

## **CYPERMETHRIN AND $\alpha$ -CYPERMETHRIN (addendum)**

*First draft prepared by*

*Professor L. Ritter<sup>1</sup> and Dr K. Greenlees<sup>2</sup>*

*<sup>1</sup> Canadian Network of Toxicology Centres, Department of Environmental Biology, University of Guelph, Ontario, Canada; and*

*<sup>2</sup> Division of Human Food Safety, Office of New Animal Drug Evaluation, Center for Veterinary Medicine, Food and Drug Administration, Rockville, Maryland, USA*

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### **1. EXPLANATION**

Cypermethrin and  $\alpha$ -cypermethrin are highly active pyrethroid insecticides, which are effective in public health and animal husbandry, and target a wide range of pests in agriculture. Cypermethrin has been widely used throughout the world since the late 1970s, while  $\alpha$ -cypermethrin has been available commercially since the mid 1980s. The present Committee responded to a request from the Codex Committee on Residues of Veterinary Drugs in Foods (CCRVDF) at its Fourteenth Session (Codex Alimentarius Commission, 2003) to consider the establishment of a common ADI and common MRLs, for both cypermethrin and  $\alpha$ -cypermethrin.

At its forty-seventh meeting (Annex 1, reference 125), the Committee evaluated cypermethrin and  $\alpha$ -cypermethrin and established an ADI of 0–0.05 mg/kg bw for cypermethrin and of 0–0.02 mg/kg bw for  $\alpha$ -cypermethrin. The Joint FAO/WHO Meeting on Pesticide Residues (JMPR) had also evaluated cypermethrin and established an ADI of 0–0.05 mg/kg bw (JMPR, 1980, 1982).

Cypermethrin typically contains 20–40%  $\alpha$ -cypermethrin. The Committee noted that  $\alpha$ -cypermethrin comprises the two most toxicologically active isomers of cypermethrin. As the ratio of isomers in commercial cypermethrin products is variable, the toxicity of these products also varies. The NOEL for  $\alpha$ -cypermethrin alone was lower than that for cypermethrin. However, the observed toxicity was qualitatively similar. The Committee also noted that the metabolism of  $\alpha$ -cypermethrin and of cypermethrin is similar, although not identical.

At its present meeting, the Committee received only new data on analytical methods.

## 2. EVALUATION

The Committee concluded that as  $\alpha$ -cypermethrin alone and cypermethrin are qualitatively similar in their toxicity and metabolism, and in view of the fact that cypermethrin includes a substantial proportion of  $\alpha$ -cypermethrin, the ADI previously established for  $\alpha$ -cypermethrin could apply for both substances.  $\alpha$ -Cypermethrin is more toxic than cypermethrin, and the proportion of  $\alpha$ -cypermethrin in cypermethrin may depend on the commercial source. The Committee reconfirmed the NOEL for  $\alpha$ -cypermethrin of 1.5 mg/kg bw per day on the basis of a 52-week study in dogs fed with  $\alpha$ -cypermethrin, as identified at the forty-seventh meeting.

The Committee established a group ADI of 0–0.02 mg/kg bw for cypermethrin and  $\alpha$ -cypermethrin, using a safety factor of 100 and by rounding up.

## 3. REFERENCES

- Codex Alimentarius Commission (2003) *Report of the Fourteenth Session of the Codex Committee on Residues of Veterinary Drugs in Foods, Arlington VA, USA. 4–7 March 2003*. Rome, Food and Agriculture Organization of the United Nations (unpublished document ALINORM O3/31A).
- European Agency for the Evaluation of Medicinal Products in 1998 (EMA, 1998).
- JMPR (1980) *Pesticide residues in food—1979. Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Expert Group on Pesticide Residues*. Rome: Food and Agriculture Organization of the United Nations (FAO Plant Production and Protection Paper, No. 26).
- JMPR (1982) *Pesticide residues in food—1981. Report of the Joint Meeting of the FAO Panel of Experts on Pesticide Residues in Food and the Environment and the WHO Expert Group on Pesticide Residues*. Rome: Food and Agriculture Organization of the United Nations (FAO Plant Production and Protection Paper, No. 37).