HISTORIES OF GUIDELINE DEVELOPMENT FOR THE FOURTH EDITION

12. Chemical fact sheets

12.1 Chemical contaminants in drinking-water

Permethrin

History of guideline development

The 1958 and 1963 WHO *International Standards for Drinking-water* did not refer to permethrin, but the 1971 International Standards suggested that pesticide residues that may occur in community water supplies make only a minimal contribution to the total daily intake of pesticides for the population served. Permethrin was not evaluated in the first edition of the *Guidelines for Drinking-water Quality*, published in 1984, but the second edition of the Guidelines (1993) established a health-based guideline value of 0.02 mg/l for permethrin in drinking-water, based on an ADI established by JMPR in 1987 for 2:3 and 1:3 *cis*:*trans*-permethrin and recognizing the significant exposure to permethrin from the environment. It was noted that if permethrin was to be used as a larvicide for the control of mosquitoes and other insects of health significance in drinking-water sources, the share of the ADI allocated to drinking-water may be increased. In the third edition of the Guidelines, published in 2004, it was concluded that because permethrin occurs at concentrations well below those at which toxic effects are observed, it was not necessary to derive a guideline value. In the first addendum to the third edition of the Guidelines, published in 2006, a guideline value of 0.3 mg/l was established for permethrin applied directly to water as a larvicide, reiterating that in other situations it was not considered necessary to derive a health-based guideline value. In the fourth edition of the Guidelines, published in 2011, it was noted that adding permethrin directly to drinking-water for public health purposes was not recommended by WHO, as part of its policy to exclude the use of any pyrethroids for larviciding of mosquito vectors of human disease. This policy is based on concern over the possible accelerated development of vector resistance to synthetic pyrethroids, which, in their application to insecticide-treated mosquito nets, are crucial in the current global anti-malaria strategy. Therefore, no guideline value for permethrin in drinking-water was established.