

5.24 INDOXACARB (216)

RESIDUE AND ANALYTICAL ASPECTS

Indoxacarb was previously evaluated by the JMPR in 2005 (T, R), 2007 (R), 2009 (R) and 2012 (R), the Meeting established an ADI of 0–0.01 mg/kg bw and an ARfD of 0.1 mg/kg bw. At the Forty-fifth Session of the CCPR, indoxacarb was scheduled for the evaluation by the current Meeting for the additional use on tea (REP13/PR-Appendix XIV).

Definition of the residue for compliance with the MRL for all commodities and for estimation of dietary intake for plant commodities is sum of indoxacarb and its R enantiomer. Definition of the residue for estimation of dietary intake for animal commodities is sum of indoxacarb, its R enantiomer and methyl 7-chloro-2,5-dihydro-2-[[[4-(trifluoromethoxy)phenyl]amino]carbonyl]indeno[1,2-e][1,3,4]oxadiazine-4a(3H)-carboxylate, expressed as indoxacarb. The residue is fat soluble.

Methods of analysis

The Meeting received descriptions and validation data for analytical methods for residues of indoxacarb in tea and tea infusion samples.

Fresh tea leaf or tea leaf sample was extracted with water, acetonitrile and ammonia, with the addition of NaCl before centrifugation. The supernatant underwent clean-up with SPE cartridge, and centrifuged again. The supernatant was filtered and analysed by UPLC-MS/MS.

Crushed and blended tea leaves were added into boiling water, and filtered. Cool tea infusion was cleaned up with SPE cartridge and analysed with UPLC-MS/MS.

Recoveries ranged from 95.7% to 107% and validated LOQs were 0.0004 mg/kg for tea infusions, 0.01 mg/kg for fresh tea leaves and 0.02 mg/kg for tea.

Stability of residues in stored analytical samples

The Meeting received information on the stability of residues in tea.

The storage test showed that residues of indoxacarb in tea sample under -18 °C were stable for at least 6 months.

Results of supervised residue trials on tea

The Meeting received supervised trials data for indoxacarb uses on tea plants.

Eight trials were conducted on tea in China (maximum GAP: 0.050kg ai/ha, 2 applications, 10-day PHI) in 2010, 2011 and 2012. Two green tea trials and six black tea trials were available from Zhejiang, Hunan and Fujian, respectively. In the total of eight trials conducted at the maximum Chinese GAP, residues in tea leaves, median underlined, were: 0.13, 0.14, 0.33, 0.40, 0.42, 0.45, 1.97 and 2.60 mg/kg. The Meeting estimated a maximum residue level and an STMR value for indoxacarb in Tea, green, black (black, fermented and dried) of 5 and 0.41 mg/kg.

Fate of residues during storage and processing

The Meeting received information on the fate of indoxacarb residues during the storing and processing of tea.

Residues of indoxacarb stored under -25 °C were stable for at least 6 months.

The processing factor for tea infusion (0.062) was applied to the STMR of tea (0.41 mg/kg) to estimate an STMR-P value for tea infusion of 0.025 mg/kg.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue concentrations listed below are suitable for establishing MRLs and for assessing IEDIs.

Definition of the residue for compliance with the MRL for all commodities and for estimation of dietary intake for plant commodities: *sum of indoxacarb and its R enantiomer.*

Definition of the residue for estimation of dietary intake for animal commodities: *sum of indoxacarb, its R enantiomer and methyl 7-chloro-2,5-dihydro-2-[[[4-(trifluoromethoxy)phenyl]amino]carbonyl]indeno[1,2-e][1,3,4]oxadiazine-4a(3H)-carboxylate, expressed as indoxacarb.*

The residue is fat soluble.

Dietary Risk Assessment

Long-term intake

The Meeting noted that the new estimation for tea did not result in a significant change in long-term dietary intake and concluded that the long-term intake of residues of indoxacarb resulting from the uses of indoxacarb considered by the present JMPR is unlikely to present a public health concern.

Short-term intake

The IESTI of indoxacarb calculated on the basis of the recommendations of tea made by the JMPR 1% of the ARfD (0.1 mg/kg bw) for child and general population.

The Meeting therefore concluded that the short-term intake of indoxacarb residues in tea, when used in ways that have been considered by the JMPR, is unlikely to present a public health concern.