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Report on meetings of expert committees and study groups¹

Report by the Secretariat

EVALUATION OF CERTAIN MYCOTOXINS

Joint FAO/WHO Expert Committee on Food Additives
Fifty-sixth report
Geneva, 6-15 February 2001²

Main recommendations

1. The Committee evaluated the following eight mycotoxins that contaminate food: aflatoxin M₁, fumonisins B₁, B₂ and B₃, ochratoxin A, and the trichothecenes deoxynivalenol and T-2 and HT-2 toxins. These comprehensive evaluations included assessment of metabolic, toxicological and epidemiological data, availability of analytical methods for the mycotoxin in food products, sampling protocols used for regulatory control, effects of processing on concentrations of the mycotoxin, assessment of food consumption and residue data for the determination of intake, and measures that may be taken to prevent and/or control contamination.
2. The two maximum concentrations of aflatoxin M₁ that had been proposed by the Codex Committee on Food Additives and Contaminants, 0.05 and 0.5 µg/kg, were considered. Based on worst-case assumptions, the projected risk of liver cancer attributable to aflatoxin M₁ would be very small if either of these maximum levels were implemented.
3. The Committee allocated a group provisional maximum tolerable daily intake of 2 µg/kg of body weight to fumonisins B₁, B₂ and B₃, alone or in combination. All the intake estimates for the fumonisins based on the available data on national consumption were well below this group figure.
4. Ochratoxin A is nephrotoxic and causes carcinogenic effects in the kidney. The mechanism by which ochratoxin A causes carcinogenicity is unknown, although both genotoxic and nongenotoxic modes of action have been proposed. Studies on nephrotoxicity and carcinogenicity were under way and the Committee recommended a further review in 2004. In the meantime, the previously established provisional tolerable weekly intake of 100 ng/kg of body weight was maintained. Intake of ochratoxin A by consumers of cereals at the 95th percentile may approach this value.

¹ The Regulations for Expert Advisory Panels and Committees provide that the Director-General shall submit to the Executive Board a report on meetings of expert committees containing observations on the implications of the expert committee reports and recommendations on the follow-up action to be taken.

² WHO Technical Report Series, No. 906, 2002.

5. The Committee established a provisional maximum tolerable daily intake of 1 µg/kg of body weight for deoxynivalenol. Based on preliminary estimates, it is likely that intake could exceed this value in many parts of the world. The Committee considered T-2 toxin and its metabolite HT-2 toxin together, and established a group provisional maximum tolerable daily intake of 60 ng/kg of body weight. Based on limited information on the concentration of T-2 and HT-2 toxins in food commodities, intake was not expected to exceed this group figure.

6. Summaries of the information that served as the basis for the Committee's evaluations of these mycotoxins have been published separately.¹

Significance for public health policies

7. The Committee's work emphasizes the public health significance of the risk assessment of chemicals in food. It highlights the complexity of the process, which includes assembling and analysing all relevant data; interpreting studies of, for instance, carcinogenicity, genotoxicity, reproductive toxicity and teratogenicity; extrapolating to human beings the effects observed in experimental animals; and characterizing human hazards on the basis of available toxicological and epidemiological data.

8. Although all Member States face the problem of assessing potential risks of chemicals in food, currently only a few scientific institutions can assess the relevant toxicological and related data. Therefore it is important that Member States are provided with valid information on both the general aspects of risk assessment and assessments of specific contaminants so that risks can be assessed at the national level.

9. The Committee's recommendations are used by the Codex Alimentarius Commission for setting international food standards. Such standards are established only for substances that have been evaluated by the Committee and have been allocated an acceptable daily intake (food additives and veterinary drugs) or for which a tolerable intake has been established or potencies have been estimated (contaminants). This procedure ensures that food commodities in international trade meet strict safety standards.

Implications for WHO's programmes

10. The evaluation of chemicals in food by the Committee is a continuing activity. Four meetings of the Committee, two on food additives and contaminants, one on contaminants and one on residues of veterinary drugs in food, were held during 2000 and 2001. Four meetings are scheduled during 2002 and 2003.

11. WHO is a cosponsor of the Joint FAO/WHO Food Standards Programme, which administers the Codex Alimentarius Commission. The Committee's work is crucial for that of the Commission.

12. Regional offices and WHO Representatives also make use of the Committee's evaluations when advising Member States on food safety regulatory programmes.

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¹ *Safety evaluation of certain mycotoxins in food*. WHO Food Additives Series, No. 47; FAO Food and Nutrition Paper 74, 2001.