

Columbia University
in the City of New York
NEW YORK 27, N. Y.
 DEPARTMENT OF CHEMISTRY
 HAVEMEYER HALL

File
Dr. King & Becker
Genetox of Foods
by irradiation
1955

March 31, 1955

Lt. Colonel T. E. Huber
 Research and Development Division
 Office of the Surgeon General
 Room 2528 Main Navy Building
 18th and Constitution Aves.
 Washington 25, D. C.

Dear Colonel Huber:

Enclosed you will find the Progress Report
 of our work under OSG Contract DA-49-007-MD-550, for
 the period from January 15, 1955 - March 30, 1955.

Very sincerely yours,

Robert R. Becker

Robert R. Becker (for Professor C. G. King)
 Instructor in Chemistry

RRB EJS

Enc. - 4 copies

CC. - Colonel John R. Wood
 Dr. H. F. Kraybill
 Lt. Colonel Robert Ryer III
 Committee on Government Aided Research,
 Columbia University

Washington National Record Center
 Office of the Army Surgeon General
 Record Group 112

Accession #: 59A-2003

Box #: 125

File:

DRS. C. G. King & R. B. Becker MD-550
 Studies on Nutritional & Biochemical Effects of Radiation

Progress Report

NUTRITIONAL AND BIOCHEMICAL EFFECTS OF RADIATION

By

C. G. King and R. R. Becker

Department of Chemistry, Columbia University

New York 27, N. Y.

Contract No. Da-49-007-MD-550

Period: January 15, 1955 to March 30, 1955.

Ref. No. CU-3-55-MD-550-Chem.

Washington National Record Center
Office of the Army Surgeon General
Record Group 112

Accession #: 59A-2003

Box #: 125

File:

Drs. C G. King & R. B. Becker MD-550
Studies on Nutritional & Biochemical Effects of Radiation

ABSTRACT

Data on the experiment in which irradiated butterfat is being fed, are included in this report. The short duration of the experiment to date, as well as some difficulties with infections, has not allowed the accumulation of sufficient data to draw conclusions with reference to the effect of Vitamin E supplementation of the irradiated diet.

PROGRESS

I - Feeding experiments.

The experimental diets as well as the general plan of this experiment were given in Progress Report 1 (October 15, 1954). The preliminary results are given in Tables I and II.

In Table I are summarized the number of animals on the experiment, the days on test, and the number of litters produced by each group. The animals placed on experiment were from the 80th generation of Sherman strain rats. The individual cages were set up when the animals were 28 days old, and young have been reared to 28 days. The animals in Cages 3 and 4 of the group receiving Vitamin E have been sacrificed because of middle ear infections within the groups. These cages are therefore being replaced. It is apparent that no conclusions can be drawn at this time.

Washington National Record Center
Office of the Army Surgeon General
Record Group 112

Accession #: 59A-2003

Box #: 125

File:

Drs. C. G. King & R. B. Becker MD-550
Studies on Nutritional & Biochemical Effects of Radiation

Table II gives more detailed information regarding the breeding performance of these groups. Although it appears from the data that the control group indicate better performance than the group receiving the irradiated butterfat, the experiment has not been of sufficient duration to warrant such a conclusion. For reasons mentioned earlier, no indications of the effects of the Vitamin E supplementation are as yet apparent.

II - Radiation-induced Oxidation of Specific Nutrients.

The detailed studies of the radiation-induced oxidation of the dihydronicotinamide derivative are being continued, as well as similar studies with amino acids.

Washington National Record Center
Office of the Army Surgeon General
Record Group 112

Accession #: 59A-2003

Box #: 125

File:

Drs. C. G. King & R. B. Becker MD-550
Studies on Nutritional & Biochemical Effects of Radiation

Table I

sacrificed because of middle ear infection

	<u>1</u>	<u>2</u>	<u>3</u> ✓	<u>4</u> ✓	<u>5</u>
<u>Control Group</u>					
Number of animals	4	4	4	4	4
Days on test (to 3/26/55)	194	183	178	163	131
Number of litters (to 3/26/55)	4	4	4	4	2
<u>Irradiated Group</u>					
Number of animals	4	4	4	4	4
Days on test (to 3/26/55)	191	183	177	143	123
Number of litters (to 3/26/55)	5	3	4	2	2
<u>Irradiated Group plus Vitamin E</u>					
Number of animals	4	4	3	4	4
Days on test (to 3/26/55)	190	180	176	143	123
Number of litters (to 3/26/55)	4	5	3	0	1

Washington National Record Center
Office of the Army Surgeon General
Record Group 112

Accession #: 59A-2003

Box #: 125

File: Drs. C. G. King & R. B. Becker MD-550
Studies on Nutritional & Biochemical Effects of Radiation

Table II

	<u>Control Group</u>	<u>Irradiated Group</u>	<u>Irradiated Group plus Vitamin E</u>
Total number of litters	18	16	13
Number of young born	125	105	84
Number of young reared	75 (15 litters, 100 animals)	48 (12 litters, 78 animals)	38 (10 litters, 62 animals)
Percent of young reared	75%	62% ✓	61% ✓
Number and average age of mothers with:			
1st litter	10 - 96 days old	10 - 109 days old	7 - 100 days old
2nd litter	8 - 150 days old	5 - 151 days old	5 - 144 days old
3rd litter	0	1* - 161 days old	1** - 168 days old
Average weight of young reared:			
Males	43 gms. ✓	45 gms. ✓	42 gms. ✓
Females	41 gms. ✓	44 gms. ✓	40 gms. ✓
Average weight of males at 119 days of age			
	245 gms. ✓	242 gms. ✓	207 gms. ✓

* - Did not rear first 2 litters.

** - Did not rear first litter.

Washington National Record Center
Office of the Army Surgeon General
Record Group 112

Accession #: 59A-2003

Box #: 125

File:

Drs. C. G. King & R. B. Becker MD-550
Studies on Nutritional & Biochemical Effects of Radiation