates are evaporated, and the hexane/ethyl acetate residue is taken up in acetone and analyzed by gas chromatography.

The residue from the ethyl acetate/methanol fraction is taken up with methanol. The residue is treated with trifluoroacetic anhydride to form the trifluoroacetate derivatives of KWG1323 and KWG1342. The derivatives are determined by gas chromatography.

The foregoing procedure is the same as that submitted in PP#2F2665 (Bayleton in barley and wheat) and judged adequate for residue determinations. Method trials are currently underway to determine the method's adequacy for enforcement purposes (PP#1F2474).

Untreated (control) chick pea samples were reanalyzed using the above method. The samples had no detectable (0.01 ppm) residues of Bayleton or its metabolites. Control samples were fortified with Bayleton and its metabolites KWG0519 and KWG1342 at levels of 0.05 ppm and 0.5 ppm. Recoveries were 79-104%.

The method is adequate for the determination of residues of Bayleton in chick peas. The method's adequacy for enforcement is contingent upon the results of method trials now underway (see PP#1F2474).

Residue Data

In our review of 5/18/81, we evaluated samples of dry chick peas which had been treated as proposed. The samples had been analyzed only for Bayleton and its metabolite KWG0519. Residues were <0.01-0.05 ppm at PHIs of 7-20 days.

Two samples were reanalyzed using the method for free and conjugated residues. The residue levels found were <0.01-0.03 ppm.

The reanalysis of the samples shows that the residue levels are not significantly different from the first analyses (for Bayleton and KWG0519 only). Therefore, we conclude that residues in or on chick peas are not likely to exceed the proposed tolerance (0.1 ppm).

Meat, Milk, and Eggs.

No feed items are involved in this petition. Therefore, no residues will occur in eggs, milk, and meat of livestock under the proposed use.

The foregoing discussions resolve the questions raised in our memo of 5/18/81 (A. Smith).

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cc: RF, Circ., Smith, Thompson, FDA, TOX, EEB, EFB, PP#1E2459
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