

FOOD AND ENVIRONMENTAL PROTECTION

NEWSLETTER



Joint FAO/IAEA Division
of Nuclear Techniques
in Food and Agriculture
and FAO/IAEA Agriculture and
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International Atomic Energy Agency
Vienna



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IAEA Web Page: <http://www.iaea.org/worldatom/>

FAO Web Page: <http://www.fao.org>

To the Reader

As Head of the Food and Environmental Protection Section, and Head of former Food Preservation Section in the past 17 years and a staff member of the Joint FAO/IAEA Division in the past 28 years, I decided to retire from the IAEA (see my farewell statement in this issue). I would like to take this opportunity to thank many of the readers who collaborated closely with me in the work on food irradiation as well as on analytical methods for food contaminants affecting trade, and to wish you all great success in your work

The International Consultative Group on Food Irradiation (ICGFI), established under the aegis of FAO, IAEA and WHO in 1984, is also changing its direction. The reader will be interested to read about the proposed new organization to succeed ICGFI in 2004.

Progress continued to be made in the development of international standards on food irradiation, both by the Codex Alimentarius Commission and the International Plant Protection Convention. Details of these developments are included in this issue, as well as recommendations to the IAEA as developed by renowned experts of the Thematic Planning Meeting on Irradiation as a Sanitary and Phytosanitary Treatment for Food, Vienna, 6th–10th May 2002.

Two new CRPs are being implemented by the Section: “Use of Irradiation to Ensure the Safety and Quality of Prepared Meals”, and “Testing the Efficiency and Uncertainty of Sample Processing for Analysis of Food Contaminants”.

I also wish the Section continued success on its work under the leadership of the new Head who hopefully joins the organization in the near future.

Paisan Loaharanu

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B. FORTHCOMING EVENTS

First FAO/IAEA Research Co-ordination Meeting (RCM) on Testing the Efficiency and Uncertainty of Sample Processing for Analysis of Food Contaminants, 15-19 July 2002

The first RCM on “Testing the efficiency and uncertainty of sample processing for analysis of food contaminants” is planned at Seibersdorf Laboratories from 15-19 July 2002. The CRP will involve 15 laboratories from several countries, including Argentina, Australia, Belarus, Colombia, Costa Rica, China, Croatia, Hungary, India, Malaysia, The Netherlands, Slovenia, and the UK. The participants were selected based on the qualification of the laboratories with regard to expertise and experience in pesticide residue analysis, sample processing, handling of radio-labelled compounds, and interest shown in the project. Due to limited funds, further applications cannot be accepted.

In the past, the effect of sample processing on the variability of the results and stability of residues gained very little attention by analysts. Contrary to the general assumption, some preliminary results indicated that the uncertainty of sample processing can be as large as 57% and 88% (if representative test portions can be prepared at all for that small quantities) when a test portion of 5 g and 2 g of apple is analysed, respectively. The current trend is to analyze 5-10 g analytical portions to save money and time, and to reduce waste material. Therefore the study of the efficiency of sample processing is very important. In addition, the estimation of uncertainty is part of the ISO 17025 requirements.

The current CRP will include the use of radio-labelled compounds to estimate the uncertainty of sample processing. The advantage is clearly that the analyte can be precisely (with a typical relative standard deviation $\leq 1\%$) and quickly (within 5 minutes) determined directly in the extract while eliminating the effects of the rest of the analytical procedure. Nevertheless the elaborated methodology can also be applied without labelled compound, but its implementation takes longer and the estimated efficiency of sample processing is less precise.

International Workshop on Mycotoxins (co-sponsored also by FAO and IAEA), College Park, Maryland, 22-26 July 2002

The IAEA and FAO are cosponsoring the International Workshop on Mycotoxins, “An Attempt to Harmonize Mycotoxin Training Programs Worldwide”. This event will take place in College Park, Maryland, USA, Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition/JIFSAN, from 22-26 July 2002. The long-term objective of the Workshop will be to reduce human and animal exposure to mycotoxins through increased (1) awareness of health risks associated with mycotoxin contamination, (2) accessibility to training and detection methods, (3) knowledge of conditions leading to mycotoxin formation, (4) regulation and monitoring programs, and (5) compliance with international trade standards.

The specific objectives include:

1. To develop a worldwide distance learning program for mycotoxins.
2. To train regional experts to coordinate mycotoxin training programs for each region.
3. To establish educational collaborative activities between academia, public health officials (local, national and international), and industry (agricultural production and processing).

4. To provide opportunities for developing countries to improve food quality and safety through carefully designed and focused programs for mycotoxin detection and control.
5. To prepare educational materials including multi-lingual manuals, videotapes of specific lectures, and Internet accessible reports.

For more detailed information, please visit our web site at: <http://www.iaea.org/programmes/nafa/d5/index.html> (click **Meeting and Training Courses**).

Final FAO/IAEA Research Co-ordination Meeting (RCM) on Determination of Profiles of Human Bacterial Pathogens in Food for Export by Introduction of Quality Assured Microbiological Assays, Mexico, 22-26 July 2002

The Final RCM of this Coordinated Research Project will be held at Universidad Autónoma de México (UNAM), Mexico D.F, Mexico. All contract and agreement holders from Australia, Austria, Brazil, Chile, India, Indonesia, Mexico, Nigeria, Philippines, Republic of Korea, United Kingdom and Thailand have been invited to participate in this meeting. The purpose of the meeting is to evaluate the research work done under the entire CRP and to prepare a report for publication as an IAEA TecDoc.

FAO/IAEA Group Fellowship Training on Irradiation as a Critical Control Point to Ensure Microbiological Safety of Food, Texas A & M University, College Station, Texas, 5-16 August 2002

Under the IAEA Type II Fellowship Programme (fully funded by the host government), this Group Training will be organized at Texas A&M University, 5-16 August 2002. The objective is to inform food inspectors/food control officials of the effectiveness of irradiation as a critical control point under HACCP to ensure microbiological safety of food regardless of commodities. Seventeen food control officials from developing countries were selected from those nominated by their governments. It is expected that the US authorities will nominate 10 food inspectors/control officials to attend this Group Training. Texas A&M University provides an excellent venue for this Group Training, not only because of its well known academic excellence in this discipline, a venue for HACCP training for meat inspectors of the USDA, but also due to a new industrial electron beam machine for food irradiation recently installed at the University. The participants will be exposed to the most up-to-date information not only about irradiation technology and HACCP, but how to integrate it into national regulations to ensure the safety of food supplies.

Final FAO/IAEA Research Co-ordination Meeting (RCM) on Evaluation of Methods of Analysis for Determining Mycotoxin Contamination of Food and Feed, Capetown, South Africa, 16-20 September 2002

The final RCM of this FAO/IAEA Coordinated Research Project (CRP) will take place at Medical Research Council (MRC), Programme on Mycotoxins and Experimental Carcinogenesis (PROMEC), Tygerberg, Capetown, Republic of South Africa. The objective of the RCM is to collect all results, conclusions, and recommendations from the CRP participants as well as other information needed to conduct an entire evaluation of the CRP. Participants, including contract and agreement holders and observers from Argentina, Australia, Brazil, Canada, China, Cuba, Egypt, France, India, Indonesia, Italy, Malaysia, Philippines, South Africa, United Kingdom, United States, and Uruguay will attend the RCM.

Final FAO/IAEA Research Co-ordination Meeting (RCM) on Irradiation as a Phytosanitary Treatment of Food and Agricultural Commodities, Vienna, 4-8 November 2002

For administrative reasons, it has been decided that the final RCM of this Coordinated Research Project will be held in Vienna, Austria. It will compile and evaluate results obtained during the past 5 years of this CRP for publication as an IAEA TecDoc as well as making necessary recommendations for further research to be supported by the Joint FAO/IAEA Division. The results of studies on the efficacy of irradiation to ensure quarantine security of arthropod pests other than tephritid fruit flies will be collected and put in our International Database on Insect Disinfestation and Sterilization (IDIDAS).

19th Annual Meeting of International Consultative Group on Food Irradiation (ICGFI), Vienna, 12-14 November 2002

The 19th Annual Meeting of ICGFI will be held at IAEA Headquarters, Vienna, Austria. The 18th ICGFI had unanimously agreed to extend the mandate of ICGFI for a final period of two years starting 9 May 2002. To date, 28 member governments have agreed to participate in the final 2 years of ICGFI. They include Argentina, Australia, Belgium, Canada, Chile, China, Croatia, Czech Republic, Egypt, Ghana, Hungary, India, Indonesia, Iraq, Italy, Korea Republic of, Malaysia, Morocco, New Zealand, Pakistan, Peru, Philippines, Poland, Portugal, Syria, Thailand, Turkey and USA.

The 19th Annual Meeting will consider an Action Plan for the final phase of ICGFI 2002-2004 and the Establishment of an International Commission for Food Irradiation (ICFI) as a successor organization to ICGFI. Among other things, the Agenda for the Meeting includes:

1. Consideration of the ongoing revisions to the Codex General Standard for Irradiated Foods and the Codex Recommended International Code of Practice for Radiation Processing of Food;
2. Certification Systems for Foods Irradiated for Non-Phytosanitary Purposes in International Trade; and
3. The Report of the IPPC Standard Committee on the development of an International Standard on irradiation as a phytosanitary treatment.

C. PAST EVENTS

FAO/IAEA/WHO Regional Training Workshop on Development of Quality Assurance for Mycotoxin Analysis, Cairo, Egypt, 1-6 December 2001

This Training Workshop was held at the Central Laboratory for the Analysis of Pesticide Residues and Heavy Metals in Foods, Agriculture Research Centre, Ministry of Agriculture. It was organized within the framework of the FAO/IAEA Training Reference Centre (TRC) for Food and Pesticide Control, and the WHO/ Eastern Mediterranean Regional Office (EMRO) joined FAO and IAEA as co-sponsors.

The main objectives of the workshop were: 1) to provide participants with general quality assurance principles and give theoretical and practical training in the implementation of Guide ISO 17025 and GLP, and 2) to facilitate mycotoxin control laboratories to comply with the

requirements in international trade by establishing a quality system and obtain reliable analytical results necessary for accreditation.

Twenty-three participants and four observers, from Bahrain, Egypt, Ethiopia, Ghana, Islamic Republic of Iran, Jordan, Kenya, Lebanon, Morocco, Niger, Nigeria, Saudi Arabia, Senegal, Sudan, Syrian Arab Republic, and Turkey attended the workshop. They comprised of scientists with ample experience in mycotoxin analyses, head analysts working in official laboratories/institutions responsible for control of import and export food.

3rd RCM on “Alternative Methods to Gas and High Performance Liquid Chromatography for Residue Analysis in Grains”, Beijing, China, 22-26 April 2002

The RCM was organized by Prof. Chuanfan Qian on the premises of the China Agriculture University (CAU), and attended by the nine contract holders and Dr. Khan who was invited as the editor of the special issue of the Journal of Environmental Science and Health Part B replacing the technical document.

Professor Shuren Jiang, the President, Prof. Wang Jingguo, the Director of Centre for International Exchange, and Dr. Zhonghai Ma, Project Officer, addressed the opening session on behalf of CAU and China Atomic Energy Authority (CAEA), respectively. Prof. Zhiqian Zho, Vice Director of Applied Chemistry Department of CAU also took part in the first session. They all emphasized the importance of the results of the CRP for supporting the objectives of Chinese Government to fulfil the tasks arisen from the recent membership to WTO, and requested further assistance of FAO and IAEA in that regard.

The University provided good facilities for the meeting and the Pesticide Residue Workshop.

The participants reported their results and highlighted the methodology problems and notable findings of their work. The presentations were followed by detailed discussions, and the identification of activities that should be carried out to achieve the objectives of the project. There were substantial differences in the progress made by the participants. However, those who could not complete the work programme according to the Workplan affirmed their commitment to complete the work in time to enable the inclusion of their results in the report.

The participants fully supported the proposal of IAEA to publish the results of the project in a special issue of the J. Environmental Science & Health instead of the usual Technical Document. The structure of the publication and the subjects of individual contributions were discussed in detail.

FAO/IAEA (RCA) Workshop on “Irradiation to Ensure Microbiological Safety of Food”, Mumbai, India, 4-8 February 2002

The Workshop was convened and organized under the scope of a regional Technical Cooperation Project on “The Application of Irradiation to Improve Food Safety, Security and Trade (RAS/5/042)“. The objective of this Workshop was to provide relevant information on recent developments related to the acceptance and application of irradiation as a sanitary treatment of food with emphasis on method to ensure its microbiological safety, as well as modern microbiological methods for determining contamination of food by pathogenic micro organisms. Fourteen food scientists and food control officials from Bangladesh, India, Indonesia, Malaysia, Philippines, Republic of Korea, Sri Lanka, Thailand and Vietnam attended the Workshop. A series of lectures, discussions, case studies and on-site visits to the Central Institute of Fisheries Education, Mumbai and the spice irradiation facility of the

Board of Radiation & Isotope Technology in Navi-Mumbai were included as part of the programme.

The Workshop provided a good update on the global status of food irradiation and risk of food borne infection as well as information on certification for international trade. The presentation and discussion of case studies were very beneficial in providing information on the application of food irradiation to meet requirements of the importing countries. This activity helped participants to apply the knowledge they learned from the Workshop.

FAO/IAEA (RCA) Workshop on Use of Irradiation to Ensure Quarantine Security of Food and Agricultural Commodities, Canberra, Australia, 18-22 March 2002

Under the scope of the RCA project on “The Application of Irradiation to Improve Food Safety, Security and Trade” (RAS/5/042), a regional workshop for Asia and the Pacific on “Use of Irradiation to Ensure Quarantine Security of Food and Agricultural Commodities” was held at Australian Quarantine Inspection Service (AQIS), Canberra, Australia, 18-22 March 2002. The objective of the Workshop was to provide relevant information on recent developments related to the use of internationally accepted research protocol leading to recognition of national regulatory authorities on irradiation as a phytosanitary treatment for fresh horticultural commodities in trade. The Workshop was attended by 33 participants and observers from 12 countries in Asia and the Pacific, most of whom are senior scientists, plant quarantine officials responsible for research on various phytosanitary treatments including irradiation to ensure quarantine security of horticultural commodities.

The Workshop consisted of lectures, demonstrations, discussions, case studies, with emphasis on irradiation as a phytosanitary treatment based on research protocol acceptable to regulatory authorities. The highlight of the Workshop was a trade trial of irradiated orchids coming from Thailand to Australia to meet quarantine requirements. The trial, done through commercial channels, was specially designed to demonstrate the effectiveness of irradiation as a quarantine treatment against *Thrips palmi*, a target pest of Australia. The participants participated in a laboratory demonstration of irradiation as a quarantine treatment against Queensland fruit fly, previously irradiated at different doses. They also visited several quarantine research and inspection facilities in the Sydney area.

FAO/IAEA Thematic Planning Meeting on Irradiation as a Sanitary and Phytosanitary Treatment for Food for the New Millennium, Vienna, 6-10 May 2002

In the last few years, there has been an increasing recognition of the importance of irradiation in the food industry and for trade in both developed and developing countries. Currently, over 50 countries have approved irradiated foodstuffs either for local consumption or export and over 30 countries are actually using the process in practice. The slow progress in acceptance of the technique can be attributed to the lack of harmonisation in national and international regulations, which to a large extent has influenced public perceptions, and in particular acceptance by the food industry. However, events such as the increasing incidents of food-borne disease outbreaks and the increasing public demand for food safety, the global phase-out of methyl bromide and other fumigants for controlling insect infestation of food and agricultural commodities, and the use of irradiation in postal services by the US Government for inactivating anthrax spores have brought irradiation back onto the global agenda.

In response to an anticipated upsurge of interest, the IAEA undertook a thematic planning meeting to seek the advice of a group of experts on the role of the Agency in this new

environment. The meeting culminated in a Thematic Plan, which proposes the way forward for the Agency in getting global acceptance of irradiation as a sanitary and phytosanitary treatment; acceptance, which would lead to a harmonisation of regulations, thus providing for an enabling environment.

The thematic plan identifies the key constraints and opportunities, proposes several strategies of how to address these constraints and then develop follow-up actions to expedite the role of irradiation to enhance food safety, security and trade. As a result of this meeting, it has become evident to the Agency that there is indeed growing demand for irradiation particularly as a sanitary or phytosanitary treatment that can promote and increase trade opportunities for developing countries.

The full report of the thematic plan will be published on the web site of ICGFI and Joint FAO/IAEA Division in the near future.

D. STATUS OF EXISTING COORDINATED RESEARCH PROJECTS (CRPs)

Quality Control Of Pesticide Products

Eighteen analysts from 14 countries are taking part in this project aiming to develop uniform detection conditions for the determination of the active ingredient content of commercial pesticide formulations in order to increase the output of the laboratories and reduce the cost of analysis.

The annual progress reports are expected to be submitted by 25 September 2002.

Impact of Long Term Pesticide Usage on Soil Properties Using Radiotracer Techniques

The proceedings of a Final RCM held in Zhejiang, Peoples' Republic of China, 24 -28 May 1999 were published as IAEA-TecDoc-1248. The general conclusion was that even the heavy and frequent rates of pesticide application used in cotton cultivation do not have drastic long term effects on the soil properties measured in this programme. Cotton is widely regarded as the crop which receives the heaviest pesticide treatment so this conclusion is reassuring. Other crops receive lower rates of application and newer pesticides are more specific and environmentally benign than those used here, so this programme does not provide evidence that registration requirements for data on effects of individual compounds on soil micro-organisms should be made more stringent. However, the lack of correlation between the various microbial activities confirms the importance of not relying on the assessment of a single process. The results give further support to the idea that more research is needed to understand the factors controlling the activities of soil micro-organisms. Until this has been done, the influence of a pesticide programme on soil fertility can really only be assessed through measurements of crop yield. For more information, visit the NAFA webpage (http://www.iaea.org/programmes/nafa/d5/public/d5_2032.html).

Validation of Thin Layer Chromatographic Screening Methods for Pesticide Residue Analysis

Participants of this CRP are currently preparing final reports drawing together data on method validation for specified analyte/commodity combinations, detailed description of the modification(s) of the method, a summary table containing the LOD, R_f values for detection methods and combined application of these TLC methods with GLC or HPLC for confirmatory or screening purposes. Reports will be published in a special issue of Journal of Environmental Science and Health Part B scheduled for April 2003. The results will be published jointly with those from the CRP on "Validation of Alternative Methods to Gas and High Performance Liquid Chromatography for Pesticide residue Analysis in Grains". For more information contact Arpad Ambrus (Arpad.Ambrus@iaea.org).

Classification of Soil Systems based on Transfer Factors of Radionuclides from Soil to Reference Plants

Many thanks to Josef Brodesser and to Zbigniew Radecki (AQCS Seibersdorf) for organizing the final interlaboratory proficiency. It is pleasing to note that all contract holders took part. Results will be circulated as soon as they are available. The 3rd RCM is tentatively scheduled for Greece, 15-19 September 2003.

Participants are invited to assist in updating Guidelines for Agricultural Countermeasures Following an Accidental Release of Radionuclides. If you have an Internet connection you can comment directly on each countermeasure reported in the Technical Report Series Publication 363. If you wish to participate contact Ian Ferris (I.G.Ferris@iaea.org). He will send you a username and password and instructions how to access and comment on specific countermeasures.

Evaluation of Methods of Analysis for Determining Mycotoxin Contamination of Food and Feed

This CRP is in the fourth year of operation with 13 research contracts and 4 research agreements collaborating from 15 countries. The CRP progress review after the 2nd RCM revealed good results produced as far as the efficacy and cost of the methods used are concerned. The participants have demonstrated an enthusiastic commitment to CRP activities. The results achieved still placed TLC method as a reliable means to detect mycotoxins in food and feed. Moreover, the possible re-use of appropriate IAC clean up (to purify the mycotoxin extract) drop the analytical cost to an affordable level for developing countries in particular. The overall assessment of the results (z-score) revealed a net increase of analyst skills by participating in FAPAS proficiency testing programme.

Use of Irradiation to Ensure Hygienic Quality of Fresh, Pre-Cut Fruits and Vegetables and other Minimally Processed Food of Plant Origin

This CRP was initiated in 2001 with 12 research contacts and 3 research agreements. The first RCM was held in Rio de Janeiro, Brazil, last November (see last issue). Since last year progress has been made in determining the feasibility of using irradiation to improve the microbiological safety of a number of fresh produce without affecting their sensorial and nutritional properties.

Irradiation to Ensure the Safety and Quality of Prepared Meals

This CRP was initiated at the end of 2001 and is in operation since early 2002 with participation of 15 scientists from Argentina, China, Ghana, Hungary, India, Indonesia, Israel, Republic of Korea, Malaysia, South Africa, Syria, Thailand, UK and USA. The specific objective of this CRP is to develop treatment protocols for irradiation of various prepared meals suitable for developing countries to ensure their microbiological safety and quality, through:

- Determination of radiation doses required to ensure microbiological safety and shelf-life extension of prepared meals stored under various conditions;
- Determination of acceptance of irradiated prepared meals by specific target groups;
- Standardize irradiation procedures to ensure high quality prepared meals to be marketed at different conditions.

The first RCM of this CRP was held in Vienna, 10-14 June 2002, and the results will be reported in the next issue.

E. INTERNATIONAL CONSULTATIVE GROUP ON FOOD IRRADIATION (ICGFI)

ICGFI Transitional Committee Meeting, Vienna, Austria, 15-17 January 2002

The mandate of ICGFI expired on 8 May 2002. At the request of the 18th Annual Meeting of ICGFI, Rome, October 2001, a Transitional Committee meeting, attended by representatives of governments, industries, academia, IAEA and WHO, was held in Vienna to draft a “Blueprint” of the organization to succeed ICGFI in 2004. Such a Blueprint was developed by the Committee with a recommendation that ICGFI be transformed into an International Commission on Food Irradiation (ICFI) and operate independently from FAO, IAEA and WHO with its own funding from membership fees. Members can be governments with voting rights and associate members consisting of industry, trade organizations, academia and research institutes and other non-governmental organizations, professional societies and regional governmental organizations with no voting rights. FAO, IAEA and WHO will be invited to participate in their advisory capacity.

The proposed Blueprint for ICFI will be considered at the 19th Annual Meeting of ICGFI, Vienna, 12-14 November 2002.

Status of revisions of the Codex General Standard for Irradiated Foods and Code of Practice by the Codex Committee on Food Additives and Contaminants (CCFAC)

1. Draft Revised Codex General Standard for Irradiated Foods

The 34th Session of the Codex Committee on Food Additives and Contaminants (CCFAC), Rotterdam, The Netherlands, 11-15 March 2002 discussed the Revised Codex General Standard for Irradiated Foods adopted at Step 5 in the Codex procedure by the 49th Session of the Executive Committee of the Codex Alimentarius Commission.

The major amendment to the existing General Standard related to deletion of the upper dose limit of 10 kGy as proposed by ICGFI in the light of the Report of the FAO/IAEA/WHO Study Group on High Dose Irradiation. During discussion on this topic, the delegate of the Philippines proposed to delete the reference to an upper limit of 10 kGy, which appeared in square brackets in Section 2.2 – Absorbed Dose. This recommendation was supported by Argentina, Australia, Brazil, China, India and ICGFI, while the delegate of Spain, on behalf of the EC, proposed to retain the reference without square brackets because of toxicity concerns for 2-alkylcyclobutanones. It was stated that an assessment being undertaken by the EC Scientific Committee for Food (SCF) was not yet complete and while the Representative of the EC was unable to give a date when the final report would be available, it will be published, made available to all concerned, and the data can be used by JECFA for further assessment.

In this context, it needs to be pointed out that the SCF had in fact already considered the report on cyclobutanone study at its meeting held during 25-27 February 2002 and published on 1 March 2002 as evidenced from the “Minutes” statement adopted by the Scientific Committee on Food at its 131st plenary meeting (25-27 February 2002) corresponding to item 14 of the agenda, Food Irradiation, 14.1. Consideration on 2-alkylcyclobutanones. In fact, the SCF report states “The Committee identified a number of issues in the report that need further clarification and evaluation as to the interpretation of the studies and their relevance for the risk assessment of food irradiation. The Committee noted that the studies in the report were not of the type usually required for the safety assessment of toxicological effects from exposure to chemicals”.

Sweden questioned the need to delete the overall average dose of 10 kGy as there were no applications known above 10 kGy which would have an effect on international trade. However, the delegate of Australia noted that they had recently approved irradiation of herbs and spices up to a dose of 20 kGy. Consumers International suggested that it would be useful if countries could provide more information on their use of high dose food irradiation in order to facilitate the justification of technological need.

The WHO Representative noted that the FAO/IAEA/WHO Study Group conclusion that food irradiated to any dose appropriate to achieve the intended technical objective was both safe to consume and nutritionally adequate was still valid as no credible scientific evidence has been provided to the contrary. He noted that concerns about the safety of cyclobutanones reported in a recent EC-sponsored study could not be substantiated because the three organizations could not obtain a copy of the report for review. However, he emphasized that WHO was willing to re-open any risk assessment if new evidence indicated a public health risk. He informed the Committee that the FAO/WHO Joint Expert Committee on Food Additives (JECFA) would be able to consider the study at its meeting in June 2002 if it could be made available in the near future.

Because of the volume of comments received, the 34th CCFAC agreed to suspend further discussion and to request a drafting group led by the Philippines and assisted by Australia, China, France, Germany, India, Japan, Korea, Poland, Sweden, Thailand, United Kingdom, United States, CI, EC, ICGFI, FAO and WHO to revise the current Standard on the basis of written comments submitted and the committee’s discussion for circulation, additional comment and further consideration at its next meeting.

2. Proposed Draft Revised Recommended International Code of Practice for Radiation Processing of Food

The 33rd CCFAC decided that the Recommended International Code of Practice for Radiation Processing of Food would be revised by the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture based on the Committee’s discussions and written comments

submitted for circulation, comment and further consideration at its next Session. The 49th Session of the Executive Committee of the Codex Alimentarius Commission approved the elaboration of the proposed draft revised Code of Practice as new work. The 34th CCFAC considered the Proposed Draft Revised Recommended International Code of Practice for Radiation Processing of Food.

The Representative of the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture introduced the comments submitted by the EC and the USA. She noted that the comments improved the text and were mainly editorial in nature except for the proposed changes in Sections 5.3.5 and 6.3. In addition, she noted that a proposal by the EC to amend Section 8 Labelling could only be made after agreement was reached on labelling requirements in General Standard for Irradiated Food and in consultation with the Codex Committee on Food Labelling.

The Proposed Draft Revised Recommended International Code of Practice for Radiation Processing was suitably modified based on the written comments and discussions during the meeting.

F. TRAINING AND REFERENCE CENTRE (TRC)

The 4th FAO/IAEA Training Workshop on the Introduction of Quality Assurance/Quality Control Measures in Pesticide Residue Analytical Laboratories

The 4th Inter-Regional Workshop was organized in Vienna/Seibersdorf in the Agrochemicals Unit of the FAO/IAEA Agriculture and Biotechnology Laboratory between the 17th of June and the 26th of July 2002. It was attended by 22 participants from 19 countries: Argentina, Chile, Chile, Costa Rica, Ghana, Hungary, India, Iran, Kenya, Lebanon, Morocco, Namibia, Rwanda, Sri Lanka, Thailand, Tunisia, Turkey, Uganda and Uzbekistan. More than 70 nominations from 40 countries were received through the FAO Representatives, the National Atomic Energy Agencies and Agriculture Ministries. Priority was given to those participants whose institutes fully or partially supported them. Interested fellows studying at the IAEA Seibersdorf Laboratories also attended the theoretical presentations.

The current international agreements require that only accredited laboratories provide the certification of pesticide residue content of commodities moving in international trade.

Training Courses on Mycotoxin Analysis

In the framework of IAEA Technical Co-operation Projects, IAEA fellowship training courses on mycotoxin methodologies, method validation, QA/QC and ISO 17025 principles will take place at IAEA Laboratories, Agrochemicals Units, Seibersdorf (Austria), from 15 August 2002 to 15 February 2003. These courses are targeted for food analysts/inspectors and research scientists from Nigeria and Malaysia. The format of these 6-month courses will consist of plenary lectures, laboratory training activities, group exercises, and conducting projects. In addition, the trainees will be provided with relevant educational materials, including documentation, hand outs and other training materials.

INFOCRIS/Distance learning

Meetings were held with UNEP, UNITA and WHO about the development of distance learning modules under INFOCRIS (<http://www-infocris.iaea.org>). There was strong inter-agency support for the initiative. The National University of Singapore was identified as a potential partner to offer courses in English and possibly Mandarin. Preliminary discussions will be followed up in December 2002. The idea is that successful completion of a module would earn credits towards an M.Sc. This would help overcome a barrier and open up possibilities for life-long learning irrespective of geographical location. The Universidad de la República Montevideo, Uruguay is collaborating on the development of the distance learning modules and may be involved in the delivery of course material in Spanish. Potential course material has been identified, including pesticide analysis, method validation, quality management, use of pesticides/diagnosis and treatment of pesticide poisoning, and analytical toxicology and food irradiation. It was agreed that the first step is prototyping the distance learning modules and using these tools in the second half of 2002 to publish pilot modules. Distance learning offers an innovative approach to capacity building from production to consumption. However, editors and sponsors are needed to build up the content of INFOCRIS on which the various curricula will draw. The agreement reached in May 2002 to include Codex analytical methods under the method validation reporting service is an important step forward. If you would like to adopt or submit method validation data contact Arpad Ambrus (Arpad.Ambrus@iaea.org) or Ian Ferris (I.G.Ferris@iaea.org).

G. PUBLICATIONS

- Impact of long-term pesticide usage on soil properties using radiotracer techniques. Proceedings of a Final Research Coordination Meeting, 24-28 May 1999, IAEA-TECDOC-1248, 189 p. (November 2001).
- Natural and induced radioactivity in food, IAEA-TECDOC-1287, April 2002.

FAREWELL STATEMENT

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Head

Food and Environmental Protection Section

By the time this newsletter is printed, I will be **former** Head of the Food and Environmental Protection Section, a position which I held with great pride in the past 17 years.

As a keen golfer, I would like to refer to the statement by Jack Niklaus when he retired from his last US Open competition in 2001 (which he had competed consecutively for 40 years): “A good thing has to come to an end sometime”.

Over the past 27 years which I have worked for the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, including 17 years as Chief Secretariat to ICGFI, I can not help feeling great satisfaction with the achievements of food irradiation in the past three decades and proud that I had an honour to play a central role in many respects in these achievements.

Proud: As a scientist from a developing country, having served two UN organizations for more than 27 years- including 17 years as Head of the Food Preservation Section and Head of the Food and Environmental Protection of the Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, and as Chief Secretariat of ICGFI established under the aegis of FAO, IAEA and WHO in 1984- was just like a dream. I have witnessed many ups and downs on food irradiation during these many years and the increasing acceptance and application of food irradiation in more recent years. In particular, I take great pride in seeing that the work which I initiated under ICGFI during its early days, i.e. use of irradiation to ensure hygienic quality of food, and irradiation as a quarantine treatment of fresh fruits and vegetables, and consumer acceptance of irradiated food, has been a great success. It gave me great satisfaction when I noted that many governments had followed a number of my recommendations, especially in regulating irradiated food on a basis of food classes instead of by individual food items.

Exhaust: Many of you who are familiar with food irradiation no doubt know that it takes an extra effort, a much longer time, to convince a lot more people, and do more things for a sensitive technology such as food irradiation to be accepted. Together with many colleagues and friends who believe in food irradiation (notably ICGFI national contact points and designated experts), we had to combat negligence, political opposition or even outright lies against food irradiation using many well prepared activities, documentations and meetings/workshops sponsored by both FAO/IAEA and ICGFI. Working in food irradiation requires a tremendous stamina not only to get the work done but also to outlast many of the opponents. For example, during the early 1990's when food irradiation was about to take off in the USA, I made numerous trips to the USA at the request of the US authorities to work closely with them in putting proper regulations in place amidst controversies surrounding the technology. Similar things happened in ASEAN countries during the mid 1990's. During the last two decades, tremendous efforts were made to overcome the opponents of food irradiation from different sectors to nullify or neutralize their statements or actions. Believe me, it was a daunting task and I lost a lot of valuable time and sleep through such actions!

Challenges: From my many visits to so many countries, many meetings which I attended, thousands of people whom I met (many have become personal friends), I would like to share with you the following challenges:

1. There are many opportunities for irradiation to enhance the safety, quality and availability of food in many countries. These opportunities are scattered in different environments. We should try to identify these opportunities, and develop realistic strategies to demonstrate the benefit of food irradiation to many stakeholders worldwide.

2. There is an increasing recognition of ICGFI as a legitimate international advisory body to governments, the food industry and even to consumer organizations. The role of ICGFI has gained respect and likely to expand. Such a momentum on international co-operation should not be lost.

3. It is important that we develop and maintain the position of food irradiation, now and in the future, to meet the increasing needs of the governments, the food industry and the public. The move to make ICGFI an independent organization with expertise on food irradiation in the area of food safety, food security and food trade with active participation by the private sector and with FAO, IAEA and WHO participating in their advisory capacity, should be realized by 2004.

4. In the past 4 years, in addition to my full time activities on food irradiation I was asked to co-ordinate activities related to strengthening analytical capacities for various food contaminants (pesticide residues, mycotoxin, microbiological and radionuclides) affecting trade. This added another perspective to my professional career as I had to be up-to-date on various methodologies used for analysing these contaminants as well as those related to international standards and agreements affecting trade. Fortunately, many of these standards and agreements are the same as those which I handled for food irradiation activities. I learned a great deal on matters related to food contaminants and introduced new concepts to the work of FAO/IAEA Training and Reference Centre for Food and Pesticide Control in its future plans.

Gratitude: It is difficult for me to express my sincere gratitude to the active and generous support which many governments, research and other organizations had accorded me in the past many years. Neither could I find words powerful enough to express my gratitude to thousands of scientists and officials all over the world for their dedication and their kind co-operation and support which, as a result, made my difficult tasks much easier. I would like to thank in particular my colleagues from FAO and WHO, who worked closely with me on ICGFI activities, for their cordial co-operation and most helpful to the work of ICGFI.

More than a decade ago, I promised myself that when the time comes for me to retire from my post at the IAEA, I wanted to make sure that irradiated food is widely accepted and that international trade in irradiated food would already occur. My promise has been partially fulfilled, i.e. irradiated food is increasingly accepted and international trade in such food is about to begin. To ensure that the goal which I had set for myself some years ago will be met, I will continue to work in the field of food irradiation as an independent scientist for some time until my personal goal has been met.

Colleagues and friends, let me assure you that retiring from the IAEA does not mean retiring from food irradiation. I trust that you will continue to accord me the same co-operation which I have enjoyed while I was with the IAEA to continue our international co-operation in the

field of food irradiation. Hopefully, being an independent scientist, I can get things done as well without going through bureaucracies which often occurred while I was with the IAEA.

For those of you who have been most helpful in my career and I may not come across again in the future as an independent scientist, may I express my heartfelt appreciation for all the assistance that you had given to me. To many of colleagues and friends who will continue to collaborate with me in my new capacity, I look forward to working even closer with you to make sure that our common objectives on food safety and food irradiation will be met. I count on your continued support.

I would like in particular to express my sincere appreciation to a few individuals who played an important role in my professional career:

- Dr. Harry E. Goresline (deceased) who introduced me to food irradiation.
- Dr. Karoly Vas (deceased) who brought me to the IAEA in 1974.
- Dr. Maurice Fried, First Director, Joint FAO/IAEA Division for recruiting me to this Division.
- Dr. Björn Sigurbjörnsson, Second Director, Joint FAO/IAEA Division, for promoting me to Head, Food Preservation Section in 1995.

May I thank most sincerely colleagues and friends of the current Food and Environmental Protection Section and of the former Food Preservation Section, for their energetic support of the activities of the Section and for their most cordial co-operation in carrying out the work of the Section. It was a personal pleasure to have worked with excellent and motivated scientists and officials of the Section. I am sure the new Head of the Section will enjoy the same kind of co-operation as that which I received by these colleagues.

Thank you.
Paisan Loaharanu
Former Head
Food and Environmental
Protection Section

IN MEMORIAM

1. Prof. Walter M. Urbain
Professor Emeritus
Michigan State University
East Lansing Michigan

Dr. Walter Urbain, one of the original pioneers on food irradiation research and development, passed away on 15 January 2002. He was 92. He is survived by Mrs. Ruth Urbain, his son Robert, his daughter Betsy, and several grandchildren.

Walter was an outstanding food scientist, an excellent professor and a true gentleman. He left behind a great contribution to food irradiation which he introduced to the scientific community in the USA and world-wide starting in the 1940's. Because of his foresight, the US government, especially the US Army and the former US Atomic Energy Commission, developed national programmes on food irradiation during the 1950's which led to the development of this technology on a global basis. His knowledge on food science and technology in general and food irradiation in particular was widely appreciated by his colleagues and friends. He was the scientific editor of the famous journal Food Technology, for several years. Several of his students (among them Drs. the late George G. Giddings, Bela Kalman (Hungary), Delio Baraldi (Italy) and myself) turned out to be leaders in the field of food irradiation in several countries.

Walter contributed greatly to the food irradiation programme of FAO and IAEA (International Atomic Energy Agency) since the early 1960's. He served as an expert in this field to both organizations on many occasions. He was the Director of the first FAO/IAEA International Training Course on Food Irradiation and Techniques held at Michigan State University in 1967, when he served as a professor of Food Science there. That work led him to prepare an International Training Manual on Food Irradiation Technology and Techniques in 1968 which was used for training hundreds of scientists and officials in all courses organized by FAO and IAEA even today.

When Walter decided to retire from MSU in the early 1970's and moved to Arizona, we kept in close contact, and I continued to benefit from his expertise on several occasions. It was a great honour to work with him when I joined the FAO/IAEA Division in Vienna in 1964. One of the biggest satisfactions of my career was when Walter joined me in this Division for a few months to work on food irradiation during the mid-1980's. He helped us develop an international certification programme called "Food Irradiation Process Control School" to educate operators of irradiation facilities and food inspectors on the proper application of this technology. The success of food irradiation today is a result of his dedication and determination on this subject.

Walter left behind a wealth of knowledge on food irradiation. His name will continue to be associated with the development of this technology. Many of his students, colleagues and

friends in many countries will always remember him for his great contribution to the work in this field which continues to be developed because of his pioneering work.

Paisan Loaharanu

Former Head

Food and Environmental Protection Section

Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture

2. **Dr. Irwin A. Taub**

Dr. Irwin A. Taub of Framingham, MA- a scientist and a leader in radiation chemistry of food.

Irwin A. Taub, a Senior Scientist at U. S. Army Natick Laboratories, Natick, Massachusetts, USA, died 23 February 2002 at Brigham & Women's Hospital in Boston after a one-year illness. He was 67.

Born and raised in Brooklyn, New York, he graduated from Queens College in New York, and earned his Ph.D. in Chemistry from the University of Minnesota. He worked on radiation chemistry at Argonne National Laboratory, Argonne, Illinois, and at the Radiation Research Laboratories, Mellon Institute, Carnegie Mellon University in Pittsburgh, PA, specializing in radiation chemistry of frozen systems before he in 1969 joined the National Food Irradiation Program at Natick Army Laboratories as head of the Radiation Sources Branch. He had a unique ability of applying theory of radiation chemistry of pure systems to complex practical problems in food irradiation. He and his co-workers at the Natick Laboratories (in cooperation with Prof. W. W. Nawar, Dr. M. Vajdi and J. Meidani of the University of Massachusetts, Amherst; late Prof. N. Catsimopoulos of MIT; Prof. M. Z. Hoffmann and K. D. Whitburn of Boston University; Prof. M. D. Sevilla and Dr. K. M. Morehouse of Michigan University; and W. M. Garrison, Lawrence Radiation Laboratory, University of California, Berkeley) demonstrated through qualitative and quantitative analyses that the radiation chemistry of food was predictable from the knowledge of the major components of food.

Many of Dr. Taub's coworkers at Natick Laboratories contributed to this field, especially the late Dr. Charles Merritt Jr. and his coworkers, such as Dr. Pio Angelini, Dr. J. W. Walker, Dr. J. J. Shieh. Together, they combined temperature-controlled gas chromatography, many kinds of liquid chromatography techniques, electron spin resonance analyses, and mass-spectrometric analyses with computers for analysing the huge amount of data. This involved also cooperation with pioneering computer companies, especially, Digital Technology. This pioneering work has had huge impact on the methods used for analysing components in food.

The Natick Group submitted the massive data for evaluation by the Life Sciences Research Office, Federation of American Societies for Experimental Biology. This Society formed a "Select Committee on Health Aspects of Irradiated Beef", which concluded that there were no grounds to suspect that the radiolytic compounds would constitute a hazard to health to persons consuming reasonable quantities of beef irradiated in the prescribed manner. This became a major milestone for general clearance of irradiated food processed by high doses.

The cooperation in food irradiation chemistry extended to European scientists: Professor J. Fritz Diehl of Federal Research Center for Nutrition, Karlsruhe, Germany, and chairman of the Scientific Program Committee for the International Project in the Field of Food Radiation

and to his co-workers Dr. Henry Delincée, Prof. D. A. E. Ehlermann, Dr. P. Balligand, Dr. S. Adam, and others. Also important was the contribution of Prof. Glyn O. Phillips, University of Salford, Salford, Lancs. U.K., Prof. J. J. Raffi, St. Jerome Faculty of Sciences, Marseilles, France, L. R. Saint-Lébe of Centre d'Etudes Nucléaires de Cadarache, France, Dr. R. A. Basson of High Energy Processing, Tzaneen of South Africa, and to Prof. H. J. van der Linde and Dr. M. Beyers of Chemistry Division, Atomic Energy Board, Pretoria, South Africa. This resulted in the “principle of chemiclearance” for demonstrating beyond reasonable doubt that properly preserved irradiated food is safe, wholesome and nutritious. In all this, Dr. Irwin A. Taub was an important team player.

He served also as consultant and science advisor to the World Health Organization, as well as to the Joint Division of the Food and Agricultural Organization and International Atomic Energy Agency. In 1999, Dr. Taub edited for the World Health Organization a unique monograph on “High-Dose Irradiation: Wholesomeness of Food Irradiated with Doses above 10 kGy”, a Report of FAO/IAEA/WHO Study Group on High-Dose Irradiation (Wholesomeness of Food Irradiated with Doses above 10 kGy).

Dr. Taub was active in American Chemical Society, Institute of Food Technologists, the American Nuclear Society, and in many community affairs.

Dr. Taub’s many co-workers in the United States and abroad will miss him.

He leaves his wife, Barbara (Cohen) Taub, daughter Sarah Taub, son Mitchell Taub and his wife Janet and their son Samuel Taub.

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