CARBOSULFAN (145)

EXPLANATION

Carbosulfan was evaluated for residues by the 1997 JMPR in the Periodic Review Programme. At the 31st (1999) Session of the CCPR it was noted (ALINORM 99/24A, para 79) that, although the 1997 JMPR had concluded that an MRL for citrus fruits should be established for carbofuran and carbosulfan, only an MRL for oranges (sweet, sour) had been recommended. It was requested that an MRL for mandarin be elaborated if it is considered to be more appropriate to recommend MRLs for individual commodities.

APPRAISAL

Carbofuran is a main metabolite of carbosulfan, as well as being itself a pesticide. Residues of carbosulfan are defined as carbosulfan, and residues of carbofuran are defined as the sum of carbofuran and 3-hydroxycarbofuran, expressed as carbofuran. The 1997 JMPR recommended MRLs for oranges (sweet, sour) of 0.1 mg carbosulfan/kg and 0.5 mg carbofuran/kg.

The 1997 JMPR recommended an MRL of 0.1 mg/kg and estimated an STMR of 0.01 mg/kg for carbosulfan in whole oranges (sweet, sour). A total of 53 samples gave a highest residue of 0.08 mg/kg in whole oranges. A ratio of 0.0726 was estimated for pulp : whole fruit residues from five trials which gave rise to residues in the pulp. The highest residue in the edible portion was therefore estimated as 0.08 mg/kg x 0.0726 = 0.0058 mg/kg, and the STMR in the edible portion was estimated as 0.01 mg/kg x 0.0726 = 0.00726 mg/kg.

There is no registered use of carbofuran on citrus fruit so all carbofuran residues arise from the use of carbosulfan. There are registered uses of carbosulfan on oranges in Mexico and Brazil and on oranges and mandarins in Spain. The supervised trials used by the 1997 JMPR to estimate a maximum residue level were mainly with oranges, some with mandarins (6 of about 28 trials). The residues in mandarins were comparable to those in oranges. The Meeting agreed to maintain the current recommendations for MRLs of 0.1 mg carbosulfan/kg and 0.5 mg carbofuran/kg for oranges (sweet, sour) and recommended in addition MRLs of 0.1 mg carbosulfan/kg and 0.5 mg carbofuran/kg for mandarin. A group MRL for citrus fruits cannot be recommended since registered uses of carbosulfan are solely on oranges and mandarins.

RECOMMENDATIONS

On the basis of the data from supervised trials the Meeting estimated the maximum residue and STMR levels shown below. The maximum residue level is recommended for use as an MRL.

Definition of the residue (for compliance with MRLs and for the estimation of dietary intake):

carbosulfan.

Commodity		MRL, mg/kg		STMR, mg/kg
CCN	Name	New	Previous	
FC 0206	Mandarin	0.1		0.01

DIETARY RISK ASSESSMENT

Chronic intake

An STMR for mandarins was added to the STMR for oranges estimated by the 1997 Meeting (Annex III).

International Estimated Daily Intakes for the 5 GEMS/Food regional diets, based on estimated STMRs, were all 0% of the ADI. The Meeting concluded that the intake of residues of carbosulfan resulting from its uses that have been considered by the JMPR is unlikely to present a public health concern.

Acute intake

The International Estimate of Short Term Intake (IESTI) for carbosulfan was calculated as described in Section 3 of this report for commodities for which MRLs were recommended and STMRs estimated and for which consumption data (large portion consumption, unit weight) were available. The results are shown in Annex IV. The IESTI ranged from 5×10^{-5} to 9×10^{-5} mg/kg bw in the total population and from 2.1×10^{-4} to 4×10^{-4} mg/kg bw in children. As no acute reference dose has been established, the acute risk assessment for carbosulfan was not finalized.