THE REGULATORY ENVIRONMENT FOR FOOD IRRADIATION

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39th Annual Meeting of the
Japan Research Association For Food Irradiation (JRAFI),
Tokyo, Japan, December 2, 2003
THE NATURE OF FOOD IRRADIATION REGULATIONS

SIGNIFICANT DEVELOPMENTS IN COUNTRY REGULATIONS

NEW INTERNATIONAL STANDARDS PASSED BY THE CODEX ALIMENTARIUS COMMISSION AND THE INTERNATIONAL PLANT PROTECTION COMMISSION IN 2003

THE MODIFICATION OF THE CODEX GENERAL STANDARD FOR IRRADIATED FOOD AND THE ISSUE OF 2 ALKYLICYCLOBUTANONES.
IMPORTANCE OF REGULATIONS

REGULATIONS PROVIDE;

- AN ENABLING ENVIRONMENT FOR TRADE
- A BASIS FOR CONSUMER ACCEPTANCE OF THE PRODUCT
- A GUIDELINE FOR INDUSTRY’S USE OF THE TECHNOLOGY
COUNTRIES WITH REGULATIONS

- About 40 countries have food irradiation regulations.

- Some of these countries are the following:
  - Australia, Brazil, Bangladesh, Canada, China, Croatia, Turkey, EU, Indonesia, India, Israel, Korea, Malaysia, Pakistan, Poland, Peru, Singapore, Syria, Thailand, Turkey, United States.

  EU – Belgium, France, Germany, The Netherlands, UK
REGULATIONS FOR FOOD IRRADIATION

IN MOST COUNTRIES, FOOD IRRADIATION IS REGULATED LIKE A FOOD ADDITIVE.

AN APPROVAL IS REQUIRED FOR EVERY FOOD ITEM TREATED FOR A SPECIFIED PURPOSE.
## SPECIFIC AUTHORIZATIONS FOR IRRADIATED FOODS IN THE UNITED STATES

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>PURPOSE</th>
<th>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pork carcasses</td>
<td>control of Trichinella spiralis</td>
<td>0.3 – 1.0 kGy</td>
</tr>
<tr>
<td>or fresh non-heat processed cuts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poultry, whole</td>
<td>control of food-borne pathogens</td>
<td>not to exceed 3 kGy</td>
</tr>
<tr>
<td>Fresh or frozen, ready to cook, deboned</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerated or frozen uncooked ground meat, meat by-products</td>
<td>same as above</td>
<td>max. 4.5 kGy for refrigerated Max 7.0kGy for frozen</td>
</tr>
<tr>
<td>Others</td>
<td></td>
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</tbody>
</table>
EXCEPTION

COUNTRIES THAT ADOPT THE ICGFI MODEL REGULATION FOR FOOD IRRADIATION

THE ICGFI MODEL REGULATION RECOMMENDS APPROVAL OF IRRADIATED FOODS BY CLASS OF FOOD AND PURPOSE OF TREATMENT

ICGFI – INTERNATIONAL CONSULTATIVE GROUP ON FOOD IRRADIATION. A GROUP OF GOVERNMENT DESIGNATED EXPERTS OPERATING UNDER THE AEGIS OF FAO/WHO/IAEA
<table>
<thead>
<tr>
<th>CLASSES OF FOOD</th>
<th>PURPOSE OF TREATMENT</th>
<th>TECHNOLOGICAL DOSE RANGE (kGy)</th>
<th>Reference to ICGFI Document No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1: Bulbs, roots and tubers</td>
<td>Inhibit sprouting</td>
<td>0.05</td>
<td>8</td>
</tr>
<tr>
<td>Class 2: Fresh fruits and vegetables (other than Class 1)</td>
<td>a) delay ripening</td>
<td>0.2</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>b) shelf-life extension</td>
<td>1.0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>c) quarantine control*</td>
<td>0.15</td>
<td>7, 13, 17</td>
</tr>
<tr>
<td>Class 5: Raw poultry and meat and their Products</td>
<td>a) reduction of pathogenic micro- products</td>
<td>1.0</td>
<td>4, 12</td>
</tr>
<tr>
<td></td>
<td>b) shelf life extension</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) control of infection by parasites</td>
<td>0.3</td>
<td></td>
</tr>
</tbody>
</table>
BASIS FOR THE
ICGFI MODEL REGULATION

It is possible to classify food products where the treatment is intended to achieve an identical technological purpose, according to similarity in kind and composition.

Different food items of similar composition give rise to similar radiolytic products.

Guidelines for the Authorization of Food Irradiation
Generally or by Classes of Food, ICGFI DOC NO 16, Vienna 1994
HARMONIZATION OF REGULATIONS THROUGH THE ICGFI MODEL REGULATION FOR FOOD IRRADIATION

ASEAN* MEMBER COUNTRIES
BRUNEI-DARUSSALAM, CAMBODIA, INDONESIA, LAO-PDR, MALAYSIA, MYANMAR, PHILIPPINES, SINGAPORE, THAILAND, VIETNAM.

THE RCA* MEMBER COUNTRIES
BANGLADESH, CHINA, INDIA, KOREA, PAKISTAN, SRI LANKA AND SOME ASEAN MEMBER COUNTRIES

ONLY A FEW OF THE ABOVE COUNTRIES HAVE COMPLETED ADOPTING THE ICGFI MODEL INTO NATIONAL REGULATIONS.

*ASEAN – ASSOCIATION OF SOUTHEAST ASIAN NATIONS
*RCA – REGIONAL COOPERATIVE AGREEMENT FOR TRAINING IN NUCLEAR TECHNIQUES IN FOOD AND AGRICULTURE
HARMONIZATION OF REGULATIONS

HAS ENCOURAGED COUNTRIES TO ADOPT THE ICGFI MODEL IN NATIONAL REGULATIONS

EXPECTED TO FACILITATE TRADE IN IRRADIATED FOODS BETWEEN MEMBER COUNTRIES.
REGULATIONS FOR FOOD IRRADIATION

MOST COMMON TYPES OF TREATMENT
OBJECTIVES AND FOOD ITEMS APPROVED

- FOR PATHOGEN CONTROL
  SPICES, HERBS, DRIED VEGETABLES, DRIED FRUITS
  FROZEN PRAWNS, FROG LEGS, FISH, SEAFOODS
  POULTRY MEAT
  GROUND BEEF, SAUSAGES
  TRADITIONAL FOODS, DIETARY SUPPLEMENTS

- FOR SPROUT INHIBITION
  ONIONS, GARLIC AND POTATOES
REGULATIONS FOR FOOD IRRADIATION

NUMBER OF COUNTRIES WITH REGULATIONS ALLOWING THE USE OF FOOD IRRADIATION IS LIMITED, REFLECTING THE LIMITED COMMERCIALIZATION OF THE PROCESS.

SCIENCE BASED INFORMATION HOWEVER FOR THE DEVELOPMENT OF REGULATIONS ON FOOD IRRADIATION IS EXTENSIVE, MORE THAN ANY OTHER FOOD PROCESS.
DEVELOPMENTS IN REGULATIONS FOR FOOD IRRADIATION

DEVELOPMENTS IN THE UNITED STATES

THE US IN 1997 ALLOWED THE USE OF IRRADIATION FOR THE CONTROL OF PATHOGENS AND THE EXTENSION OF SHELF LIFE OF REFRIGERATED OR FROZEN, UNCOOKED GROUND MEAT PRODUCTS AND MEAT BYPRODUCTS. 
(Code of Federal Register Title 21, vol3, Revised as of April 1, 2002)

DOSE:
FOR REFRIGERATED PRODUCTS NOT TO EXCEED 4.5 kGy
FOR FROZEN PRODUCTS, NOT TO EXCEED 7 kGy
DEVELOPMENTS IN THE UNITED STATES


THE REGULATION SPECIFIES A PROPOSED DOSE FOR 11 FRUIT FLIES OF 150 – 250 GRAY AND FOR THE MANGO SEED WEEVIL OF 100 GRAY

THE DOSE SHOULD BE SUFFICIENT TO PREVENT ADULT EMERGENCE OF EACH SPECIES OF FRUIT FLY IN FRUIT AND VEGETABLES.
DEVELOPMENTS IN AUSTRALIA

POSITIVE DEVELOPMENTS IN AUSTRALIA

AUSTRALIA LIFTED ITS MORATORIUM ON FOOD IRRADIATION IN 1999

IN 2003 IT APPROVED THE IRRADIATION OF A RANGE OF TROPICAL FRUITS AS A PHYTOSANITARY MEASURE

THESE FRUITS ARE BREADFRUIT, CARAMBOLA, CUSTARD APPLE, LITCHI, LONGAN, MANGO, MANGOSTEEN, PAPAYA AND RAMBUTAN
BENEFITS OF IRRADIATION AS A PHYTOSANITARY MEASURE

IT WILL MINIMIZE THE DESTRUCTIVE EFFECTS OF HEAT TREATMENTS, COLD AND FUMIGATION.

IT WILL ALLOW TREATMENT OF FRUITS AT A LATER STAGE OF RIPENESS WHICH LEADS TO BETTER QUALITY FRUITS AT TABLE RIPE STAGE.

BECAUSE OF ITS PENETRATION INTO THE FRUIT IT IS EFFECTIVE FOR CERTAIN TYPES OF PESTS SUCH AS THE MANGO SEED WEEVIL, FOR WHICH OTHER TREATMENTS ARE NOT EFFECTIVE.
DEVELOPMENTS IN CANADA

PROPOSED NEW REGULATIONS INVOLVE CLEARANCES FOR POULTRY, SHRIMP AND MANGOES

CURRENTLY ONLY SPICES ARE IRADIATED IN COMMERCIAL VOLUMES IN CANADA
DEVELOPMENTS IN
THE EUROPEAN UNION

DIRECTIVE 1992/2/EC COVERS
GENERAL AND TECHNICAL ASPECTS
LABELLING
CONDITIONS FOR AUTHORISING FOOD
IRRADIATION

DIRECTIVE 1999/3/EC COVERS
ESTABLISHMENT OF A COMMUNITY LIST OF
FOODS AND FOOD INGREDIENTS
THAT CAN BE TREATED.
DEVELOPMENTS IN THE EU ....

FAILED TO COMPLETE THE “POSITIVE LIST” OF PRODUCTS ALLOWED TO BE SOLD IN THE EU BY THE YEAR 2000 DEADLINE.

THE CURRENT LIST ALLOWS ONLY “DRIED SPICES, HERBS, AND VEGETABLE SEASONING, TO BE IRRADIATED.

BELGIUM, GERMANY, ITALY, NETHERLANDS, THE UK WERE ALLOWED TO MAINTAIN THEIR NATIONAL AUTHORIZATIONS FOR CERTAIN FOODS.
OPINION OF THE ECONOMIC AND SOCIAL COMMITTEE OF THE EU

TECHNICAL NEED – THE PREVAILING SCIENTIFIC VIEW IS THAT IRRADIATION IS TECHNICALLY NECESSARY PARTICULARLY TO REPLACE USE OF CHEMICALS

SAFETY - PREVAILING SCIENTIFIC OPINION IS THAT IRRADIATED FOODSTUFFS POSE NO DANGER TO THE CONSUMER
DETECTION - ANALYTICAL METHODS ARE NOW AVAILABLE TO IDENTIFY VIRTUALLY EVERY CASE OF IRRADIATED FOOD.

FACILITIES - AUTHORIZED REGISTERED FACILITIES ARE LISTED
HOWEVER

CONSUMER ORGANIZATIONS ARE VERY CRITICAL OF FOOD IRRADIATION.

THEY BELIEVE THAT IF PROPER HYGIENE PRACTICES ARE FOLLOWED, THE TECHNOLOGY IS NEITHER TECHNOLOGICALLY WORTHWHILE NOR NECESSARY.
RECOMMENDATION OF THE ECONOMIC AND SOCIAL COMMITTEE OF THE EU

“IN VIEW OF THE CONCERNS HARBORED BY SOME SECTIONS OF THE POPULATION, IRRADIATION SHOULD BE HANDLED CAUTIOUSLY “
DEVELOPMENTS IN THE EU ....

THE EU HAS BECOME A RESTRICTED MARKET

CURRENTLY IT ALLOWS ONLY THE IRRADIATION OF DRIED SPICES, HERBS AND VEGETABLE SEASONINGS

SOME COUNTRIES LIKE DENMARK WHICH WAS AUTHORIZED TO IRRADIATE FOODS UNDER PREVIOUS NATIONAL AUTHORIZATIONS AGREED TO STOP.

NEW COUNTRIES JOINING THE EU ARE ALSO CLOSING THEIR WORK ON THIS TECHNOLOGY (20TH ICGI MEETING NOVEMBER 2003)
LESSONS FROM THE EU SITUATION
REGULATIONS AND CONSUMER ACCEPTANCE

1. REGULATIONS SHOULD BE SCIENCE BASED TO BE WORKABLE.

2. STRICTLY SCIENCE BASED REGULATIONS THAT ARE NOT ACCEPTABLE TO THE PUBLIC WILL ALSO NOT BE WORKABLE
LESSONS FROM THE EU SITUATION, REGULATIONS AND CONSUMER ACCEPTANCE

3. WHERE RECOGNITION OF BENEFIT TO CONSUMERS IS WEAK, ACCEPTANCE WILL BE WEAK.

THE SCIENTIFIC BASIS FOR FOOD IRRADIATION REGULATIONS IS EXTENSIVE. BUT RECOGNITION OF CONSUMER BENEFITS IS POOR.

4. BENEFITS TO CONSUMER VARIES BETWEEN COUNTRIES AND MAKES HARMONIZATION OF REGULATIONS AND UNIFORM ACCEPTANCE OF THE TECHNOLOGY DIFFICULT.
LESSONS FROM THE EU SITUATION
REGULATIONS AND CONSUMER ACCEPTANCE

5. DIFFICULTY IN CONSUMER ACCEPTANCE AND
REGULATIONS ALSO ARISE
BECAUSE IRRADIATED FOODS IS
WITHOUT AN EXTENSIVE HISTORY OF USE
FOR HUMAN CONSUMPTION

IT THEREFORE BECOMES
POSSIBLE TO ARGUE THAT RISKS NOT YET
IDENTIFIED BY SCIENCE EXISTS.

IT IS A LEGITIMATE ARGUMENT BUT
OUTSIDE A SCIENTIFIC RESPONSE.
DEVELOPMENTS IN INTERNATIONAL STANDARDIZATION

CODEX GENERAL STANDARD FOR IRRADIATED FOOD 2003

CODEX RECOMMENDED INTERNATIONAL CODE OF PRACTICE FOR RADIATION PROCESSING OF FOOD 2003

CODEX AND IPPC

CODEX ALIMENTARIUS COMMISSION - AN INTERNATIONAL STANDARDS MAKING BODY FOR THE PROTECTION OF CONSUMER HEALTH AND FAIR TRADE. ORGANIZED BY FAO /WHO, HAS 169 MEMBERS

IPPC – AN INTERNATIONAL STANDARDS MAKING BODY PREPARING STANDARDS AND GUIDELINES FOR THE PROTECTION OF PLANT HEALTH. ORGANIZED UNDER FAO.

STANDARDS OF CODEX AND THE IPPC ARE RECOGNIZED BY THE WORLD TRADE ORGANIZATION.
THE STANDARDS WERE DRAFTED BY THE CODEX COMMITTEE ON FOOD ADDITIVES AND CONTAMINANTS (CCFAC),

TECHNICAL ADVISE WAS PROVIDED AS OBSERVER, BY THE INTERNATIONAL ATOMIC ENERGY AGENCY.
ORIGINS OF THE CODEX STANDARDS


THE CODEX RECOMMENDED INTERNATIONAL CODE OF PRACTICE FOR THE RADIATION PROCESSING OF FOOD WAS NEW WORK AT CCFAC

• Food irradiated to any dose appropriate to achieve the intended technological objective is both safe to consume and nutritionally adequate.

• This conclusion is based on extensive scientific evidence.
MODIFICATION OF THE CODEX GENERAL STANDARD

THE 1983 STANDARD STATED THE FF:

“THE OVERALL AVERAGE DOSE ABSORBED BY A FOOD SUBJECTED TO RADIATION PROCESSING SHOULD NOT EXCEED 10 kGy.”

BASIS:

MOST OF THE WORK ON SAFETY OF IRRADIATED FOOD IN 1983 WAS CARRIED OUT AT 10 kGy.

AMONG OBJECTIVES FOR MODIFICATION OF STD:

MODIFICATION OF THE CODEX GENERAL STANDARD

1999 STANDARD WAS INTRODUCED

2000 PROGRESS ON THE MODIFICATION WAS STOPPED FOLLOWING UNPUBLISHED REPORTS THAT AN EC FUNDED STUDY SHOWED THAT 2 ALKYLCYCLOBUTANONES FORMED FROM IRRADIATION OF FAT CONTAINING FOODS WERE TOXIC.

QUESTIONS RAISED:
1) IDENTITY AND PURITY OF 2-DCB USED FOR THE TEST
2) NON-USE BY AUTHORS OF TEST PROCEDURES WIDELY ACCEPTED FOR ASSESSING FOOD SAFETY

2001 NEW STUDY WAS CONDUCTED BUT RESPONDED ONLY TO # 1) OF TWO QUESTIONS RAISED ABOVE. NO PROGRESS AT CCFAC PENDING REVIEW BY THE EC SCIENTIFIC COMMITTEE ON FOOD.
DESCRIPTION OF STUDY


TO EVALUATE THE TOXICOLOGICAL PROPERTIES OF 2-ALKYLCYCLOBUTANONES (2-ACB)

2-ACB’S ARISE FROM IRRADIATION OF FAT CONTAINING FOODS. WERE CONSIDERED POSSIBLE MARKERS FOR THESE FOODS SINCE 1992.

THE PROJECT DEVELOPED METHODS OF SYNTHESIS

TO PREPARE STANDARDS FOR GC-MS ANALYSIS

TO PREPARE ADEQUATE AMOUNTS OF PURE SUBSTANCES TO CARRY OUT TOXICOLOGICAL TESTS
STATEMENT OF THE
EC SCIENTIFIC COMMITTEE ON FOOD
JULY 3, 2002

THE ADVERSE EFFECTS NOTED REFERS ALMOST ENTIRELY TO *IN VITRO* STUDIES.
GENOTOXICITY OF 2-ACB’S HAS NOT BEEN ESTABLISHED BY THE STANDARD GENOTOXICITY ASSAYS.

IT IS NOT APPROPRIATE ON THE BASIS OF THESE RESULTS TO MAKE A RISK ASSESSMENT FOR HUMAN HEALTH ASSOCIATED WITH THE CONSUMPTION OF 2-ACB’S IN IRRADIATED FAT CONTAINING FOODS
STATEMENT OF THE 
EC SCIENTIFIC COMMITTEE ON FOOD 
JULY 3, 2002

“REASSURANCE AS TO THE SAFETY OF 
FAT CONTAINING FOODS CAN BE BASED ON THE 
RESULTS OF A LARGE NUMBER OF FEEDING TESTS 
CARRIED OUT WITH IRRADIATED FOODS WHICH 
FORMED THE BASIS OF THE WHOLESOMENESS 
ASSESSMENT OF WHO/FAO/IAEA”

(WHO 1981. TECHNICAL REPORT SERIES NO 659 
WHOLESONENESS OF IRRADIATED FOOD. 
REPORT OF A JOINT FAO/WHO/IAEA EXPERT COMMITTEE)

ABOVE REFERENCE IS NOT THE SAME AS 
WHO 1999. TECHNICAL REPORT SERIES 890. REPORT OF 
A JOINT FAO/WHO/IAEA STUDY GROUP ON THE 
WHOLESONENESS OF FOOD IRRADIATED ABOVE 10 kGy.
STATEMENT OF WHO (NOV 2002)

1997 STUDY GROUP WAS AWARE OF CONCERNS ABOUT 2-DODECYLCYCLOBUTANONES (2-DCB’S) BUT QUESTIONED RELIABILITY OF STUDIES DUE TO EXPERIMENTAL DEFICIENCIES INCLUDING;

1) SYNTHESIZED 2-DCB HANDLED UNDER CONDITIONS THAT MAY HAVE PROMOTED DECOMPOSITION. ACTUAL IDENTITY OF THE COMPOUNDS USED WERE NOT VERIFIED BEFORE THE TESTS.

2) THE COMET ASSAY IS NOT ACCEPTED AS A BASIS FOR ASSESSING GENOTOXICITY AT THIS TIME.

3) THE NUMBER OF TEST ANIMALS WAS LIMITED TO 6 THE NUMBER OF 2-DCB DOSE LEVELS WAS LIMITED TO 2

4) THE DISTRIBUTION ERRORS BASED ON THESE MEASUREMENTS WAS NOT STATISTICALLY CONSISTENT.
1997 STUDY GROUP ON HIGH DOSE IRRADIATION
CONSIDERED THAT SAFETY OF FAT CONTAINING
FOODS CONTAINING 2-DCB’S, HAD BEEN DEMONSTRATED
BY STUDIES CONDUCTED BY RALTECH LABORATORY
IN 1970

THE STUDIES REPORTED THAT CHICKEN IRRADIATED
AT HIGH DOSES AND USING
CHRONIC FEEDING STUDIES, TERATOLOGY STUDIES
AND A SERIES OF IN VITRO TESTS SHOWED NO
EVIDENCE OF ADVERSE EFFECTS DUE TO IRRADIATION.

CHICKEN IRRADIATED AT 50 kGy AT –30 C WOULD HAVE
ABOUT 1.5 UG OF 2-DCB
STATEMENT OF WHO (2002) CONT’D

NEW STUDIES CARRIED OUT IN 2001 STILL INCLUDED THE QUESTIONABLE COMET ASSAY AS WELL AS OTHER TESTS.

NEW STUDIES FAILED TO INCLUDE TEST PROCEDURES ACCEPTED FOR ASSESSING FOOD SAFETY WIDELY
RECENT REPORT (HORVATOVICH, P et.al. JOURNAL OF FOOD PROTECTION 64:10 2002) RATS WERE FED 1 MG 2-TETRADECYL OR 2-TETRADECENYL-ALKYLCYCLOBUTANONE IN DRINKING WATER. THE STUDY SHOWED THAT AT THE END OF 4 MONTHS;

BODY WEIGHT GAIN WAS THE SAME FOR TREATED AND CONTROL RATS.

ONLY A VERY SMALL AMOUNT OF THE INGESTED DOSE WAS IN THE ADIPOSE TISSUE.

ONLY SMALL AMOUNTS WERE IN FECAL MATTER (0.1-0.2%). COMPOUNDS APPEAR TO BE RAPIDLY METABOLIZED IN RATS.

STUDY PROVIDES ASSURANCE THAT THESE COMPOUNDS ARE NOT OVERTLY TOXIC, DO NOT ACCUMULATE IN ADIPOSE TISSUE AND ARE METABOLIZED RAPIDLY.
IN VIEW OF THE GROWING BODY OF EVIDENCE INCLUDING NEGATIVE AMES TEST WITH 2-DCB THAT THESE COMPOUNDS POSE NO HEALTH RISK TO CONSUMERS

WHO HAS NO BASIS TO QUESTION THE CONCLUSIONS OF SEVERAL JOINT FAO/IAEA/WHO EXPERT GROUPS

AS WELL AS MANY NATIONAL EXPERT ADVISORY BODIES THAT IRRADIATED FOODS ARE SAFE AND NUTRITIONALLY ADEQUATE.
### MODIFICATION OF THE CODEX GENERAL STANDARD...CONT’D

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>March 2001</td>
<td>No progress at CCFAC EU recommended waiting for Statement of EC SCF</td>
</tr>
<tr>
<td>March 2002</td>
<td>CCFAC creates a drafting group for the modification of the general standard</td>
</tr>
<tr>
<td>July 2002</td>
<td>Statement of the EC Scientific Committee on food</td>
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<td>Nov 2002</td>
<td>Statement of WHO</td>
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<tr>
<td>March 2003</td>
<td>CCFAC adopts the standard</td>
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<tr>
<td>June 2003</td>
<td>CODEX Commissio adopts</td>
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THE CODEX GENERAL STANDARD FOR IRRADIATED FOOD 2003

MODIFIED FROM THE CODEX GENERAL STANDARD FOR IRRADIATED FOOD OF 1983

IT PROVIDES GUIDANCE ON

GENERAL REQUIREMENTS

HYGIENE OF IRRADIATED FOODS

TECHNOLOGICAL REQUIREMENTS

RE-IRRADIATION

LABELLING
THE CODEX GENERAL STANDARD FOR IRRADIATED FOOD 2003

UNLIKE THE 1983 STANDARD IT ALLOWS IRRADIATION OF FOODS ABOVE 10 kGy UNDER CERTAIN CONDITIONS.

I.E WHEN NECESSARY, TO ACHIEVE A LEGITIMATE TECHNOLOGICAL PURPOSE

SCIENTIFIC BASIS:

THE FINDINGS OF THE FAO/WHO/IAEA STUDY GROUP ON HIGH DOSE IRRADIATION.
THE CODEX GENERAL STANDARD
FOR IRRADIATED FOOD 2003
EXCERPT FROM SECTION 2.2 ABSORBED DOSE

FOR THE IRRADIATION OF ANY FOOD,

THE MINIMUM ABSORBED DOSE SHOULD BE
SUFFICIENT TO ACHIEVE THE
TECHNOLOGICAL PURPOSE

THE MAXIMUM ABSORBED
DOSE SHOULD BE LESS THAN THAT WHICH WOULD
COMPROMISE CONSUMER SAFETY, WHOLESOMENESS
OR WOULD ADVERSELY AFFECT STRUCTURAL INTEGRITY,
FUNCTIONAL PROPERTIES OR SENSORY ATTRIBUTES.

THE MAXIMUM ABSORBED DOSE DELIVERED TO A FOOD
SHOULD NOT EXCEED 10 kGy EXCEPT WHEN NECESSARY
TO ACHIEVE A LEGITIMATE TECHNOLOGICAL PURPOSE.
A NEW SECTION 6.4 ON POST IRRADIATION VERIFICATION

WHEN REQUIRED AND WHERE APPLICABLE, ANALYTICAL METHODS FOR THE DETECTION OF IRRADIATED FOODS MAY BE USED TO ENFORCE AUTHORIZATION AND LABELLING REQUIREMENTS. THE ANALYTICAL METHODS USED SHOULD BE THOSE ADOPTED BY THE CODEX COMMISSION.
THE CODEX GENERAL STANDARD FOR IRRADIATED FOOD 2003

REPRESENTS

A DELICATE ACCOMMODATION OF CONSUMER CONCERNS IN THE IMPLEMENTATION OF A NEW TECHNOLOGY VS CURRENT SCIENTIFIC EVIDENCE OF SAFETY.

REMAINING WORK AT CODEX

ANALYTICAL METHODS OF DETECTION APPLICABLE FOR USE BY DEVELOPING COUNTRIES REMAIN TO BE DEVELOPED TO FACILITATE TRADE
REVISION OF THE OPINION OF THE
SCIENTIFIC COMMITTEE ON FOOD
ON THE IRRADIATION OF FOOD

APRIL 24, 2003 SCF/CS/NF/IRR24 FINAL

AS THE TOXICOLOGICAL AND NUTRITIONAL DATABASE RELATING TO FOODS IRRADIATED BELOW 10 kGy HAS NOT BEEN ENLARGED TO ANY SIGNIFICANT DEGREE SINCE THE 1980 FAO/IAEA/WHO AND 1986 SCF REPORTS.

...IT IS NOT POSSIBLE TO DEVIATE FROM ITS EARLIER POSITION THAT ONLY THOSE SPECIFIC IRRADIATION DOSES AND FOOD CLASSES SHOULD BE ENDORSED FOR WHICH ADEQUATE TOXICOLOGICAL, NUTRITIONAL, MICROBIOLOGICAL AND TECHNICAL DATA ARE AVAILABLE.
REVISION OF THE OPINION OF THE SCIENTIFIC COMMITTEE ON FOOD ON THE IRRADIATION OF FOOD

THE HUMAN CLINICAL STUDIES WITH IRRADIATED FOODS, ALTHOUGH THEY DID NOT SHOW ANY ADVERSE EFFECTS, DO NOT PROVIDE A SUFFICIENTLY WIDE DATABASE TO SUPPORT A GENERAL EXTENSION OF IRRADIATION WITH DOSES UP TO 10 kGy.

THE ONLY TECHNOLOGICAL NEED RECOGNISED WOULD BE THE DECONTAMINATION OF SPICES, DRIED HERBS AND VEGETABLE SEASONINGS WHERE DOSES UP TO 30 kGy MAY BE NEEDED.
THE CODEX RECOMMENDED INTERNATIONAL CODE OF PRACTICE FOR THE RADIATION PROCESSING OF FOOD 2003

REPRESENTS A NEW VERSION OF WHAT WAS ORIGINALLY “THE (CODEX) RECOMMENDED INTERNATIONAL CODE OF PRACTICE FOR THE OPERATION OF IRRADIATION FACILITIES USED FOR THE TREATMENT OF FOODS. “

THE NEW CODE EMPHASIZES THE FOOD SAFETY ASPECTS AND INCLUDES PRACTICE OF HACCP AS IN THE CODEX RECOMMENDED INTERNATIONAL CODE OF PRACTICE-GENERAL PRINCIPLES OF FOOD HYGIENE.

THE OLD CODE EMPHASIZED THE OPERATION OF IRRADIATION FACILITIES.
FINAL STATEMENT

INTERNATIONAL STANDARDS WILL HOPEFULLY INCREASE THE VISIBILITY OF IRRADIATED FOODS IN THE MARKET AND BRING ABOUT CONSUMER AWARENESS THAT FOOD IRRADIATION IS A BENEFICIAL TECHNOLOGY.

IT CAN MAKE FOOD SAFER AND WHERE APPROPRIATE, REDUCE FOOD LOSSES.
WHILE THE SCIENTIFIC DATABASE ON THE SAFETY OF THE TECHNOLOGY IS EXTENSIVE, BEING A NEW FOOD PROCESS, CONSUMER ACCEPTANCE OF FOOD IRRADIATION CAN TAKE PLACE ONLY SLOWLY.

THE CONSUMER HAS TO BE CONVINCED THAT THE BENEFITS OUTWEIGH UNKNOWN RISKS...

....RISKS WHICH WE ACTUALLY LIVE WITH EVERYDAY
THANK YOU

JAPAN RESEARCH ASSOCIATION

FOR FOOD IRRADIATION