

5.4 CAPTAN (007)

RESIDUE AND ANALYTICAL ASPECTS

Captan is a contact fungicide with a multi-site mode of action. It is used to control a broad range of diseases on a variety of crops.

Captan was first reviewed by JMPR in 1963 with succeeding residue reviews between 1969 and 1997. In 2000, a periodic review for residues was conducted, with subsequent reviews for toxicology conducted in 2004 and 2007.

The 1995 JMPR established an ADI of 0–0.1 mg/kg bw/day for captan. This same year, the residue definition established for plant and animal commodities, for both compliance with MRLs and for dietary intake assessment was captan. In 2004, the WHO established an ARfD of 0.3 mg/kg bw for women of childbearing age and unnecessary for the general population.

Specifications for captan technical material and relevant formulations have been established by the JMPS in 1990 and published on the AGP-FAO Specifications webpage.

The 48th Session of the CCPR (2016) listed captan for further evaluation by the 2017 JMPR for an additional MRL on ginseng. The current Meeting received GAP information and supporting residue information from the sponsor.

Methods of analysis

The ginseng samples from the supervised field trials were analysed using a GC-ECD analytical method where samples were blended with 85% phosphoric acid and ethyl acetate. The extract was then filtered and shaken with 1% phosphoric acid. The mixture was passed through sodium sulfate and then evaporated to dryness. The residue was then dissolved in methylene chloride and cleaned up on a silica gel column eluted with 5% ethyl acetate in methylene chloride prior to analysis. The lowest limit of method validation (LLMV) was established at 0.05 mg/kg.

A summary report of recovery data of the GC-ECD method for the analysis of captan in ginseng was provided. Mean recoveries from the method validation at 0.05 and 0.5 mg/kg levels ranged from 77 to 83% (n = 5/fortification level, range of recoveries: 70–92% and 68–84%, respectively) with % RSD < 14%. For the concurrent method validation at the same fortification levels, mean recoveries ranged from 55–80% (n = 5/fortification level, range of recoveries: 68–110% and 48–58%, respectively) with % RSD < 23%.

Results of supervised residue trials on crops

In the USA, the critical GAP for captan on ginseng is 3.36 kg ai/ha with a maximum of 8 applications or 27 kg ai/ha/season and a PHI of 14 days.

A total of four independent crop field trials were conducted in Canada and the USA on ginseng during the 2005-2006 growing seasons. All trials were conducted in accordance with the USA critical GAP of 26.88 kg ai/ha/season. Residues in ginseng samples were (n=4): < 0.05 (2), 0.05 and 0.54 mg/kg.

The Meeting concluded that there were analytical issues that precluded sufficient confidence in the representativeness of the captan residues for estimating a maximum residue level.

