5.3 AZOXYSTROBIN (229)

RESIDUE AND ANALYTICAL ASPECTS

Azoxystrobin was evaluated by the JMPR at the first time in 2008 when an ADI of 0–0.2 mg/kg bw per day was established. The Meeting decided that an ARfD was unnecessary. In addition, the 2008 JMPR concluded that the residue definition for plant commodities for compliance with MRL values and for consumer risk assessments was parent azoxystrobin. Maximum residue levels, STMRs and STMR-Ps for 82 commodities or commodity groups were estimated.

The compound was listed by the Forty-second Session of the CCPR for the review of additional maximum residue level. The 2011 JMPR received residue data for passion fruit, okra, ginseng and coffee beans.

Analytical methods

The Meeting received information on analytical methods used for the determination of azoxystrobin residues in samples derived from supervised trials on passion fruit, coffee beans, ginseng roots and for ginseng processed commodities.

In the methods the macerated samples are typically extracted by blending with acetonitrile or ethyl acetate. The extract is cleaned by a solid phase clean-up (e.g., Florisil, alumina, sodium sulphate). The residue is determined by LC-MS/MS or by GLC with ECD or MS detection. LOQs are 0.01 mg/kg for passion fruit and coffee beans. In case of ginseng and its processed products, the LOQs are 0.003 mg/kg for fresh ginseng, 0.007 mg/kg for dried and red ginseng as well as for ethanol and water extracts of dried and red ginseng.

The freezer storage stability studies carried out with fresh ginseng and ginseng processed products showed that the residues were stable for the longest period (days) for which the samples were stored at or below -20 ºC. The studies reported by the 2008 JMPR cover the other sample materials evaluated by the present Meeting.

Results of supervised trials on crops

The OECD calculator was used as a tool in the estimation of the maximum residue level from the selected residue data set obtained from trials conducted according to GAP. As a first step, the Meeting reviewed all relevant factors related to each data set in arriving at a best estimate of the maximum residue level using expert judgement. Then, the OECD calculator was employed. If the statistical calculation spreadsheet suggested a different value from that recommended by the JMPR, a brief explanation of the deviation was provided.

Passion fruit

As part of the field trials conducted within the Pesticide Initiative Programme that aimed to provide data for establishing import tolerances in the European Union, azoxystrobin was applied as foliar spray treatment with 3 × 0.19 kg ai/kg and a PHI of 3 days in five trials carried out in Kenya. The residues in whole fruits were 0.68, 1.06, 1.15, 1.49 and 2.14 mg/kg.

The application conditions were based on the requirement to provide appropriate control of passion fruit diseases. However, supplied data was not supported by labels or official declarations of approved use. Therefore, the Meeting could not estimate a maximum residue level for azoxystrobin in passion fruit.

Okra

As part of the field trials conducted within the Pesticide Initiative Programme aiming to provide data for establishing import tolerances in the European Union, azoxystrobin was applied as foliar spray treatment with two or three applications at 0.16 kg ai/kg and a PHI of 2 days in two trials carried out in Côte d'Ivoire. The residues found after three applications were 0.03 and 0.48 mg/kg and after two applications 0.07, 0.1, 0.25 and 0.32 mg/kg at a PHI of two days. Detailed information on the analytical methods used was not submitted.

The application conditions were based on the requirement of appropriate control of diseases in okra, but were not supported by labels or official declarations of approved uses from Côte d'Ivoire. The trials from Côte d'Ivoire were also not according to the GAP of Kenya for vegetables (3 × 0.075–0.125 kg ai/kg, no information on PHI). Based on the data submitted, the Meeting could not estimate a maximum residue level for azoxystrobin in okra.

Nevertheless, the 2008 JMPR estimated a maximum residue level for fruiting vegetables, other than cucurbits, except fungi and sweet corn, of 3 mg/kg and an STMR of 0.35 mg/kg. This recommendation is applicable for okra.

Ginseng

The maximum GAP in Korea permits 4 foliar applications of azoxystrobin at 10 days interval at a rate of 0.01 kg ai/hL with a PHI of 7 days.

Ready to harvest ginseng plantations of 4–6 years old were treated 4 times at 10 days interval with 0.34–0.56 kg ai/ha in 3400–5556 L water/ha, equivalent to 0.01 kg ai/hL spray concentration. The root samples were collected 7 days after the last application on each field. The residues in fresh ginseng roots were: 0.012, 0.022, <u>0.025</u>, <u>0.0257</u>, 0.03 and 0.05 mg/kg.

The Meeting estimated a maximum residue level of 0.1 mg/kg and an STMR of 0.025 mg/kg.

Coffee beans

In Brazil, the registered use of azoxystrobin in coffee is as a foliar spray treatment of 2 × 0.15 kg ai/ha (interval 90 days) or 3 × 0.1 kg ai/ha (interval 60 days) and a PHI of 30 days. Four Brazilian trials with treatments of 3 × 0.15 kg ai/ha and 15 trials with 3 × 0.10–0.12 kg ai/ha were available. The spray intervals in the trials were about 60 days and the PHI 28–30 days.

The residues after treatment with;

- 3 × 0.10 kg ai/ha were: < <u>0.01</u> (7), 0.01 (2) mg/kg
- 3 × 0.12 kg ai/ha were: < 0.01 (6) mg/kg
- 3 × 0.15 kg ai/ha were: < 0.01 (4) mg/kg.

The Meeting estimated for azoxystrobin residues in coffee beans a maximum residue level of 0.02 mg/kg and an STMR of 0.01 mg/kg.

Fate of residues during processing

Fresh ginseng roots were dried to produce dried or red ginseng, which was extracted for about 18 hours with ethanol at 70 ºC or water at 85 ºC. The solvent was evaporated to reach Brix levels of 65 ºBx for the ethanol extract and 72 ºBx for the water extract.

The following median processing factors were calculated: 3 for dried ginseng, 2 for red ginseng, 5.2 for ethanol extract of dried ginseng, 4.8 for water extract of dried ginseng, 4.9 for ethanol extract of red ginseng and 2 for water extract of red ginseng.

Based on the STMR of 0.025 mg/kg for fresh ginseng roots, the Meeting estimated the following STMR-P-values: 0.075 mg/kg for dried ginseng, 0.05 mg/kg for red ginseng, 0.13 mg/kg for ethanol extract of dried ginseng, 0.12 mg/kg for the water extract of dried ginseng, 0.12 mg/kg for the ethanol extract of red ginseng and 0.05 mg/kg for the water extract of red ginseng.

The Meeting estimated a maximum residue level of 0.5 mg/kg for ginseng, processed products (dried, red, ethanol and water extracts).

DIETARY RISK ASSESSMENT

Long-term intake

The International Estimated Dietary Intakes (IEDIs) of azoxystrobin were calculated for the 13 GEMS/Food cluster diets using STMRs and STMR-Ps estimated by the JMPR in 2008 and the current Meeting. The ADI is 0–0.2 mg/kg bw and the calculated IEDIs were 2–10 % of the maximum ADI. The results are shown in Annex 3. The Meeting concluded that the long-term intake of residues of azoxystrobin resulting from the uses considered by the JMPR is unlikely to present a public health concern.

Short-term intake

The 2008 Meeting decided that an ARfD for azoxystrobin is unnecessary and concluded that the short-term intake of residues resulting from the use of azoxystrobin is unlikely to present a public health concern.