Packet 3

REF # 62 *

review in depth

DATA SUMMARY FORM FOR IRRADIATED FOODS

I. Study Identification

a. Study Title Do IRRADIATED FOODSTUFFS HAVE A RADIOMIMETIC effect? II. trials with mice fed on wheat meal irradiated at 5 mRad

b. Author's name/ Date BUGYAKI, L. DESCHREIDER, M. MOUTSCHEN, J. et al

c. Type of Report translation from French - published in ATOMPRAXIS, 14 HEFT 3 1968

d. Reviewer/ Date of Review M. van Gemert 12-23-81 HJ 12/30/81

e. FAIS Document Type & Number FMF 90 V3 pg 560

f. Testing Facility/ FAIS # Institute of Hygiene + Epidemiology - Brussels

g. Preliminary Evaluation Accept w Reservation

h. Reason for Rejection

i. Summary of Effects/ Irradiation Dose - decreased lifespan + young reaching maturity - cytogenetic changes, increased tumors + increased # of unviable litters

Comments table showing increased tumor incidence was not present except percents - 32% of animals treated showed tumors vs. 22% for controls

SEE WHO report in Effects Summary Section -

II. Experimental Design

a. Test Type/ Date/ FAIS Test Name Code Reproduction -14 Chronic -03

b. Test Subject Species/ FAIS Test Subject Code Mice -120

c. Test Subject Strain C57 Bl

d. Test Duration, Specified in Days

e. Group Size/ Sex 2 groups 10♀ 20♂ / group

f. Irradiation Conditions:

- Type of Food Irradiated Wheat
- Dose and Source 5 ~~krad~~/ Mrad gamma - Co^{60}
- Time after Irradiation 1 week, irradiated weekly 9
- Atmosphere NR
- Temperature NR

g. Controls:

- Basic Diet + 50% wheat ☒
- Non-irradiated Food ☒
- Cooked Food(incl.microwave) ☐
- Other(specify) ☐

h. Diet: Ref. #62 p82

- Composition Green
- Antioxidants
- Palatability
- Processing & Storage
- Dose of Irradiated Food 50 %

Comments: Vitamins administered weekly - A, D + E

III. Results:

Parameters Studied:		Effects Due to Irradiated Food
1. Appearance, Behavior	☐	
2. Body Weight	☒	
3. Food Consumption	☐	
4. Hematology	☒	
5. Blood Chemistry	☐	
6. Urinalysis	☐	
7. Mortality	☐	
8. Gross Pathology	☐	
9. Organ Weights	☒	None
10. Histopathology	☒	
11. Tumor Incidence	☒	Incidence of tumors - higher in treated group + types of tumors were different -
12. Reproduction	☐	
13. Teratology	☐	
14. Other(specify) Cytogenetics -	☐	

Comments:

treated group may show decreased life span + decreased # of young mice reach sexual maturity.

Ref #62
pg 3

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS

I. Study Identification

a. Study Title Do irradiated foodstuffs have a radiomimetic effect ? II. Trials with mice fed on wheat meal irradiated at 5 Mrad

b. Author's name Bugyaki, L. Deschreider, AR. Moutschen J. Moutschen-Dahmen M., Thijs A. & Lafontaine,

c. Type of Report/Date Atompraxis 14, 112- ,1968

d. Reviewer/Date of Review CW Shen 1-12-82

e. FAIS Document Type & Number published literature

f. Testing Facility/FAIS # Institute of Hygiene + Epidemiology, Belgium

g. Preliminary Evaluation Accept

h. Reason for Rejection

i. Summary of Effects/Irradiation Dose positive / 5 Mrads

Comments: Freshly irradiated wheat diet induced chromosomal aberrations in germ cells

SEE WHO report in Effects Summary Section

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Cytogenetic Test
2. Test Subject Species/ FAIS Test Subject Code mice
3. Test Subject Strain CSTBL
4. Group Size/Sex 30/male
5. Dose/Diet Composition 50% wheat meal in diet
6. Treatment Duration in Days 3 generations
7. Tissues Evaluated testes of F2 males
8. Mating Conditions NA

Comments:

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

Ref #62 pg 4

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated wheat meal

2. Dose & Source 5 Mrad ^{60}Co

3. Atmosphere NS

4. Temperature NS

5. Storage Conditions (time/temp.) used immediately or within 1 week.

d. Extraction Procedure

1. Water Extract _____ mg/ml

2. Digest _____ mg/ml

3. Solvent Extract _____ mg/ml

Comments:

e. Controls

1. Basic Diet _____

2. Non-irradiated Food wheat meal

3. Cooked Food (incl. Microwave _____

4. Positive Chemical (specify) _____

5. Negative/solvent (specify) unirradiated wheat meal diet

Comments:

III. Results

Analysis of germ cells at metaphases + anaphases showed that chromosomal aberrations were induced significantly in animals fed irradiated wheat diet.

✓

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS Ref # 165

I. Study Identification

a. Study Title Mutagenicity of irradiated food in the host mediated assay system.

b. Author's name Johnston-Arthur, T., Brena-Valle, M., Turanitz, K., Hruby, R. & Stehlik, G.

c. Type of Report/Date Studia Biophysica, Berlin 50: 137-141, 1975

d. Reviewer/Date of Review V.C Dunkel 1/14/82

e. FAIS Document Type & Number Published literature

f. Testing Facility/FAIS # Institut für Biologie, Forschungszentrum Seibersdorf / Instituto Nacional de Energia Nuclear, Salazar

g. Preliminary Evaluation Accept

h. Reason for Rejection

i. Summary of Effects/Irradiation Dose Positive (Host-mediated assay) with food pellets at 3 Mrad dose

Comments:

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Host mediated assay
2. Test Subject Species/ FAIS Test Subject Code Mice
3. Test Subject Strain Swiss albino (SPF)
4. Group Size/Sex 10 mice per group
5. Dose/Diet Composition Whole food pellets irradiated
6. Treatment Duration in Days Starved for 36 hrs and then fed with irrad & non-irrad pellets for 7 hrs.*
7. ~~Tissues Evaluated~~ Indicator Organism Salmonella typhimurium TA1530-
8. Mating Conditions

Comments:
* Bacteria injected IP at this time and then harvested 3 hrs. later

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

ref #165 pg 2

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated Dried food pellets (Rattenfutter RK88 Korber, Pottendorf, Austria)

2. Dose & Source 0.75, 1.5 and 3 Mrad / Co^{60}

3. Atmosphere NS

4. Temperature NS

5. Storage Conditions (time/temp.) NS

d. Extraction Procedure

1. Water Extract _____ mg/ml

2. Digest _____ mg/ml

3. Solvent Extract _____ mg/ml

Comments:

e. Controls

1. Basic Diet _____

2. Non-irradiated Food Dried food pellets

3. Cooked Food (incl. Microwave _____

4. Positive Chemical (specify) _____

5. Negative/solvent (specify) _____

Comments:

III. Results

Significant increase in the number of revertants with food pellets given a 3 Mrad dose of irradiation; slight increase at 1.5 Mrad dose

Ref # 240

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS

I. Study Identification

a. Study Title Preimplantation death of mouse eggs caused by irradiated food

b. Author's name M. Montschen-Dahmen & J. Montschen

c. Type of Report/Date Int. J. Radiat. Biol. 18: 201-216, 1970

d. Reviewer/Date of Review CW Shen 12-18-81

e. FAIS Document Type & Number Published literature

f. Testing Facility/FAIS # University of Stockholm, Sweden

g. Preliminary Evaluation accept

h. Reason for Rejection NA

i. Summary of Effects/Irradiation Dose Negative / 5 Mrads

Comments: The apparent increase in preimplantation deaths was not confirmed by cytological analysis. Furthermore, the female mice was old (7-8 months).

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Dominant lethal assay
2. Test Subject Species/ FAIS Test Subject Code 1-5 month-old mice
3. Test Subject Strain C57BL male, C57BR female
4. Group Size/Sex 10-15/male
5. Dose/Diet Composition 50% irradiated food
6. Treatment Duration in Days 35-60
7. Tissues Evaluated Uterine content of pregnant female
8. Mating Conditions 1 male / 3-4 females

Comments:

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

Ref # 240
Pg 2

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated test diet
2. Dose & Source 5 Mrads Co^{60}
3. Atmosphere NS
4. Temperature NS
5. Storage Conditions (time/temp.) NS

d. Extraction Procedure

1. Water Extract NA mg/ml
2. Digest NA mg/ml
3. Solvent Extract NA mg/ml

Comments:

e. Controls

1. Basic Diet NS
2. Non-irradiated Food Test diet
3. Cooked Food (incl. Microwave NA
4. Positive Chemical (specify) NA
5. Negative/solvent (specify) Test diet (Ref: Bugyaki et al Atompraxis 14, 1, 1968)

Comments:

III. Results

① No increase of post-implantation deaths was induced.

② Significant increase of preimplantation deaths was obtained, however, cytological analysis was not conducted to confirm this observation.

Ref # 41

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS

I. Study Identification

a. Study Title Effects of feeding irradiated wheat to malnourished children

b. Author's name Bhaskaram C. + Sadasivan G.

c. Type of Report/Date Amer J. Clinical Nutrition 28: 130-135, 1975

d. Reviewer/Date of Review C W SHEU 12-31-81

e. FAIS Document Type & Number Published literature

f. Testing Facility/FAIS # National Institute of Nutrition, India

g. Preliminary Evaluation Accept

h. Reason for Rejection NA

i. Summary of Effects/Irradiation Dose positive / 75 Krad.

Comments: Increase in polyploid cells and other abnormal cells by freshly irradiated wheat.

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Cytogenetic analysis
2. Test Subject Species/ FAIS Test Subject Code Children 2-5 years old
3. Test Subject Strain suffering severe protein-calorie malnutrition
4. Group Size/Sex 5/ not specified
5. Dose/Diet Composition 20g wheat/Kg body weight by feeding
6. Treatment Duration in Days 42
7. Tissues Evaluated Peripheral blood lymphocytes
8. Mating Conditions NA

Comments: Blood samples were taken at 0, 2, 4 and 6 weeks of treatment

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated Wheat

2. Dose & Source 75 Krad Cobalt-60

3. Atmosphere NS

4. Temperature NS

5. Storage Conditions (time/temp.) Irradiated wheat was incorporated into test diets within 2-3 weeks or after stored for 12 weeks.

d. Extraction Procedure

1. Water Extract _____ mg/ml

2. Digest _____ mg/ml

3. Solvent Extract _____ mg/ml

Comments:

e. Controls

1. Basic Diet wheat diet

2. Non-irradiated Food Wheat

3. Cooked Food (incl. Microwave NS

4. Positive Chemical (specify) _____

5. Negative/solvent (specify) _____

Comments: preparation (cooking) of wheat mixture into edible diet for children was not specified.

III. Results

Total number of abnormal cells as well as the No. of polyploid cells were increased in children fed freshly irradiated wheat but only slightly and none at all in children fed stored and nonirradiated wheat respectively

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS Ref # 375

I. Study Identification

a. Study Title Cytogenetic studies in rats fed irradiated wheat

b. Author's name Vijayalaxmi

c. Type of Report/Date Int. J. Radiat. Biol 27: 283-285, 1975

d. Reviewer/Date of Review CW Shen 12-17-81

e. FAIS Document Type & Number published literature

f. Testing Facility/FAIS # National Institute of Nutrition, India

g. Preliminary Evaluation Accept

h. Reason for Rejection NA

i. Summary of Effects/Irradiation Dose positive / 75 Krads

Comments: polyploid cells

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Cytogenetic analysis

2. Test Subject Species/ FAIS Test Subject Code Weanling rat

3. Test Subject Strain Wistar

4. Group Size/Sex 3-5/male 3-5/female

5. Dose/Diet Composition 70% wheat in diet

6. Treatment Duration in Days 7, 14, 21, 28, 42, 56, 70 and 84

7. Tissues Evaluated Bone marrow cells

8. Mating Conditions NA

Comments:

b. In Vitro Test

1. Test Type/Date/FAIS Name Code

2. Target Cell

3. Treatment Time

4. Test Duration

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated Wheat

2. Dose & Source 75 Krad Cobalt-60

3. Atmosphere NS

4. Temperature NS

5. Storage Conditions (time/temp.) irradiated wheat used within 20 days or after stored for 3 months at 4°C

d. Extraction Procedure

1. Water Extract _____ mg/ml

2. Digest _____ mg/ml

3. Solvent Extract _____ mg/ml

Comments:

e. Controls

1. Basic Diet NS

2. Non-irradiated Food Wheat

3. Cooked Food (incl. Microwave NA

4. Positive Chemical (specify) NA

5. Negative/solvent (specify) Test diet

Comments:

III. Results

1. Rats fed freshly irradiated wheat had higher level of polyploid cells (0.58%) than those fed stored (0.10%) or unirradiated wheat (0.04%).
2. The number of polyploid cells increased progressively as the duration of feeding freshly irradiated wheat increased.
3. There were no differences in the number of breaks and deletions among the three groups studied.

Ref # 376

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS

I. Study Identification

a. Study Title Genetic effects of feeding irradiated wheat to mice

b. Author's name Vijayalaxmi

c. Type of Report/Date Can. J. Genet. Cytol 18: 231-238, 1976

d. Reviewer/Date of Review C W Shen 12-8-81

e. FAIS Document Type & Number published literature

f. Testing Facility/FAIS # National Institute of Nutrition, India

g. Preliminary Evaluation Accept with reservation

h. Reason for Rejection See Comments

i. Summary of Effects/Irradiation Dose Positive/75 Krads

Comments: After a 84-day treatment, it is unusual to see DL effect on week-3 but not on week-1.

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Cytogenetics + Dominant lethal
2. Test Subject Species/ FAIS Test Subject Code Weanling mice
3. Test Subject Strain Swiss albino
4. Group Size/Sex 5 male + 5 female/cytogenetic 9 male/Dominant lethal
5. Dose/Diet Composition 70% wheat in diet
6. Treatment Duration in Days 84
7. Tissues Evaluated Bone marrow, Testes + uterine contents
8. Mating Conditions 1 male/3 females per week for 4 weeks

Comments:

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated Wheat

2. Dose & Source 75 Krads Cobalt-60

3. Atmosphere NS

4. Temperature NS

5. Storage Conditions (time/temp.) used freshly (20 days) or after stored for 3 months at 4°C

d. Extraction Procedure

1. Water Extract _____ mg/ml

2. Digest _____ mg/ml

3. Solvent Extract _____ mg/ml

Comments:

e. Controls

1. Basic Diet Standard stock colony diet

2. Non-irradiated Food wheat

3. Cooked Food (incl. Microwave _____

4. Positive Chemical (specify) _____

5. Negative/solvent (specify) Test diet

Comments:

III. Results

Mice fed freshly irradiated wheat had significantly higher numbers of polyploid cells in bone marrow, aneuploid cells in testes and dead implantations in pregnant females, but lower number of germ cells in the testes. There were no differences between mice fed unirradiated or stored irradiated wheat diet.

ref #377

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS

I. Study Identification

a. Study Title Cytogenetic studies in monkeys fed irradiated wheat

b. Author's name Vijayalaxmi

c. Type of Report/Date Toxicology 9: 181-184, 1978

d. Reviewer/Date of Review CW Shen 1-11-82

e. FAIS Document Type & Number Published literature

f. Testing Facility/FAIS # National Institute of Nutrition, India

g. Preliminary Evaluation Accept

h. Reason for Rejection NA

i. Summary of Effects/Irradiation Dose positive / 25 Krad

Comments: Induction of polyploidy by freshly irradiated wheat

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Cytogenetic test
2. Test Subject Species/ FAIS Test Subject Code Monkeys (6-8 Mo old)
3. Test Subject Strain Macaca mulatta
4. Group Size/Sex 4/male, 3/female
5. Dose/Diet Composition 70% wheat in diet
6. Treatment Duration in ~~Days~~ 10 months
7. Tissues Evaluated peripheral lymphocytes
8. Mating Conditions NA

Comments: Blood samples were taken at 0, 4 and 10 months of treatment and 2 and 7 months after termination of the treatment.

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

ref # 377
pg 2

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated Wheat

2. Dose & Source 75 Krads ^{60}Co

3. Atmosphere NS

4. Temperature NS

5. Storage Conditions (time/temp.) Irradiated wheat was used within 20 days or after stored for 12 weeks or more at 10°C.

d. Extraction Procedure

1. Water Extract _____ mg/ml

2. Digest _____ mg/ml

3. Solvent Extract _____ mg/ml

Comments:

e. Controls

1. Basic Diet diet (70% wheat)

2. Non-irradiated Food wheat

3. Cooked Food (incl. Microwave NA

4. Positive Chemical (specify) NA

5. Negative/solvent (specify) diet (70% unirradiated wheat)

Comments:

III. Results

(1) unirradiated, freshly irradiated and stored irradiated wheat diet were compared for induction of breaks & deletion and polyploidy.

(2) There were no differences among the 3 groups regarding the frequency of breaks & deletions.

(3) Increase in the frequency of polyploid cells was observed in group fed freshly irradiated wheat. This effect diminished after termination of treatment

V. Dunkel, please verify

Reviewed (original) by C.W. Shew — on form for mutagenicity data

DATA SUMMARY FORM FOR IRRADIATED FOODS

Ref #378

I. Study Identification

a. Study Title Dominant Lethal mutations in rats fed on Irradiated Wheat

b. Author's name/ Date Vijayalaxmi, KV Rao

c. Type of Report Published literature, Int. J. Radiat. Biol. 29:93-98, 1976

d. Reviewer/ Date of Review Dr. Hiltje Irausquin 12/2/81

e. FAIS Document Type & Number Loose files, ref # 27

f. Testing Facility/ FAIS # Indian Council of Medical Research/3397

g. Preliminary Evaluation Accept

h. Reason for Rejection

i. Summary of Effects/ Irradiation Dose increased mutagenic index in dominant lethal test

Comments

II. Experimental Design

a. Test Type/ Date/ FAIS Test Name Code Reproduction/14

b. Test Subject Species/ FAIS Test Subject Code rat/110

c. Test Subject Strain Wistar

d. Test Duration, Specified in Days 84, only males exposed

e. Group Size/ Sex 6M

f. Irradiation Conditions:

- Type of Food Irradiated Wheat
- Dose and Source 75 krad/ ~~Mrad~~ ^{60}Co
- Time after Irradiation NR
- Atmosphere NR
- Temperature NR

ref# 378 pg 2

g. Controls:

- Basic Diet ☐
- Non-irradiated Food ☑
- Cooked Food(incl.microwave) ☐
- Other(specify) ☐

h. Diet:

- Composition ✓
- Antioxidants NR
- Palatability NR
- Processing & Storage NR
- Dose of Irradiated Food NR %

Comments: Study also looked at effect of irradiated wheat in malnourished rats (9% protein diet). Toxicity studies with inadequate diets are not acceptable because the influence of malnutrition may be a factor in the cause of the effect

III. Results:

Parameters Studied:		Effects Due to Irradiated Food
1. Appearance, Behavior	☐	
2. Body Weight	☐	
3. Food Consumption	☐	
4. Hematology	☐	
5. Blood Chemistry	☐	
6. Urinalysis	☐	
7. Mortality	☐	
8. Gross Pathology	☐	
9. Organ Weights	☐	
10. Histopathology	☐	
11. Tumor Incidence	☐	
12. Reproduction *	☑	mutagenic index 8% as compared to 4.2% for control
13. Teratology	☐	
14. Other(specify) testes - spermatogonia	☑	none

Comments:

* dominant lethal test

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS

Ref # 378
P83

I. Study Identification

a. Study Title Dominant lethal mutations in rats fed on irradiated wheat

b. Author's name Vijayalaxmi and K. Visweswara Rao

c. Type of Report/Date Int. J. Radiat. Biol 29: 93-98, 1976

d. Reviewer/Date of Review CWSher 12-17-81

e. FAIS Document Type & Number Published literature

f. Testing Facility/FAIS # National Institute of Nutrition, India

g. Preliminary Evaluation accept with reservation

h. Reason for Rejection See comments

i. Summary of Effects/Irradiation Dose positive / 75000 rads

Comments: Detection of DL effect at 3-4 weeks but not on 1-2 weeks post treatment of 84-day period is unusual.

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Dominant lethal assay
2. Test Subject Species/ FAIS Test Subject Code Weanling rat
3. Test Subject Strain Wistar
4. Group Size/Sex 6 /male
5. Dose/Diet Composition 70% wheat in diet
6. Treatment Duration in Days 84
7. Tissues Evaluated Uterine content of pregnant female
8. Mating Conditions 1 male/3 female per week for 4 weeks

Comments:

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

Ref # 378
pg 4

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions (from Int. J. Radiat. Biol 27: 135-142, 1975)

1. Type of Food Irradiated Wheat
2. Dose & Source 75000 rad / Co^{60}
3. Atmosphere NS
4. Temperature NS
5. Storage Conditions (time/temp.) Used within 20 days

d. Extraction Procedure

1. Water Extract NA mg/ml
2. Digest NA mg/ml
3. Solvent Extract NA mg/ml

Comments:

e. Controls (from Int. J. Radiat. Biol 27: 135-142, 1975)

1. Basic Diet Stock ration
2. Non-irradiated Food wheat
3. Cooked Food (incl. Microwave NA
4. Positive Chemical (specify) NA
5. Negative/solvent (specify) Test diet

Comments:

III. Results

① Dominant lethal effect, based on % dead implantations, was induced by freshly irradiated wheat. The effect was seen on 3 & 4 weeks but not on 1 + 2 weeks post treatment.

② The number of germ cells in rats prefed low pr diet (5%) was reduced by freshly irradiated w

Ref # 319

DATA SUMMARY FORM FOR IRRADIATED FOODS-MUTAGENESIS

I. Study Identification

a. Study Title Chromosomal aberrations in rats fed irradiated wheat

b. Author's name Vijayalaxmi + G. Sadasivan

c. Type of Report/Date Int. J. Radiat Biol 27: 135-142, 1975

d. Reviewer/Date of Review CW Shen 12-14-81

e. FAIS Document Type & Number Published literature

f. Testing Facility/FAIS # National Institute of Nutrition, India

g. Preliminary Evaluation Accept partially

h. Reason for Rejection portion of data rejected due to absence of control

i. Summary of Effects/Irradiation Dose positive / 75 Krad

Comments: Data on wheat diet but not wheat + casein diet are evaluated

II. Experimental Design

a. In Vivo Test and In vivo/In Vitro Test

1. Test Type/Date/FAIS Test Name Code Cytogenetic
2. Test Subject Species/ FAIS Test Subject Code Weanling rat
3. Test Subject Strain Wistar
4. Group Size/Sex 3/male 3/female
5. Dose/Diet Composition 70% wheat in diet
6. Treatment Duration in Days 84
7. Tissues Evaluated Bone marrow cells
8. Mating Conditions NA

Comments:

b. In Vitro Test

1. Test Type/Date/FAIS Name Code
2. Target Cell
3. Treatment Time
4. Test Duration

5. Metabolic Activation _____

6. Dose Level(s) Tested _____

Comments:

c. Irradiation Conditions

1. Type of Food Irradiated wheat

2. Dose & Source 175 Krad Cobalt-60

3. Atmosphere NS

4. Temperature NS

5. Storage Conditions (time/temp.) Irradiated wheat used within 20 days

d. Extraction Procedure

1. Water Extract _____ mg/ml

2. Digest _____ mg/ml

3. Solvent Extract _____ mg/ml

Comments:

e. Controls

1. Basic Diet Stock ration (20% starch)

2. Non-irradiated Food wheat flour

3. Cooked Food (incl. Microwave _____

4. Positive Chemical (specify) _____

5. Negative/solvent (specify) test diet

Comments: Irradiated wheat was mixed into diets containing 20% starch or 11% casein + 9% starch, but unirradiated wheat was mixed only with diet containing 20% starch.

III. Results

1. Break + deletions — Irradiation induced statistically significant increases in group prefed 18% but not in group prefed 5% protein

2. polyploidy — Irradiation induced statistically significant increases of polyploid cells in rats regardless of prefeeding history

Hatter

Public Citizen
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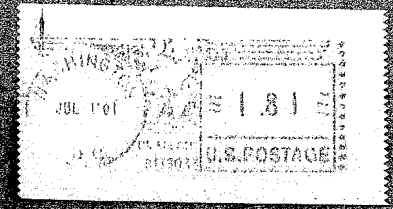

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