

Evaluation of certain food additives

Seventy-sixth report of the
Joint FAO/WHO Expert Committee on
Food Additives



Food and Agriculture
Organization of
the United Nations



World Health
Organization



World Health
Organization

Evaluation of certain food additives

Seventy-sixth report of the
Joint FAO/WHO Expert Committee on
Food Additives



Food and Agriculture
Organization of
the United Nations



World Health
Organization



World Health
Organization

WHO Library Cataloguing-in-Publication Data:

Evaluation of certain food additives: seventy-sixth report of the Joint FAO/WHO Expert Committee on Food Additives.

(WHO technical report series ; no. 974)

1.Food additives - analysis. 2.Food additives - toxicity. 3.Flavouring agents. 4.Diet - adverse effects. 5.Risk assessment. I.World Health Organization. II.Food and Agriculture Organization of the United Nations. III.Joint FAO/WHO Expert Committee on Food Additives. Meeting (76th: 2012, Geneva, Switzerland). IV.Series.

ISBN 978 92 4 120974 8

(NLM classification: WA 712)

ISSN 0512-3054

© World Health Organization 2012

All rights reserved. Publications of the World Health Organization are available on the WHO web site (<http://www.who.int>) or can be purchased from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int).

Requests for permission to reproduce or translate WHO publications – whether for sale or for noncommercial distribution – should be addressed to WHO Press through the WHO web site (http://www.who.int/about/licensing/copyright_form/en/index.html).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

This publication contains the collective views of an international group of experts and does not necessarily represent the decisions or the policies of the World Health Organization.

Typeset in India

Printed in Malta

Contents

1. Introduction	1
1.1 Declarations of interests	1
2. General considerations	3
2.1 Modification of the agenda	3
2.2 Report from the Forty-fourth Session of the Codex Committee on Food Additives (CCFA)	4
2.3 Principles governing the toxicological evaluation of compounds on the agenda	5
2.4 Statement on the inclusion of secondary additives in a specifications monograph	5
2.5 Food additive specifications	5
2.5.1 Analytical method for the determination of phosphorus as phosphorus pentoxide	5
2.5.2 Inclusion of titanium dioxide in the evaluation of dietary exposure to aluminium from food additives	6
2.5.3 Food additives containing aluminium and/or silicon	6
2.5.4 Test methods for modified starches	6
2.6 Flavour specifications	7
2.6.1 Improvements to the submission of specifications data for flavouring agents	7
2.6.2 Improvements to the presentation of specifications data for flavouring agents	7
2.7 Evaluation of flavour modifiers	7
3. Specific food additives (other than flavouring agents)	9
3.1 Safety evaluations	9
3.1.1 Magnesium dihydrogen diphosphate	9
3.1.2 Mineral oil (medium and low viscosity) classes II and III	13
3.1.3 3-Phytase from <i>Aspergillus niger</i> expressed in <i>Aspergillus niger</i>	19
3.1.4 Serine protease (chymotrypsin) from <i>Nocardiopsis prasina</i> expressed in <i>Bacillus licheniformis</i>	22
3.1.5 Serine protease (trypsin) from <i>Fusarium oxysporum</i> expressed in <i>Fusarium venenatum</i>	25
3.2 Revision of specifications	28
3.2.1 Ethyl cellulose	28
3.2.2 Mineral oil (medium viscosity)	28
3.2.3 Modified starches	29
3.2.4 Titanium dioxide	29
4. Flavouring agents	31
4.1 Flavouring agents evaluated by the Procedure for the Safety Evaluation of Flavouring Agents	31

4.1.1	Aliphatic and aromatic amines and amides	34
4.1.2	Aliphatic and aromatic ethers	42
4.1.3	Aliphatic hydrocarbons, alcohols, aldehydes, ketones, carboxylic acids and related esters, sulfides, disulfides and ethers containing furan substitution	50
4.1.4	Aliphatic linear α,β -unsaturated aldehydes, acids and related alcohols, acetals and esters	51
4.1.5	Amino acids and related substances	55
4.1.6	Epoxides	61
4.1.7	Furfuryl alcohol and related substances	67
4.1.8	Linear and branched-chain aliphatic, unsaturated, unconjugated alcohols, aldehydes, acids and related esters	69
4.1.9	Miscellaneous nitrogen-containing substances	75
4.1.10	Phenol and phenol derivatives	79
4.1.11	Pyrazine derivatives	84
4.1.12	Pyridine, pyrrole and quinoline derivatives	91
4.1.13	Saturated aliphatic acyclic branched-chain primary alcohols, aldehydes and acids	100
4.1.14	Simple aliphatic and aromatic sulfides and thiols	107
4.1.15	Sulfur-containing heterocyclic compounds	119
4.1.16	Sulfur-substituted furan derivatives	128
4.2	Specifications of identity and purity of flavouring agents	138
4.2.1	New specifications	138
5.	Future work	139
	Acknowledgements	143
	References	145
Annex 1	Reports and other documents resulting from previous meetings of the Joint FAO/WHO Expert Committee on Food Additives	151
Annex 2	Toxicological information and information on specifications	167
Annex 3	Further information required or desired	179
Annex 4	Summary of the safety evaluation of the secondary components of flavouring agents with minimum assay values of less than 95%	181

Seventy-sixth meeting of the Joint FAO/WHO Expert Committee on Food Additives

Geneva, 5–14 June 2012

Members

Professor J. Alexander, Norwegian Institute of Public Health, Oslo, Norway

Dr M. DiNovi, Center for Food Safety and Applied Nutrition, Food and Drug Administration, College Park, MD, United States of America (USA)

Dr Y. Kawamura, Division of Food Additives, National Institute of Health Sciences, Tokyo, Japan

Dr Madduri Veerabhadra Rao, Department of the President's Affairs, Al Ain, United Arab Emirates

Dr A. Mattia, Center for Food Safety and Applied Nutrition, Food and Drug Administration, College Park, MD, USA (*Chairperson*)

Mrs I. Meyland, Birkerød, Denmark (*Vice-Chairperson*)

Dr U. Mueller, Food Standards Australia New Zealand, Barton, ACT, Australia

Professor A. Renwick, Emeritus Professor, Faculty of Medicine, University of Southampton, Southampton, England (*Joint Rapporteur*)

Dr J. Schlatter, Nutritional and Toxicological Risks Section, Swiss Federal Office of Public Health, Zurich, Switzerland

Dr P. Sinhaseni, Community Risk Analysis Research and Development Center, Bangkok, Thailand

Mrs H. Wallin, Finnish Food Safety Authority (Evira), Helsinki, Finland (*Joint Rapporteur*)

Secretariat

Dr D. Benford, Food Standards Agency, London, England (*WHO Expert*)

Dr A. Bruno, Joint FAO/WHO Food Standards Programme, Food and Agriculture Organization of the United Nations, Rome, Italy (*FAO Codex Secretariat*)

Dr S. Choudhuri, Center for Food Safety and Applied Nutrition, Food and Drug Administration, College Park, MD, USA (*WHO Expert*)

Professor L.R.M. dos Santos, Faculdade de Engenharia de Alimentos, Universidade Estadual de Campinas, São Paulo, Brazil (*FAO Expert*)

Dr R. Ellis, Nutrition and Consumer Protection Division, Food and Agriculture Organization of the United Nations, Rome, Italy (*FAO Joint Secretary*)

- Dr B. Fields, Food Standards Australia New Zealand, Canberra, ACT, Australia (*WHO Expert*)
- Dr D. Folmer, Center for Food Safety and Applied Nutrition, Food and Drug Administration, College Park, MD, USA (*FAO Expert*)
- Dr S.M.F. Jeurissen, Centre for Substances and Integrated Risk Assessment, National Institute for Public Health and the Environment, Bilthoven, the Netherlands (*WHO Expert*)
- Dr F. Kayama, School of Medicine, Jichi Medical University, Tochigi, Japan (*WHO Expert*)
- Dr J.-C. Leblanc, Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (ANSES), Maisons-Alfort, France (*FAO Expert*)
- Dr S.Y. Lee, Department of Food Safety and Zoonoses, World Health Organization, Geneva, Switzerland (*WHO Staff Member*)
- Professor S.M. Mahungu, Department of Dairy, Food Science and Technology, Egerton University, Egerton, Kenya (*FAO Expert*)
- Professor S. Rath, Department of Analytical Chemistry, University of Campinas, Campinas, São Paulo, Brazil (*FAO Expert*)
- Ms M. Sheffer, Ottawa, Canada (*WHO Editor*)
- Professor I.G. Sipes, College of Medicine, University of Arizona, Tucson, AZ, USA (*WHO Expert*)
- Dr J.R. Srinivasan, Center for Food Safety and Applied Nutrition, Food and Drug Administration, College Park, MD, USA (*FAO Expert*)
- Dr A. Tritscher, Department of Food Safety and Zoonoses, World Health Organization, Geneva, Switzerland (*WHO Joint Secretary*)
- Dr T. Umemura, Biological Safety Research Center, National Institute of Health Sciences, Tokyo, Japan (*WHO Expert*)
- Professor G.M. Williams, Department of Pathology, New York Medical College, Valhalla, NY, USA (*WHO Expert*)

Monographs containing summaries of relevant data and toxicological evaluations are available from WHO under the title:

Safety evaluation of certain food additives. WHO Food Additives Series, No. 67, 2012.

Specifications are issued separately by FAO under the title:

Compendium of food additive specifications. FAO JECFA Monographs 13, 2012.

预览已结束，完整报告链接和二维码如下

https://www.yunbaogao.cn/report/index/report?reportId=5_28300