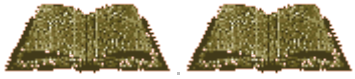
ANIL AGGRAWAL'S
Internet Journal of
Forensic Medicine and Toxicology
The world's first online journal devoted entirely to forensic medicine and toxicology · Published 1 January and 1 July

VOL. 3, NO. 2
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Book Reviews: Technical Books Section



OTHER REVIEWS IN THIS ISSUE
[Technical Books Section] Pages: |1| 2| 3| 4| 5| 6| 7| 8| 9| 10| 11| 12| 13| 14| 15| 16| 17| 18| 19| 20|
[Popular Books Section] Pages: |1| 2| 3| 4| 5| 6|

[Books on CD/Audio Tapes] Pages: |1|

[Software/Multimedia] Pages: |1|

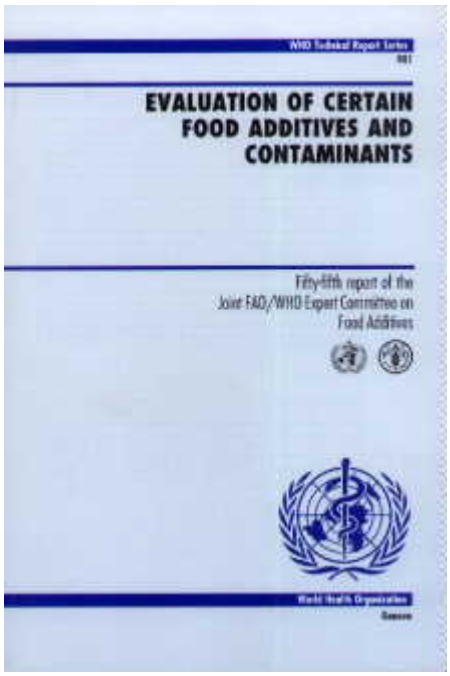
[Online Courses] Pages: |1|

REVIEWS IN THE PREVIOUS ISSUE | NEXT ISSUE

A USEFUL SOURCE OF INFORMATION ON FOOD ADDITIVES AND CONTAMINANTS

Evaluation Of Certain Food Additives And Contaminants, (WHO Technical Report Series 901) World Health Organization, Avenue Appia 20, 1211 Geneva 27, Switzerland, Publication Date 2001, x + 107 pages, ISBN 92 4 120901 1, ISSN 0512-3054, NLM Classification: WA 712: Price Sw.fr. 23.00; in developing countries: Sw.fr. 16.10

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The book under review is one of a series of technical reports brought out by the World Health Organization regularly on a broad range of medical and public health subjects, based on the findings of various international groups of experts. This book represents the 55th report of the Joint FAO/WHO Expert Committee on Food Additives which met in Geneva from 6 to 15 June 2000. The Committee has used the Environmental Health Criteria, No.70, Principles for the safety assessment of food additives and contaminants in food, as a basis for this new, updated report.

In this book, two food additives have been evaluated for the first time, while 9 others have been re-evaluated. The initial part of the report is in the form of a general discussion of the principles governing the toxicological evaluation of food additives, flavouring agents, and contaminants. The information presented here is with reference to the following substances: furfural, paprika oleoresin, caramel colour II, cochineal extract, carmines, aspartame-acesulfame salt, D-tagatose, benzoyl peroxide, nitrous oxide, stearyl tartrate, trehalose, cadmium, and tin.

...cochineal extract (obtained from an insect: Costa insect), from which cochineal colours and carmines are derived was decided by the Committee to be allergenic on the basis of several reports...

Furfural, which is a flavouring agent, was evaluated earlier by the Committee at its 39th and 51st meetings, but an Acceptable Daily Intake (ADI) could not be established then, because of concern about the finding of liver tumours in male mice given furfural. In order to address this concern, the Committee at its 51st meeting requested the results of DNA studies to determine the exact relationship of furfural and hepatotoxicity. However the review of an assay for unscheduled DNA synthesis in mice in vivo disclosed only negative results. This suggests that the liver tumours observed in the earlier study in mice were unlikely to have occurred through a genotoxic mechanism. A group ADI (for furfural and derivatives) was fixed as 0-0.5 mg/kg body weight. In order to identify a NOEL (no-observed-effect-level), the results of a 90 day toxicity study were evaluated, and the NOEL was fixed to be 53 mg/kg body weight per day. The ADI for paprika oleoresin (a spice) was not fixed. Studies did not demonstrate significant toxicity.

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With reference to food colours, caramel colour II was evaluated. This food colour differs from the other three classes of caramel colour (I, III, and IV), in that it is manufactured using sulfite compounds and not ammonium compounds. It is mainly used in distilled spirits such as rum, whisky, and brandy. In reviewing the database on caramel colour II, the Committee concluded that recent studies have not dislosed significant toxicity, and established an ADI of 0-160 mg/kg of body weight per day. On the other hand, cochineal extract (obtained from an insect: Costa insect), from which cochineal colours and carmines are derived was decided by the Committee to be allergenic on the basis of several reports. Because some of the adverse reactions were noted to be severe, it was decided that appropriate information (for e.g., noting the presence of cochineal colours in foods and beverages) should be provided to warn individuals who are allergic to these compounds.

...the book is a very useful source of information on the food additives and contaminants evaluated, and should be a necessary addition to toxicology laboratories, as well as libraries stocking books on toxicology. As is the case with all books brought out by the WHO, the presentation, printing, and binding are of high quality, while the price is relatively low...

Of the sweetening agents considered, aspartame-acesulfame salt had already been considered previously by the Committee, and it was considered unnecessary to issue new specifications, while D-tagatose, an epimer of D-fructose, which had not been evaluated earlier, raised concerns about its potential to induce liver glycogen deposition, and to increase serum uric acid concentrations. A toxicological monograph and new specifications were prepared.

Aside from these agents, some miscellaneous substances were also considered by the Committee, including benzoyl peroxide (bleaching agent in flour), nitrous oxide (packaging gas), stearyl tartrate (strengthening agent of dough), trehalose (texturizer and stabilizer in bakery and confectionery items), and cinnamyl alcohol and derivatives (flavouring agents). Two important contaminants were also evaluated: cadmium and tin.

The book ends with recommendations for future work and a list of relevant references. There are 3 annexures to the report comprising tables summarizing the Committee's recommendations for ADIs of the food additives and tolerable intakes of the contaminants considered, and changes in the status of specifications of these additives and flavouring agents.

All in all, the book is a very useful source of information on the food additives and contaminants evaluated, and should be a necessary addition to toxicology laboratories, as well as libraries stocking books on toxicology. As is the case with all books brought out by the WHO, the presentation, printing, and binding are of high quality, while the price is relatively low.



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Dr.V.V.Pillay has been in the vanguard of the movement among medical professionals in India to develop the neglected field of Toxicology. He has published extensively in both the scientific and lay press on matters relating to Toxicology, as well as his chosen discipline - Forensic Medicine. Dr.Pillay has authored 6 books on Forensic Medicine and Toxicology, and has received an award for one of them (Modern Medical Toxicology), generally considered to be a trend setter among books on the subject in India. He has reviewed several books on Toxicology for the Internet Journal of Forensic Medicine and Toxicology. Dr.Pillay received a scroll of honour in appreciation of work done in the field of Toxicology from the Medicolegal Society, All India Institute of Medical Sciences, New Delhi. He has established a state-of-the-art Poison Control Centre, recognized by the World Health Organization at the institute where he is currently employed (AIMS, Cochin). Among his most sought-after publications is a 700 page reference work on Toxicology.

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