

ศูนย์บริการเอกสารวิจัย-๑



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Combined combat ration

RESEARCH PROGRAMME NO. 54
EXPOSURE TESTING (STUDY OF MATERIAL DETERIORATION)

sponsored by
ADVANCED RESEARCH PROJECTS AGENCY (ARPA), U.S. DEPARTMENT OF DEFENSE

conducted by
APPLIED SCIENTIFIC RESEARCH CORPORATION OF THAILAND
under U.S. Army Contract DAJB 29-70-C-0086

with the cooperation of
MILITARY RESEARCH AND DEVELOPMENT CENTER (MRDC)

PRESERVED FOOD SERIES

REPORT NO. 7
COMBINED COMBAT RATION

BY
KAEW NUALCHAWEE
WILLIAM G. PREWETT
ENVIRONMENTAL AND ECOLOGICAL RESEARCH INSTITUTE

ASRCT, BANGKOK 1974
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CONTENTS

	Page
FOREWORD	1
SUMMARY	2
INTRODUCTION	2
MATERIALS AND METHODS OF EXPOSURE	3
METHOD OF EXPOSURE	4
METHOD OF TESTS AND RESULTS	4
TABLE 1. WEIGHT CHANGES	6
TABLE 2. VISUAL OBSERVATIONS	8
TABLE 3. MICROBIOLOGICAL OBSERVATION	26
TABLE 4. METEOROLOGICAL DATA	44
DISCUSSION	56
CONCLUSION	57
ACKNOWLEDGEMENTS	57
APPENDIX I	58
APPENDIX II	61

F O R E W O R D

The work reported herein is part of a research programme called "Exposure Testing", or "Study of Material Deterioration". This programme is sponsored by the U.S. Advanced Research Projects Agency under ARPA contract number DAJB 29-70-C-0086-P00003. The establishment of exposure testing facilities and performing the programme by the Applied Scientific Research Corporation of Thailand is done in cooperation with Military Research and Development Center (MRDC). MRDC acts as the medium in determining the Royal Thai Armed Services requirements and establishing test priorities in consonance with the Advanced Research Projects Agency to develop MRDC R & D management capability. Under this cooperation, the Royal Thai Government Agencies will supply ASRCT with test materials along with their test requirements. According to the priorities, ASRCT will then perform exposure tests on selected materials within its own capability. This will open a valuable link to the knowledge of material degradation in the South-east Asian Tropics.

The research is being carried out by the Applied Scientific Research Corporation of Thailand through its Environmental and Ecological Research Institute. This is the first report on "combined combat rations".

COMBINED COMBAT RATION

By Kaew Hualahawee* and William G. Prewett*

SUMMARY

Samples of combined combat rations were supplied to ASRCT by the Preserved Food Organization for use as test specimens for the Exposure Testing Programme. They were put on shelves in shelters in a manner intended to simulate storage conditions employed by the Armed Forces, to determine the shelf life under prevailing conditions.

Visual examination of food containers, weighing, and microorganism tests were conducted before and after exposure.

Microbiological tests made were total aerobic count, mold count, anaerobic tests, and coliform test. Results of total aerobic count and mold count were mostly positive but those of anaerobic and coliform tests were negative. There were slight increases in mold count and total aerobic count compared with the tests made on unexposed samples.

Physical examinations of the food containers showed that most, if not all, of them were bitten through by ants, and may be, by other insects or rodents. In most cases weight increases were observed, only a few specimens showed decrease in weight.

INTRODUCTION

By contract with the U.S. Advanced Research Projects Agency (ARPA), ASRCT has set up Sakaerat Experiment Station to serve as test centre to back up its laboratory test facilities in Bangkok. Sakaerat Experiment Station is located at approximately latitude $14^{\circ} 30' N$ longitude $101^{\circ} 55' E$.

The exposure testing sites consist of a cleared site and a jungle one adjacent to it. The dimensions of the cleared site are 50 x 50 metres while those of the jungle one are 35 x 35 metres. They were both fenced by the wire-mesh about 2 metres high, with lighting at four corners. Inside each site a wooden hut with a galvanized iron roof was built, simulating a field depot, to store test specimens for shelf life

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determination. Exposure racks were also erected in both sites for exposure of test specimens. Racks in the cleared site are constructed facing south at an angle of 45° to receive high insolation without accumulating detritus. The ones in the jungle site are erected vertically to avoid collection of leaves and dirt. In addition to the two sites mentioned, an air-conditioned building is provided for storage of control specimens. Through the Military Research and Development Center (MRDC), the Preserved Food Organization of Thailand has asked ASRCT to subject their preserved foods to exposure testing. Lists of the test samples are shown under the "Materials and methods of exposure".

MATERIALS AND METHODS OF EXPOSURE

Three varieties of combined combat rations were supplied by the Preserved Food Organization, viz.: Combined combat ration # 2, # 11 & # 15. Packages of each variety contain 6 different kinds of food, which are as follows:

I. Combined combat ration # 2

- | | |
|------------------------------|---------------------|
| 1. Dehydrated cooked rice | (ข้าวสุกอบแห้ง) |
| 2. Steamed, salted meat | (เนื้อเค็มอบ) |
| 3. Tamarind and chilly paste | (น้ำพริกมะขามเปียก) |
| 4. Candied green squash | (ผักเขียวแฉ่ำ) |
| 5. Dehydrated fish sauce | (น้ำปลาผง) |
| 6. Chilly powder | (พริกป่น) |

II. Combined combat ration # 11

- | | |
|------------------------------|---------------------|
| 1. Dehydrated, cooked rice | (ข้าวสุกอบแห้ง) |
| 2. Tamarind and chilly paste | (น้ำพริกมะขามเปียก) |
| 3. Fine-shredded, dried pork | (หมูหยอง) |
| 4. Dried banana | (กล้วยตาก) |
| 5. Dehydrated fish sauce | (น้ำปลาผง) |
| 6. Chilly powder | (พริกป่น) |

III. Combined combat ration # 15

- | | |
|----------------------------|-------------------|
| 1. Dehydrated, cooked rice | (ข้าวสุกอบแห้ง) |
| 2. Sour vegetable soup | (แกงส้มผัก) |
| 3. Shrimp powder | (กุ้งป่น) |
| 4. Candied green squash | (ผักเขียวแช่อิ่ม) |
| 5. Dehydrated fish sauce | (น้ำปลาผง) |
| 6. Chilly powder | (พริกป่น) |

The food items are packed separately in packages made from various materials as shown in Table 2. The combinations of six food items are contained in plastic bags.

METHOD OF EXPOSURE

Individual bags of the rations were labelled according to site of exposure, shelf level, withdrawal date, and replicate number. They were then weighed before being put in cardboard boxes for exposure. The boxed samples were placed on shelves in the depots at the cleared site, jungle site, and in the air-conditioned room. This constitutes the conditions of exposure in simulation of the storage conditions used by the Armed Forces. A hygrothermograph for recording on the spot humidity and temperature is fitted inside each depot.

METHOD OF TESTS AND RESULTS

Preserved foods for use as test specimens were supplied by the Preserved Food Organization. The category under discussion is described as "Combined combat ration". The tests performed on these rations were:

- 1) Observation of visible changes,
- 2) Determination of weight changes,
- 3) Observation and determination of microbiological growth.

Visual observations were made in order to check for physical defects of food containers. This was done before and after exposure. Only test items believed to have been initially packed in sound containers were exposed. They were re-examined at the end of the exposure

period to assess defects of containers that might have been caused during the exposure period through attack by insects and rodents, or in the course of delivery to and from the exposure site. The defects in containers, once occurred, could be expected to admit microorganisms into the rations, and thereby lead to changes in the rations' properties.

Every test item was labelled and weighed before exposure. They were weighed again after exposure to determine weight changes. Physical conditions of food containers and weight changes together provide one means to evaluate the course of deterioration of preserved foods.

Microbiological growth test is a direct means to check if the food is contaminated by microorganisms. The tests included aerobic count and mold count which show the density of population of aerobic bacteria and mold in the test samples. Qualitative tests for anaerobic and coliform bacteria were also made. Results of tests are as follows.

TABLE 1. WEIGHT CHANGES

Code number	Description	Original weight (g) (26 Aug. 71)	Final weight (g) (7 Dec. 71)	Weight change	Change (%)
5-2-2(2)-IUaA1	Combined combat ration # 2	302.80	302.70	- 0.10	- 0.03
IUaA2	"	305.00	306.20	+ 1.20	+ 0.39
IUaA3	"	311.84	314.19	+ 2.35	+ 0.75
IUaA4	"	323.25	323.11	- 0.14	- 0.04
5-2-2(2)-ILaA1	Combined combat ration # 2	325.20	326.31	+ 1.11	+ 0.34
ILaA2	"	302.31	303.49	+ 1.18	+ 0.39
ILaA3	"	305.62	305.95	+ 0.33	+ 0.10
ILaA4	"	308.90	311.61	+ 2.71	+ 0.87
5-2-2(2)-IIUaA1	Combined combat ration # 2	298.43	302.49	+ 4.06	+ 1.36
IIUaA2	"	331.40	334.80	+ 3.40	+ 1.02
IIUaA3	"	309.50	312.45	+ 2.95	+ 0.95
IIUaA4	"	303.70	306.47	+ 2.77	+ 0.91
5-2-2(2)-IILaA1	Combined combat ration # 2	328.10	332.58	+ 4.48	+ 1.36
IILaA2	"	312.78	311.92	- 0.86	- 0.27
IILaA3	"	320.60	321.46	+ 0.86	+ 0.26
IILaA4	"	296.15	292.64	- 4.51	- 1.52
5-2-2(2)-aA1	Combined combat ration # 2	308.50	310.30	+ 1.80	+ 0.58
aA2	"	303.90	305.90	+ 2.00	+ 0.66
aA3	"	297.35	299.68	+ 2.33	+ 0.78
aA4	"	316.95	316.00	- 0.95	- 0.29
5-2-2(11)-IUaA1	Combined combat ration # 11	303.15	303.99	+ 0.84	+ 0.27
IUaA2	"	316.85	317.00	+ 0.15	+ 0.05
IUaA3	"	306.00	308.15	+ 2.15	+ 0.70
IUaA4	"	315.85	318.19	+ 2.34	+ 0.73
5-2-2(11)-ILaA1	Combined combat ration # 11	303.12	305.03	+ 1.91	+ 0.63
ILaA2	"	314.47	315.45	+ 0.98	+ 0.31
ILaA3	"	336.50	332.70	- 3.80	- 1.13
ILaA4	"	310.25	312.10	+ 1.85	+ 0.59
5-2-2(11)-IIUaA1	Combined combat ration # 11	292.85	293.99	+ 1.14	+ 0.38
IIUaA2	"	309.90	312.40	+ 2.50	+ 0.81
IIUaA3	"	310.70	311.14	+ 0.44	+ 0.14
IIUaA4	"	319.10	317.89	- 1.21	- 0.37

TABLE 1. continued.

Code number	Description	Original weight (g) (26 Aug. 71)	Final weight (g) (7 Dec. 71)	Weight change	Change (%)
5-2-2(11)-IILaA1	Combined combat ration # 11	312.85	315.95	+ 3.10	+ 0.99
IILaA2	"	307.50	310.42	+ 2.92	+ 0.95
IILaA3	"	277.23	277.64	+ 0.41	+ 0.14
IILaA4	"	300.40	302.02	+ 1.62	+ 0.54
5-2-2(11)-aA1	Combined combat ration # 11	298.10	297.03	- 1.07	- 0.36
aA2	"	318.82	322.24	+ 3.42	+ 1.07
aA3	"	314.80	315.20	+ 0.40	+ 0.13
aA4	"	303.35	304.31	+ 0.96	+ 0.32
5-2-2(15)-IUaA1	Combined combat ration # 15	313.30	315.14	+ 1.84	+ 0.58
IUaA2	"	307.46	309.90	+ 2.44	+ 0.79
IUaA3	"	300.05	301.90	+ 1.85	+ 0.62
IUaA4	"	325.34	325.81	+ 0.77	+ 0.23
5-2-2(15)-ILaA1	Combined combat ration # 15	307.56	310.68	+ 3.12	+ 1.01
ILaA2	"	308.50	311.33	+ 2.83	+ 0.91
ILaA3	"	314.62	316.68	+ 2.06	+ 0.65
ILaA4	"	305.50	307.17	+ 1.67	+ 0.54
5-2-2(15)-IIUaA1	Combined combat ration # 15	320.45	323.17	+ 2.72	+ 0.85
IIUaA2	"	332.72	335.90	+ 3.18	+ 0.95
IIUaA3	"	309.05	310.69	+ 1.64	+ 0.53
IIUaA4	"	294.89	297.10	+ 2.21	+ 0.75
5-2-2(15)-IILaA1	Combined combat ration # 15	296.18	297.70	+ 3.52	+ 1.18
IILaA2	"	303.38	305.50	+ 3.52	+ 1.18
IILaA3	"	321.91	325.09	+ 2.12	+ 0.69
IILaA4	"	302.92	304.78	+ 3.18	+ 0.98
5-2-2(15)-aA1	Combined combat ration # 15	287.25	287.27	+ 0.02	+ 0.01
aA2	"	314.94	315.29	+ 0.35	+ 0.11
aA3	"	324.10	324.00	- 0.10	- 0.03
aA4	"	290.93	292.85	+ 1.92	+ 0.66

TABLE 2. VISUAL OBSERVATIONS (Before exposure)

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(2)-1	Combined combat ration # 2, replicate 1	combat ration	sealed plastic bag	ant attacked
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Steamed, salted meat	food	"	-
	Candied green squash	dessert	"	black mold visible
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-2	Combined combat ration # 2, replicate 2	combat ration	sealed plastic bag	ant attacked
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Steamed, salted meat	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-3	Combined combat ration # 2, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Steamed, salted meat	food	"	-
	Candied green squash	dessert	"	black mold visible
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-4	Combined combat ration # 2, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Steamed, salted meat	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(11)-1	Combined combat ration # 11, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-2	Combined combat ration # 11, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-3	Combined combat ration # 11, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-4	Combined combat ration # 11, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(15)-1	Combined combat ration # 15, replicate 1	combat ration	sealed plastic bag	broken bag
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-2	Combined combat ration # 15, replicate 2	combat ration	sealed plastic bag	broken bag
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. VISUAL OBSERVATION
(After exposure, 1st withdrawal)

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(2)-aA1	Combined combat ration # 2, in air-conditioned room, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-aA2	Combined combat ration # 2, in air-conditioned room, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-aA3	Combined combat ration # 2, in air-conditioned room, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-aA4	Combined combat ration # 2, in air-conditioned room, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(2)-IUaA1	Combined combat ration # 2, in depot, cleared site, upper shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-IUaA2	Combined combat ration # 2, in depot, cleared site, upper shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-IUaA3	Combined combat ration # 2, in depot, cleared site, upper shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-IUaA4	Combined combat ration # 2, in depot, cleared site, upper shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(2)-ILaA1	Combined combat ration # 2, in depot, cleared site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-ILaA2	Combined combat ration # 2, in depot, cleared site, lower shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-ILaA3	Combined combat ration # 2, in depot, cleared site, lower shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-ILaA4	Combined combat ration # 2, in depot, cleared site, lower shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(2)-IIUaA1	Combined combat ration # 2, in depot, jungle site, upper shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	leakage
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
5-2-2(2)-IIUaA2	Combined combat ration # 2, in depot, jungle site, upper shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
5-2-2(2)-IILaA1	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
5-2-2(2)-IILaA2	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
5-2-2(2)-IILaA2	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
5-2-2(2)-IILaA2	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
5-2-2(2)-IILaA2	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
5-2-2(2)-IILaA2	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(2)-IIUaA3	Combined combat ration # 2, in depot, jungle site, upper shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-IIUaA4	Combined combat ration # 2, in depot, jungle site, upper shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-IILaA3	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	dessert	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(2)-IILaA4	Combined combat ration # 2, in depot, jungle site, lower shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Steamed, salted meat	food	sealed aluminium foil	-
	Tamarind-chilly paste	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(11)-aA1	Combined combat ration # 11, in air-conditioned room, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	"	broken pack
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-aA2	Combined combat ration # 11, in air-conditioned room, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-aA3	Combined combat ration # 11, in air-conditioned room, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	broken pack
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-aA4	Combined combat ration # 11, in air-conditioned room, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(11)-IUaA1	Combined combat ration # 11, in depot, cleared site, upper shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IUaA2	Combined combat ration # 11, in depot, cleared site, upper shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	broken pack
	Fine shredded, dried pork	food	"	ant attacked
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IUaA3	Combined combat ration # 11, in depot, cleared site, upper shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	ant attacked
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IUaA4	Combined combat ration # 11, in depot, cleared site, upper shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(11)-ILaA1	Combined combat ration # 11, in depot, cleared site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-ILaA2	Combined combat ration # 11, in depot, cleared site, lower shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-ILaA3	Combined combat ration # 11, in depot, cleared site, lower shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-ILaA4	Combined combat ration # 11, in depot, cleared site, lower shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(11)-IIUaA1	Combined combat ration # 11, in depot, jungle site, upper shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IIUaA2	Combined combat ration # 11, in depot, jungle site, upper shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IIUaA3	Combined combat ration # 11, in depot, jungle site, upper shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IIUaA4	Combined combat ration # 11, in depot, jungle site, upper shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(11)-IILaA1	Combined combat ration # 11, in depot, jungle site, lower shelf, replicate 1.	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IILaA2	Combined combat ration # 11, in depot, jungle site, lower shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IILaA3	Combined combat ration # 11, in depot, jungle site, lower shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(11)-IILaA4	Combined combat ration # 11, in depot, jungle site, lower shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Tamarind-chilly paste	food	sealed aluminium foil	-
	Fine shredded, dried pork	food	"	-
	Dried banana	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(15)-aA1	Combined combat ration # 15, in air-conditioned room, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	ant attacked
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-aA2	Combined combat ration # 15, in air-conditioned room, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-aA3	Combined combat ration # 15, in air-conditioned room, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-aA4	Combined combat ration # 15, in air-conditioned room, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(15)-IUaA1	Combined combat ration # 15, in depot, cleared site, upper shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IUaA2	Combined combat ration # 15, in depot, cleared site, upper shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IUaA3	Combined combat ration # 15, in depot, cleared site, upper shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IUaA4	Combined combat ration # 15, in depot, cleared site, upper shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(15)-ILaA1	Combined combat ration # 15, in depot, cleared site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-ILaA2	Combined combat ration # 15, in depot, cleared site, lower shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-ILaA3	Combined combat ration # 15, in depot, cleared site, lower shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-ILaA4	Combined combat ration # 15, in depot, cleared site, lower shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(15)-IIUaA1	Combined combat ration # 15, in depot, jungle site, upper shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	ant attacked
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IIUaA2	Combined combat ration # 15, in depot, jungle site, upper shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IIUaA3	Combined combat ration # 15, in depot, jungle site, upper shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IIUaA4	Combined combat ration # 15, in depot, jungle site, upper shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 2 a. continued.

Code number	Description	Type of material	Type of packaging	Defect of package
5-2-2(15)-IILaA1	Combined combat ration # 15, in depot, jungle site, lower shelf, replicate 1	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IILaA2	Combined combat ration # 15, in depot, jungle site, lower shelf, replicate 2	combat ration	sealed plastic bag	-
	Dehydrated, cook rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	ant attacked
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IILaA3	Combined combat ration # 15, in depot, jungle site, lower shelf, replicate 3	combat ration	sealed plastic bag	-
	Dehydrated, cooked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-
5-2-2(15)-IILaA4	Combined combat ration # 15, in depot, jungle site, lower shelf, replicate 4	combat ration	sealed plastic bag	-
	Dehydrated, cocked rice	food	sealed paper bag	-
	Sour vegetable soup	food	sealed aluminium foil	-
	Shrimp powder	food	"	-
	Candied green squash	dessert	"	-
	Dehydrated fish sauce	seasoning	"	-
	Chilly powder	seasoning	"	-

TABLE 3. MICROBIOLOGICAL OBSERVATION
(Before exposure)

Code number	Description	Total aerobic count (colonies/g)	Mold count (colonies/g)	Total anaerobic count	Coliform test
5-2-2(2)-1	Dehydrated, cooked rice	1×10^3	-	-	-
	Steamed, salted meat	2×10^2	5×10^2	-	-
	Tamarind-chilly paste	2×10^4	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	10×10^4	-	+	-
5-2-2(2)-2	Dehydrated, cooked rice	12×10^2	-	-	-
	Steamed, salted meat	17×10^2	18×10^2	-	-
	Tamarind-chilly paste	1×10^5	1×10^4	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	8×10^4	-	-	-
5-2-2(2)-3	Dehydrated, cooked rice	1×10^3	-	-	-
	Steamed, salted meat	2×10^2	12×10^2	-	-
	Tamarind-chilly paste	1×10^4	1×10^4	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	5×10^4	-	-	-
5-2-2(2)-4	Dehydrated, cooked rice	7×10^3	-	-	-
	Steamed, salted meat	12×10^2	16×10^2	-	-
	Tamarind-chilly paste	-	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	6×10^4	-	-	-

+ = positive

- = negative

TMTC = $> 3 \times 10^5$ or too much to count,

or 3×10^5 colonies/g = maximum count that could be made.

TABLE 3. continued.

Code number	Description	Total aerobic count (colonies/g)	Mold count (colonies/g)	Total anaerobic count	Coliform test
5-2-2(11)-1	Dehydrated, cooked rice	1×10^3	-	-	-
	Tamarind-chilly paste	1×10^5	-	-	-
	Fine shredded, dried pork	TMTC	11×10^2	-	-
	Dried banana	3×10^3	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	5×10^5	-	-	-
5-2-2(11)-2	Dehydrated, cooked rice	4×10^2	-	-	-
	Tamarind-chilly paste	-	-	-	-
	Fine shredded, dried pork	TMTC	6×10^2	-	-
	Dried banana	-	-	-	-
	Dehydrated fish sauce	6×10^2	-	-	-
	Chilly powder	TMTC	-	-	-
5-2-2(11)-3	Dehydrated, cooked rice	1×10^2	-	-	-
	Tamarind-chilly paste	-	-	-	-
	Fine shredded, dried pork	TMTC	5×10^2	-	-
	Dried banana	4×10^4	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	TMTC	-	-	-
5-2-2(11)-4	Dehydrated, cooked rice	1×10^2	-	-	-
	Tamarind-chilly paste	1×10^5	-	-	-
	Fine shredded, dried pork	TMTC	6×10^2	-	-
	Dried banana	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	2×10^5	-	+	-

TABLE 3. continued.

Code number	Description	Total aerobic count (colonies/g)	Mold count (colonies/g)	Total anaerobic count	Coliform test
5-2-2(15)-1	Dehydrated, cooked rice	2×10^2	2×10^3	-	-
	Sour vegetable soup	TMTC	9×10^2	-	-
	Shrimp powder	1×10^5	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	8×10^5	-	-	-
5-2-2(15)-2	Dehydrated, cooked rice	2×10^3	1×10^3	-	-
	Sour vegetable soup	TMTC	26×10^2	-	-
	Shrimp powder	-	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	1×10^2	-	-	-
	Chilly powder	5×10^4	-	+	-
5-2-2(15)-3	Dehydrated, cooked rice	6×10^2	3×10^3	-	-
	Sour vegetable soup	TMTC	9×10^2	-	-
	Shrimp powder	1×10^4	1×10^5	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	1×10^2	-	-	-
	Chilly powder	4×10^4	-	+	-
5-2-2(15)-4	Dehydrated, cooked rice	1×10^2	3×10^3	-	-
	Sour vegetable soup	TMTC	6×10^2	-	-
	Shrimp powder	x	-	-	-
	Candied green squash	x	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	6×10^5	-	-	-

TABLE 3 a. MICROBIOLOGICAL OBSERVATION
(After exposure, 1st withdrawal)

Exposure period 3 September - 3 December 1971

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(2)-aA1	Dehydrated, cooked rice	-	-	-	-
	Steamed, salted meat	1×10^2	-	-	-
	Tamarind-chilly paste	8×10^2	-	-	-
	Candied green squash	4×10^2	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Fish soy sauce	-	-	-	-
	Chilly powder	$> 3.0 \times 10^5$	-	-	-
5-2-2(2)-aA2	Dehydrated, cooked rice	-	9.0×10^3	-	-
	Steamed, salted meat	7×10^2	-	-	-
	Tamarind-chilly paste	2.0×10^3	6×10^2	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	1×10^2	-	-	-
	Chilly powder	$> 3.0 \times 10^5$	5×10^2	-	-
5-2-2(2)-aA3	Dehydrated, cooked rice	-	-	-	-
	Steamed, salted meat	1×10^3	-	-	-
	Tamarind-chilly paste	1×10^3	-	-	-
	Candied green squash	6×10^2	-	-	-
	Dehydrated fish sauce	1×10^2	-	-	-
	Chilly powder	$> 3 \times 10^5$	-	-	-
5-2-2(2)-aA4	Dehydrated, cooked rice	1×10^2	1.8×10^3	-	-
	Steamed, salted meat	5×10^2	1×10^2	-	-
	Tamarind-chilly paste	3×10^2	-	-	-
	Candied green squash	-	1×10^2	-	-
	Dehydrated fish sauce	1×10^3	1×10^3	-	-
	Chilly powder	$> 3 \times 10^4$	-	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(2)-IUaA1	Dehydrated, cooked rice	2×10^2	1.4×10^3	-	-
	Steamed, salted meat	-	-	-	-
	Tamarind-chilly paste	6×10^2	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	2×10^3	-	-
	Chilly powder	-	-	-	-
5-2-2(2)-IUaA2	Dehydrated, cooked rice	-	-	-	-
	Steamed, salted meat	-	-	-	-
	Tamarind-chilly paste	1.2×10^3	1×10^2	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	-	2×10^6	-	-
5-2-2(2)-IUaA3	Dehydrated, cooked rice	1×10^2	-	-	-
	Steamed, salted meat	1×10^2	1×10^2	-	-
	Tamarind-chilly paste	-	1×10^2	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	1×10^2	1×10^2	-	-
	Chilly powder	1×10^5	-	-	-
5-2-2(2)-IUaA4	Dehydrated, cooked rice	5×10^2	-	-	-
	Steamed, salted meat	2×10^2	-	-	-
	Tamarind-chilly paste	6×10^2	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	1×10^2	-	-
	Chilly powder	-	1×10^6	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(2)-ILaA1	Dehydrated, cooked rice	7×10^2	1×10^3	-	-
	Steamed, salted meat	4×10^2	4×10^3	-	-
	Tamarind-chilly paste	2.5×10^3	1×10^3	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	-	1×10^6	-	-
5-2-2(2)-ILaA2	Dehydrated, cooked rice	7×10^2	1×10^2	-	-
	Steamed, salted meat	8×10^2	2×10^2	-	-
	Tamarind-chilly paste	4×10^2	1×10^3	-	-
	Candied green squash	5×10^2	2×10^3	-	-
	Dehydrated fish sauce	2×10^3	1.6×10^3	-	-
	Chilly powder	1.8×10^6	5×10^5	-	-
5-2-2(2)-ILaA3	Dehydrated, cooked rice	-	1×10^3	-	-
	Steamed, salted meat	3×10^2	4×10^3	-	-
	Tamarind-chilly paste	2.2×10^3	1×10^3	-	-
	Candied green squash	3×10^3	1×10^3	-	-
	Dehydrated fish sauce	1×10^3	1×10^2	-	-
	Chilly powder	-	1×10^5	-	-
5-2-2(2)-ILaA4	Dehydrated, cooked rice	5×10^2	-	-	-
	Steamed, salted meat	2×10^2	-	-	-
	Tamarind-chilly paste	6×10^2	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	1×10^2	-	-
	Chilly powder	-	1×10^6	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(2)-IIUaA1	Dehydrated, cooked rice	1×10^3	1×10^3	-	-
	Steamed, salted meat	2×10^3	6×10^2	-	-
	Tamarind-chilly paste	1.5×10^3	4×10^2	-	-
	Candied green squash	4×10^3	1×10^2	-	-
	Dehydrated fish sauce	1×10^3	2×10^2	-	-
	Chilly powder	5×10^5	1×10^5	-	-
5-2-2(2)-IIUaA2	Dehydrated, cooked rice	1×10^2	-	-	-
	Steamed, salted meat	2×10^2	-	-	-
	Tamarind-chilly paste	5×10^2	4×10^3	-	-
	Candied green squash	-	1.1×10^3	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	1×10^5	-	-	-
5-2-2(2)-IIUaA3	Dehydrated, cooked rice	1×10^2	-	-	-
	Steamed, salted meat	1×10^2	-	-	-
	Tamarind-chilly paste	$> 3 \times 10^5$	1.3×10^3 *	-	-
	Candied green squash	-	$> 3 \times 10^5$ *	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	1×10^5	6×10^5	+	-
5-2-2(2)-IIUaA4	Dehydrated, cooked rice	6×10^2	-	-	-
	Steamed, salted meat	3×10^2	-	-	-
	Tamarind-chilly paste	1.8×10^3	1×10^2	-	-
	Candied green squash	1×10^2	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	1×10^5	-	-	-

+ = positive

- = negative

* contaminated in handling in the lab.

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(2)-IILaA1	Dehydrated, cooked rice	-	-	-	-
	Steamed, salted meat	3×10^2	1.65×10^6	-	-
	Tamarind-chilly paste	1.5×10^2	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	1×10^3	-	-
	Chilly powder	5×10^5	3×10^5	-	-
5-2-2(2)-IILaA2	Dehydrated, cooked rice	2×10^2	6.8×10^3	-	-
	Steamed, salted meat	3×10^2	1×10^2	+	-
	Tamarind-chilly paste	8×10^2	-	-	-
	Candied green squash	-	-	+	-
	Dehydrated fish sauce	2×10^2	-	-	-
	Chilly powder	$>3 \times 10^5$	2.6×10^3	+	-
5-2-2(2)-IILaA3	Dehydrated, cooked rice	6×10^2	1×10^2	-	-
	Steamed, salted meat	1×10^2	-	-	-
	Tamarind-chilly paste	1.8×10^3	1×10^3	-	-
	Candied green squash	1×10^2	-	-	-
	Dehydrated fish sauce	1×10^2	-	-	-
	Chilly powder	$>3 \times 10^4$	-	-	-
5-2-2(2)-IILaA4	Dehydrated, cooked rice*	$>3 \times 10^4$	1.35×10^7	-	-
	Steamed, salted meat	6×10^2	-	-	-
	Tamarind-chilly paste	1.2×10^3	2.5×10^3	-	-
	Candied green squash	3×10^3	2×10^2	-	-
	Dehydrated fish sauce	-	2×10^2	-	-
	Chilly powder	-	-	-	-

Tests was carried out during the period 11 - 29 December 1971.

*Mold was visible.

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(11)-aA1	Dehydrated, cooked rice	1×10	1×10^2	-	-
	Tamarind-chilly paste	1×10^3	2×10^4	-	-
	Fine shredded, dried pork	2.5×10^4	4.5×10^4	+	-
	Dried banana	-	-	-	-
	Dehydrated fish sauce	-	1.4×10^3	-	-
	Chilly powder	2.2×10^4	1×10^4	+	-
5-2-2(11)-aA2	Dehydrated, cooked rice	6×10	2×10	+	-
	Tamarind-chilly paste	1×10^3	1.3×10^4	-	-
	Fine shredded, dried pork	1×10^4	-	+	-
	Dried banana	6×10	1.3×10^2	-	-
	Dehydrated fish sauce	-	1×10^2	-	-
	Chilly powder	6.5×10^4	2×10^3	-	-
5-2-2(11)-aA3	Dehydrated, cooked rice	4×10	1×10^2	-	-
	Tamarind-chilly paste	1×10^3	-	-	-
	Fine shredded, dried pork	1.4×10^4	-	-	-
	Dried bananas	-	6×10	-	-
	Dehydrated fish sauce	1×10^2	6×10^2	-	-
	Chilly powder	7×10^3	-	+	-
5-2-2(11)-aA4	Dehydrated, cooked rice	6×10	6×10^2	-	-
	Tamarind-chilly paste	1×10^3	1×10^4	-	-
	Fine shredded, dried pork	5×10^3	4×10^3	-	-
	Dried banana	-	-	-	-
	Dehydrated fish sauce	1×10^2	4×10^2	-	-
	Chilly powder	7×10^4	-	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(11)-IUaA1	Dehydrated, cooked rice	2.3×10^2	-	-	-
	Tamarind-chilly paste	7.8×10^4	1×10^3	-	-
	Fine shredded, dried pork	2.9×10^4	-	-	-
	Dried banana	8×10	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	2.3×10^4	1×10^3	-	-
5-2-2(11)-IUaA2	Dehydrated, cooked rice	8.3×10^2	1×10^3	-	-
	Tamarind-chilly paste	6×10^3	-	-	-
	Fine shredded, dried pork	9×10^3	-	-	-
	Dried banana	1.2×10^2	-	-	-
	Dehydrated fish sauce	1.2×10^2	-	-	-
	Chilly powder	7×10^3	1×10^3	-	-
5-2-2(11)-IUaA3	Dehydrated, cooked rice	6.7×10^2	4×10^2	-	-
	Tamarind-chilly paste	1×10^3	-	-	-
	Fine shredded, dried pork	1.6×10^4	-	-	-
	Dried banana	-	1×10	-	-
	Dehydrated fish sauce	-	1×10^3	-	-
	Chilly powder	1.6×10^4	-	-	-
5-2-2(11)-IUaA4	Dehydrated, cooked rice	7.6×10^2	1×10	-	-
	Tamarind-chilly paste	-	-	-	-
	Fine shredded, dried pork	9×10^3	-	-	-
	Dried banana	1×10	1×10	-	-
	Dehydrated fish sauce	-	1×10^2	-	-
	Chilly powder	2.1×10^4	1×10^4	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(11)-ILaA1	Dehydrated, cooked rice	1×10^1	1×10^2	-	-
	Tamarind-chilly paste	1×10^4	6×10^2	-	-
	Fine shredded, dried pork	3.3×10^5	-	-	-
	Dried banana	1×10^1	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	1×10^3	-	-	-
5-2-2(11)-ILaA2	Dehydrated, cooked rice	5×10^1	-	-	-
	Tamarind-chilly paste	2.1×10^3	1×10^2	-	-
	Fine shredded, dried pork	4×10^4	1×10^5	-	-
	Dried banana	1×10^1	-	-	-
	Dehydrated fish sauce	-	1×10^2	-	-
	Chilly powder	3.5×10^4	-	-	-
5-2-2(11)-ILaA3	Dehydrated, cooked rice	8×10^1	-	-	-
	Tamarind-chilly paste	9×10^2	-	-	-
	Fine shredded, dried pork	8×10^4	-	-	-
	Dried banana	8×10^1	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	3.3×10^4	-	-	-
5-2-2(11)-ILaA4	Dehydrated, cooked rice	2.2×10^2	2.2×10^2	-	-
	Tamarind-chilly paste	2.8×10^3	1×10^2	-	-
	Fine shredded, dried pork	1×10^4	6×10^4	-	-
	Dried banana	2×10^1	2×10^2	-	-
	Dehydrated fish sauce	-	1×10^3	-	-
	Chilly powder	1.1×10^4	1×10^3	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(11)-IIUaA1	Dehydrated, cooked rice	1.8×10^3	7×10	-	-
	Tamarind-chilly paste	4.6×10^3	6×10^2	-	-
	Fine shredded, dried pork	7×10^4	1.5×10^5	-	-
	Dried banana	6×10	3×10	-	-
	Dehydrated fish sauce	1×10^2	1×10^3	-	-
	Chilly powder	1.3×10^5	1×10^3	-	-
5-2-2(11)-IIUaA2	Dehydrated, cooked rice	9×10^2	1×10	-	-
	Tamarind-chilly paste	7×10^3	6×10^2	-	-
	Fine shredded, dried pork	6×10^4	3×10^5	-	-
	Dried banana	5×10	1×10	-	-
	Dehydrated fish sauce	2×10^2	1×10^3	-	-
	Chilly powder	4.8×10^4	2×10^3	-	-
5-2-2(11)-IIUaA3	Dehydrated, cooked rice	1×10	1×10	-	-
	Tamarind-chilly paste	8×10^2	1×10^3	-	-
	Fine shredded, dried pork	1×10^4	-	-	-
	Dried banana	3×10	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	1.4×10^5	-	-	-
5-2-2(11)-IIUaA4	Dehydrated, cooked rice	2×10	2.8×10^3	-	-
	Tamarind-chilly paste	3×10^2	-	-	-
	Fine shredded, dried pork	3×10^4	-	-	-
	Dried banana	2×10	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	5×10^4	-	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic Coliform test	Coliform test
5-2-2(11)-IILaA1	Dehydrated, cooked rice	-	-	-	-
	Tamarind-chilly sauce	-	3.3×10^4	-	-
	Fine shredded, dried pork	1×10^5	1×10^4	-	-
	Dried banana	1×10	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	3×10^4	-	+	-
5-2-2(11)-IILaA2	Dehydrated, cooked rice	1×10	1×10^2	+	-
	Tamarind-chilly paste	3×10^3	$> 3 \times 10^5$	-	-
	Fine shredded, dried pork	2.5×10^3	-	-	-
	Dried banana	7×10	1×10^2	-	-
	Dehydrated fish sauce	-	1.5×10^3	-	-
	Chilly powder	$> 3 \times 10^5$	-	-	-
5-2-2(11)-IILaA3	Dehydrated, cooked rice	1×10	1×10	-	-
	Tamarind-chilly paste	1×10^2	-	-	-
	Fine shredded, dried pork	1×10^4	-	-	-
	Dried banana	-	1×10^2	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	$> 3 \times 10^5$	-	+	-
5-2-2(11)-IILaA4	Dehydrated, cooked rice	-	-	+	-
	Tamarind-chilly paste	2×10^2	6×10^2	-	-
	Fine shredded, dried pork	1×10^5	6×10^4	-	-
	Dried banana	3×10	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	$> 3 \times 10^5$	-	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(15)-aA1	Dehydrated, cooked rice	6×10	4×10^2	-	-
	Sour vegetable soup	2×10^4	6×10^3	-	-
	Shrimp powder	1×10^3	7×10^3	-	-
	Candied green squash	1×10	6×10	-	-
	Dehydrated fish sauce	1×10^2	1×10^3	-	-
	Chilly powder	1.7×10^4	3×10^4	-	-
5-2-2(15)-aA2	Dehydrated, cooked rice	1×10	5×10	-	-
	Sour vegetable soup	2×10^4	-	-	-
	Shrimp powder	2.2×10^4	6×10^3	-	-
	Candied green squash	-	1×10	-	-
	Dehydrated fish sauce	-	1.1×10^3	-	-
	Chilly powder	-	-	-	-
5-2-2(15)-aA3	Dehydrated, cooked rice	5×10	1×10^2	-	-
	Sour vegetable soup	2×10^5	1×10^2	-	-
	Shrimp powder	1.1×10^4	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	-	-	-	-
5-2-2(15)-aA4	Dehydrated, cooked rice	5×10	1×10^2	-	-
	Sour vegetable soup	3×10^5	2×10^3	-	-
	Shrimp powder	1×10^3	2×10^2	-	-
	Candied green squash	-	1×10	-	-
	Dehydrated fish sauce	-	1×10^3	-	-
	Chilly powder	8×10^5	2.7×10^6	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic Coliform test	Coliform test
5-2-2(15)-IUaA1	Dehydrated, cooked rice	6×10	2×10	-	-
	Sour vegetable soup	1×10^5	3×10^4	-	-
	Shrimp powder	2×10^3	6×10^3	-	-
	Candied green squash	1×10	1×10^2	-	-
	Dehydrated fish sauce	1×10^3	1.6×10^3	-	-
	Chilly powder	2.1×10^4	5×10^3	-	-
5-2-2(15)-IUaA2	Dehydrated, cooked rice	-	5×10	-	-
	Sour vegetable soup	1×10^4	6×10^4	-	-
	Shrimp powder	1.7×10^3	5×10^3	-	-
	Candied green squash	-	3×10	-	-
	Dehydrated fish sauce	-	8×10^2	-	-
	Chilly powder	2.3×10^5	2×10^4	-	-
5-2-2(15)-IUaA3	Dehydrated, cooked rice	-	1×10^2	-	-
	Sour vegetable soup	1.6×10^5	6×10^4	-	-
	Shrimp powder	3×10^3	6×10^3	-	-
	Candied green squash	2×10	5×10	-	-
	Dehydrated fish sauce	-	1.2×10^3	-	-
	Chilly powder	2.4×10^4	1.2×10^4	-	-
5-2-2(15)-IUaA4	Dehydrated, cooked rice	-	1×10	-	-
	Sour vegetable soup	1.4×10^4	-	-	-
	Shrimp powder	8×10^3	-	-	-
	Candied green squash	5×10^2	3×10^2	-	-
	Dehydrated fish sauce	-	5×10^2	-	-
	Chilly powder	1.8×10^3	1×10^4	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic Coliform test	Coliform test
5-2-2(15)-ILaA1	Dehydrated, cooked rice	6×10	6×10	-	-
	Sour vegetable soup	6.5×10^4	6×10^3	-	-
	Shrimp powder	8×10^3	6×10^3	-	-
	Candied green squash	-	2×10	-	-
	Dehydrated fish sauce	-	7×10^2	-	-
	Chilly powder	3×10^4	-	-	-
5-2-2(15)-ILaA2	Dehydrated, cooked rice	3×10	-	-	-
	Sour vegetable soup	5×10^4	1×10^4	-	-
	Shrimp powder	-	6×10^3	-	-
	Candied green squash	6×10	6×10	-	-
	Dehydrated fish sauce	-	2×10^3	-	-
	Chilly powder	9×10^3	5×10^3	-	-
5-2-2(15)-ILaA3	Dehydrated, cooked rice	5×10	3×10	-	-
	Sour vegetable soup	8×10^4	6×10^3	-	-
	Shrimp powder	4×10^4	1×10^3	-	-
	Candied green squash	6×10	1×10	-	-
	Dehydrated fish sauce	-	8×10	-	-
	Chilly powder	2×10^4	5×10^3	-	-
5-2-2(15)-ILaA4	Dehydrated, cooked rice	2×10	-	-	-
	Sour vegetable soup	4×10^4	1×10^3	-	-
	Shrimp powder	7×10^3	-	+	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	1.9×10^4	6×10^3	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(15)-IIUaA1	Dehydrated, cooked rice	5×10	3×10^2	-	-
	Sour vegetable soup	5×10^4	-	-	-
	Shrimp powder	2×10^3	-	-	-
	Candied green squash	-	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	3×10^5	1×10^5	-	-
5-2-2(15)-IIUaA2	Dehydrated, cooked rice	5×10	5×10^2	-	-
	Sour vegetable soup	7×10^4	1.6×10^4	-	-
	Shrimp powder	1.8×10^3	-	+	-
	Candied green squash	5×10^3	2×10^3	-	-
	Dehydrated fish sauce	1×10^2	1×10^3	-	-
	Chilly powder	1.4×10^4	1.1×10^4	-	-
5-2-2(15)-IIUaA3	Dehydrated, cooked rice	7×10	-	-	-
	Sour vegetable soup	5.5×10^4	6×10^3	-	-
	Shrimp powder	5×10^3	6×10^2	-	-
	Candied green squash	-	2×10^2	-	-
	Dehydrated fish sauce	-	2×10^3	-	-
	Chilly powder	4×10^4	4×10^3	-	-
5-2-2(15)-IIUaA4	Dehydrated, cooked rice	-	1×10^2	-	-
	Sour vegetable soup	1.8×10^4	-	-	-
	Shrimp powder	2.3×10^5	2×10^2	+	-
	Candied green squash	1×10	6×10	-	-
	Dehydrated fish sauce	-	1.1×10^3	-	-
	Chilly powder	9×10^3	-	-	-

TABLE 3 a. continued.

Code number	Description	Aerobic count (colonies/g)	Mold count (colonies/g)	Anaerobic test	Coliform test
5-2-2(15)-IILaA1	Dehydrated, cooked rice	-	2×10^2	-	-
	Sour vegetable soup	1.4×10^4	-	-	-
	Shrimp powder	8×10^3	-	-	-
	Candied green squash	5×10^2	3×10^2	-	-
	Dehydrated fish sauce	-	5×10^2	-	-
	Chilly powder	1.8×10^4	1×10^4	-	-
5-2-2(15)-IILaA2	Dehydrated, cooked rice	1.1×10^2	2.4×10^2	-	-
	Sour vegetable soup	4×10^4	2×10^4	-	-
	Shrimp powder	1.2×10^3	6×10^3	+	-
	Candied green squash	1×10	2.0×10^2	-	-
	Dehydrated fish sauce	-	1×10^2	-	-
	Chilly powder	3.7×10^4	2×10^4	-	-
5-2-2(15)-IILaA3	Dehydrated, cooked rice	-	2×10^3	-	-
	Sour vegetable soup	2.1×10^5	-	-	-
	Shrimp powder	6×10^3	-	-	-
	Candied green squash	4×10	-	-	-
	Dehydrated fish sauce	-	-	-	-
	Chilly powder	-	-	-	-
5-2-2(15)-IILaA4	Dehydrated, cooked rice	8×10	1×10	-	-
	Sour vegetable soup	4.2×10^4	1×10^4	-	-
	Shrimp powder	3×10^3	1×10^3	-	-
	Candied green squash	-	1×10	-	-
	Dehydrated fish sauce	1×10^3	-	-	-
	Chilly powder	1.2×10^5	-	-	-

TABLE 4. METEOROLOGICAL DATA

Month: 1st half July 1971.

Day of the month	Cleared site						Jungle site						Day of the month										
	Outdoor			In depot			In depot			Outdoor													
	Temperature	Humidity	Rain-fall (mm)	Temperature	Humidity	Sun-shine (hr)	Temperature	Humidity	Humidity	Temperature	Humidity	Rain-fall (mm)											
Max.	Min.	Max. Min.	Max.	Min.	Max. Min.	Max.	Min.	Max. Min.	Max.	Min.	Max. Min.	Max.	Min.	Max. Min.									
1	82.8	70.0	100	71	27.9	2.8	84.6	72.5	98	68	79.7	73.0	96	81	80.2	74.8	100	89	22.8	1			
2	82.2	70.0	100	66	0.0	1.3	84.2	73.0	98	64	78.8	73.0	97	75	78.8	74.6	100	80	0.0	2			
3	82.0	71.2	100	80	3.3	1.3	81.5	74.3	97	74	77.0	73.6	97	83	77.9	73.0	100	100	0.5	3			
4	84.2	68.0	100	62	80.7	3.0	84.2	76.8	90	63	79.7	71.2	99	74	80.8	70.2	100	73	74.2	4			
5	81.9	68.0	100	68	1.7	3.5	82.4	69.4	100	70	78.6	69.8	100	84	78.8	68.9	100	100	24.4	5			
6	80.8	67.6	100	74	0.0	2.9	82.8	71.1	97	74	78.6	71.4	96	90	78.8	70.2	100	100	1.3	6			
7	78.6	69.1	100	74	0.0	0.3	80.4	73.2	97	74	77.7	74.8	95	84	77.5	71.6	100	97	0.0	7			
8	79.7	68.9	100	73	0.0	3.7	80.2	71.6	97	73	78.3	71.8	96	85	78.8	71.4	100	97	0.0	8			
9	77.9	68.5	100	72	0.0	1.5	79.7	71.6	100	73	77.2	71.8	97	83	77.2	71.4	100	96	0.0	9			
10	82.8	69.4	100	66	1.7	8.2	85.8	72.3	99	62	80.4	72.5	98	80	80.8	72.0	100	91	0.2	10			
11	85.1	69.1	100	57	0.0	8.9	89.2	73.0	94	59	83.3	73.0	91	68	83.1	72.1	100	65	0.0	11			
12	83.8	71.1	98	62	0.0	3.3	85.8	73.4	95	61	80.8	73.6	91	72	80.8	73.0	100	74	0.0	12			
13	75.9	69.4	100	94	0.0	0.0	78.4	72.9	95	80	76.1	73.4	98	86	75.4	71.8	100	100	0.0	13			
14	75.2	67.6	100	81	27.0	1.0	77.0	71.6	99	82	75.0	71.4	99	94	75.2	70.0	100	100	19.0	14			
15	81.9	68.7	100	58	10.2	2.6	83.5	72.0	98	65	77.9	71.8	98	78	78.4	71.6	100	83	10.2	15			
16	82.9	67.6	100	61	0.0	3.2	86.0	71.6	95	61	80.2	71.4	96	74	80.1	70.3	100	81	0.0	16			
Totals												This page		152.5		47.5		Brought forward		152.5		152.6	
For the month												-		-		-		-		-		-	
Monthly rain days												-		-		-		-		-		-	

N.B. Temperature in °F; humidity in per cent; sunshine in hours.

TABLE 4. continued.

Month: 2nd half July 1971.

Day of the month	Cleared site						Jungle site						Day of the month							
	Outdoor			In depot			In depot			Outdoor										
	Temperature	Humidity	Rain-fall shine	Temperature	Humidity	Humidity	Temperature	Humidity	Humidity	Temperature	Humidity	Rain-fall								
	Max. Min.	Max. Min.	(mm) (hr)	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	(mm)								
17	71.6	66.2	100	84	12.7	0.0	75.2	70.2	98	85	75.4	69.4	99	85	74.8	68.9	100	100	4.1	17
18	74.8	68.0	100	74	7.6	0.0	77.0	71.6	98	75	74.8	70.7	99	85	74.8	71.1	100	100	5.1	18
19	80.6	68.0	100	62	0.0	2.8	82.6	71.6	98	62	79.7	71.8	95	71	79.0	70.9	100	71	0.0	19
20	76.1	66.6	100	74	31.7	0.2	78.4	70.2	97	74	75.4	70.0	98	84	75.2	69.4	100	98	25.4	20
21	80.8	66.4	100	60	2.0	2.7	83.3	70.2	98	60	78.8	70.0	96	74	78.8	69.4	100	74	0.5	21
22	82.4	69.8	99	58	0.0	3.4	85.3	73.8	86	56	80.4	73.2	86	66	80.6	72.5	100	60	0.0	22
23	79.0	70.0	100	77	0.0	1.0	78.8	73.4	94	84	77.4	73.4	90	75	77.0	73.2	100	88	0.0	23
24	73.2	68.0	100	90	0.2	0.0	75.4	71.2	97	90	74.5	72.5	97	88	73.9	70.7	100	100	Trace	24
25	80.6	67.8	100	70	5.3	4.3	82.4	71.1	99	70	78.8	71.2	97	82	79.7	70.0	100	88	3.0	25
26	79.0	68.5	100	70	17.7	0.4	80.8	71.6	99	69	77.0	71.6	100	81	76.1	70.5	100	90	15.2	26
27	75.4	66.0	100	90	1.3	0.8	79.7	71.6	98	78	77.0	71.6	99	86	76.8	71.2	100	100	Trace	27
28	75.0	65.7	100	78	0.0	0.6	79.7	71.6	99	79	77.0	71.4	97	90	77.2	71.2	100	100	0.0	28
29	79.7	67.3	100	63	0.0	9.8	84.9	73.0	97	64	81.5	73.0	96	74	81.9	72.7	100	77	0.0	29
30	80.6	66.4	100	60	0.0	10.7	86.0	72.5	97	60	82.4	72.5	95	69	82.6	71.8	100	69	0.0	30
31	84.6	62.2	100	47	5.1	5.5	79.8	73.2	94	49	83.8	72.9	94	59	84.7	70.5	100	48	2.5	31
Totals	This page						42.2						45.8							
	Brought forward						152.5						152.6							
	For the month						236.1						198.4							
	Monthly rain days						16						16							

TABLE 4. continued.

Month: 1st half August 1974.

Day of the month	Cleared site						Jungle site						Day of the month							
	Outdoor			In depot			In depot			Outdoor										
	Temperature	Humidity	Rain- fall shine	Temperature	Humidity	Humidity	Temperature	Humidity	Humidity	Temperature	Humidity	Humidity		Rain- fall						
	Max. Min.	Max. Min.	(mm) (hr)	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.		(mm)						
1	79.0	67.8	100	69	0.0	4.1	65.3	73.8	97	68	80.2	73.6	95	84	80.2	73.2	100	96	0.0	1
2	82.0	67.6	100	54	0.0	11.6	68.7	73.4	96	54	83.5	73.4	95	65	83.3	72.5	100	63	0.0	2
3	81.0	66.5	100	57	0.0	9.6	88.0	73.9	96	55	84.2	74.3	92	70	83.7	72.5	100	73	0.0	3
4	82.0	66.0	100	50	0.0	11.4	88.7	73.4	90	52	82.8	73.4	91	60	82.9	71.8	100	52	0.0	4
5	81.1	65.8	100	58	2.5	9.8	88.0	73.4	94	58	82.4	73.4	91	70	82.8	71.8	100	74	Trace	5
6	73.9	64.4	100	73	0.0	0.9	80.2	73.0	98	75	77.5	73.0	96	84	77.4	71.8	100	100	0.0	6
7	76.1	63.5	100	67	5.1	1.4	82.2	71.4	97	70	77.4	71.2	96	84	77.4	69.6	100	98	3.8	7
8	80.2	66.2	100	56	0.0	5.9	86.0	73.0	97	58	80.8	73.2	95	68	80.6	71.8	100	67	0.0	8
9	76.1	66.2	100	68	0.0	0.4	81.0	73.6	94	74	77.9	73.4	91	80	76.6	72.5	100	89	0.0	9
10	76.8	66.0	99	80	0.0	1.0	82.6	71.4	95	68	77.9	71.6	94	80	77.2	70.0	100	87	0.0	10
11	77.0	65.1	100	72	7.6	1.0	82.6	73.0	98	72	79.0	71.6	97	86	78.8	70.7	100	96	10.1	11
12	79.9	64.2	100	55	0.0	3.0	85.1	71.6	99	59	80.2	71.6	96	71	80.4	69.8	100	65	0.0	12
13	75.2	64.4	100	83	7.6	1.3	81.9	71.4	100	74	77.4	71.2	100	90	77.0	69.8	100	100	6.3	13
14	78.8	64.2	100	91	0.5	7.2	85.1	71.6	96	62	80.6	71.6	96	71	80.8	70.7	100	75	2.5	14
15	80.4	65.4	100	70	12.7	3.6	85.3	72.5	99	69	80.6	72.5	98	85	80.2	71.6	100	98	10.2	15
16	80.4	65.3	100	49	0.0	9.0	87.4	73.0	96	56	82.6	73.4	95	68	82.2	71.8	100	65	0.0	16

This page 36.0 81.2

Brought forward

For the month

Monthly rain days

Totals

32.9

TABLE 4. continued.

Month: 2nd half August 1971.

Day of the month	Cleared site					jungle site					Day of the month							
	Outdoor		Rain- fall (mm)	In depot		In depot		Outdoor		Rain- fall (mm)								
	Temperature Max.	Humidity Min.		Temperature Max.	Humidity Min.	Temperature Max.	Humidity Min.	Temperature Max.	Humidity Min.									
17	79.2	66.2	100	83	0.0	6.5	86.4	73.8	96	61	81.5	72.2	100	79	0.0	17		
18	79.2	66.6	100	50	2.0	3.8	86.2	73.4	96	59	80.8	73.8	95	71	2.5	18		
19	78.8	64.0	100	52	3.5	2.4	86.0	71.6	98	64	79.0	71.2	99	79	4.1	19		
20	72.5	63.0	100	89	3.0	1.0	80.6	70.9	99	84	75.9	71.2	100	93	2.8	20		
21	75.2	64.0	100	73	11.4	1.0	82.6	71.2	98	73	77.0	71.2	98	90	15.7	21		
22	77.2	64.0	100	100	Trace	3.2	84.2	70.7	99	68	77.2	70.0	100	87	Trace	22		
23	78.4	62.8	100	78	2.5	5.7	86.2	71.4	98	59	79.7	72.5	100	75	3.8	23		
24	78.8	60.8	100	76	0.0	7.2	85.8	69.4	97	55	78.8	69.6	97	66	0.0	24		
25	80.8	67.5	100	52	7.6	4.9	85.6	71.8	97	61	79.3	71.6	97	81	15.2	25		
26	77.2	66.2	100	65	1.3	4.2	84.0	72.5	96	70	77.0	71.6	95	86	1.3	26		
27	77.0	66.0	100	66	0.0	2.4	81.0	71.8	98	74	77.2	71.4	99	86	0.0	27		
28	76.5	66.2	100	78	0.0	2.9	80.8	71.8	99	79	77.0	71.6	100	91	0.0	28		
29	79.2	67.1	100	64	25.4	4.0	84.4	72.5	99	69	79.0	72.5	100	81	6.3	29		
30	80.6	66.0	100	58	25.4	6.0	85.6	70.3	100	65	79.0	69.8	100	80	19.0	30		
31	79.2	64.0	100	59	25.4	4.6	84.9	69.8	99	68	77.0	68.9	100	86	24.1	31		
Totals	This page		107.5		59.8		94.8											
	Brought forward		36.0		81.2		32.9											
	For the month		143.5		141.0		127.7											
	Monthly rain days		17				17											

TABLE 4. continued.

Month: 1st half September 1974.

Day of the month	Cleared site						Jungle site						Day of the month							
	Outdoor			Rain-fall (mm)	Sun-shine (hr)	In depot			In depot			Outdoor								
	Temperature	Humidity	Min. Max.			Temperature	Humidity	Min. Max.	Temperature	Humidity	Min. Max.	Temperature		Humidity	Min. Max.					
1	80.6	66.2	100	51	0.0	4.6	86.0	72.0	99	61	78.8	71.6	99	75	78.8	71.4	100	100	0.0	1
2	78.1	65.5	100	74	3.8	4.4	82.6	70.2	100	72	78.4	69.4	98	85	77.4	69.8	100	100	3.8	2
3	79.2	67.6	100	68	1.9	5.0	84.2	70.3	100	69	79.7	71.6	100	85	78.8	71.2	100	100	1.9	3
4	79.0	68.0	100	60	0.0	5.0	86.9	80.1	98	60	78.4	72.7	96	84	77.7	71.8	100	100	0.0	4
5	82.4	68.0	100	52	0.0	5.3	86.9	73.0	97	61	80.2	73.2	96	79	80.4	72.0	100	86	0.0	5
6	84.0	70.3	100	47	0.0	4.9	87.8	74.3	97	59	81.5	74.2	95	71	81.5	73.2	100	76	0.0	6
7	80.8	68.2	100	100	10.8	3.9	85.6	73.0	96	70	80.8	73.4	97	83	80.8	71.8	100	93	10.2	7
8	79.7	66.5	100	77	0.0	4.1	83.4	71.2	98	75	78.8	72.0	96	88	78.8	70.7	100	100	0.0	8
9	81.1	67.1	100	44	0.0	4.6	86.4	71.4	99	52	82.6	72.0	96	62	81.5	71.2	100	55	0.0	9
10	81.0	66.9	100	65	0.0	9.0	86.2	72.5	97	65	80.8	72.9	95	75	81.5	71.4	100	82	0.0	10
11	82.6	68.0	100	55	0.0	9.0	87.8	73.2	97	60	88.5	73.4	95	75	82.2	72.1	100	78	0.0	11
12	82.6	68.4	100	76	Trace	9.9	85.2	74.2	97	58	87.8	73.6	95	72	82.4	73.0	100	74	Trace	12
13	82.9	68.9	100	55	0.0	8.2	87.8	73.6	98	63	82.9	74.3	95	72	82.8	73.0	100	74	Trace	13
14	82.6	68.4	100	50	2.0	7.4	88.0	73.6	97	59	82.0	74.5	95	72	82.0	73.0	100	72	0.7	14
15	81.1	64.8	100	55	1.8	4.0	86.5	71.2	97	65	80.6	70.2	96	82	80.4	69.4	100	86	1.5	15
16	72.9	64.8	100	60	13.7	3.9	83.8	71.1	99	70	78.8	72.0	100	88	77.0	69.4	100	100	17.5	16

This page 34.0 99.8

Brought forward

For the month

Monthly rain days

Totals

35.6

TABLE 4. continued

Month: 2nd half September 1971.

Day of the month	Cleared site						Jungle site						Day of the month							
	Outdoor			In depot			In depot			Outdoor										
	Temperature Max.	Temperature Min.	Humidity	Rain-fall (mm)	Sun-shine (hr)	Temperature Max.	Temperature Min.	Humidity	Temperature Max.	Temperature Min.	Humidity	Rain-fall (mm)								
17	80.6	66.6	100	61	4.1	4.2	86.2	72.9	98	66	78.4	72.0	100	87	78.6	71.2	100	100	4.8	17
18	73.8	67.5	100	64	4.6	2.2	82.9	72.9	99	74	78.1	73.4	100	87	78.1	71.4	100	100	7.1	18
19	77.0	68.4	100	84	Trace	2.3	81.1	73.2	100	85	78.1	71.6	99	95	77.2	73.2	100	100	Trace	19
20	77.0	66.4	100	51	7.6	9.0	82.4	72.5	96	64	81.5		96	70	77.2	74.1	100	100	2.5	20
21	76.8	66.2	100	55	2.0	7.0	82.4	73.0	96	65	81.9	72.0	96	74	77.4	70.2	100	87	2.8	21
22	75.4	67.2	100	81	26.6	1.8	80.6	73.0	100	81	77.2	73.0	98	92	71.8	71.2	100	100	17.8	22
23	76.1	66.9	100	75	4.3	2.6	81.5	72.5	98	77	79.0	71.8	99	88	76.8	71.2	100	100	3.0	23
24	80.2	66.0	100	44	0.0	8.3	85.8	71.4	98	59	81.0	71.6	97	70	79.3	70.0	100	100	0.0	24
25	79.0	66.4	100	53	2.5	5.2	86.0	71.8	98	61	79.0	71.6	96	81	78.8	70.7	100	100	2.5	25
26	78.8	67.8	100	60	0.0	5.1	86.0	72.9	97	66	81.5	72.5	96	79	78.8	71.8	100	100	0.0	26
27	78.1	66.0	100	59	12.7	2.0	82.4	71.6	99	75	77.0	71.6	100	95	76.1	69.6	100	100	15.2	27
28	80.8	65.5	100	47	4.3	5.8	84.9	70.7	100	64	78.8	70.7	100	82	78.4	69.4	100	100	3.0	28
29	80.2	67.5	100	47	0.0	4.7	84.4	73.0	97	65	79.0	73.0	95	80	79.0	70.2	100	95	0.0	29
30	81.3	67.8	100	44	0.0	5.7	86.0	73.0	92	60	79.0	73.0	88	73	79.7	71.8	100	71	0.0	30
Totals													This page	68.7	65.9				57.7	
Brought forward														34.0	99.8				35.6	
For the month														102.7	165.7				93.3	
Monthly rain days														17					17	

TABLE 4. continued.

Month: 1st half October 1971.

Day of the month	Cleared site						Jungle site						Day of the month					
	Outdoor			In depot			In depot			Outdoor								
	Temperature Max. Min.	Humidity Max. Min.	Rain-fall (mm)	Sun-shine (hr)	Temperature Max. Min.	Humidity Max. Min.	Temperature Max. Min.	Humidity Max. Min.	Temperature Max. Min.	Humidity Max. Min.	Rain-fall (mm)							
1	79.0	67.8	100	52	83.3	73.0	96	69	79.2	73.4	93	80	78.6	71.8	100	88	0.0	1
2	79.7	68.0	100	46	84.2	73.2	97	64	79.3	73.4	95	74	79.2	72.5	100	78	0.0	2
3	79.7	67.6	100	45	84.2	72.3	95	66	79.0	73.0	95	78	79.2	71.8	100	78	0.0	3
4	78.8	67.6	100	43	82.8	73.0	100	63	80.4	73.2	99	69	79.2	71.8	100	74	0.0	4
5	79.7	66.9	100	48	84.4	73.0	98	67	81.1	73.0	97	73	80.4	71.4	100	77	0.0	5
6	76.5	66.2	100	62	81.5	71.6	98	74	76.1	72.7	99	93	75.2	70.7	100	100	7.6	6
7	76.3	64.8	100	63	82.4	69.8	100	75	76.5	70.0	100	93	76.6	69.4	100	100	58.3	7
8	72.5	64.4	100	75	77.2	69.8	100	84	73.0	69.5	100	97	72.7	68.7	100	100	Trace	8
9	80.6	63.9	100	43	84.2	68.0	100	63	77.5	68.5	99	79	78.4	68.0	100	84	0.0	9
10	87.5	63.0	100	92	73.4	69.6	99	95	70.2	68.5	99	97	70.0	68.0	100	100	46.0	10
11	67.1	64.0	100	100	81.2	69.4	100	98	70.0	68.4	100	100	69.6	67.8	100	100	1.0	11
12	73.6	62.6	99	33	77.2	67.8	98	58	72.5	66.6	99	66	73.0	66.0	100	62	2.3	12
13	73.4	62.6	91	28	78.1	68.0	89	50	73.8	67.8	93	55	74.3	66.6	100	42	0.0	13
14	70.0	59.0	91	45	75.2	64.8	89	64	71.8	65.1	87	69	71.6	64.0	100	68	0.0	14
15	71.6	58.8	94	47	77.0	64.4	85	65	73.6	64.4	88	70	73.4	62.8	100	75	0.0	15
16	72.5	57.2	100	38	77.0	62.6	95	61	73.6	63.9	94	67	73.2	61.2	100	66	0.0	16
													This page	164.3	74.8			
Totals													Brought forward					
													For the month					
													Monthly rain days				115.2	

TABLE 4. continued.

Month: 2nd half October 1974.

Day of the month	Cleared site					Jungle site					Day of the month										
	Outdoor		Rain-fall (mm)	Sun-shine (hr)	In depot		In depot		Outdoor												
	Temperature	Humidity			Temperature	Humidity	Temperature	Humidity	Temperature	Humidity											
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.							
17	75.2	62.2	100	38	0.0	6.9	80.2	68.0	96	63	75.6	67.6	94	66	75.2	66.0	100	65	0.0	17	
18	73.4	64.0	100	61	Trace	3.0	78.8	71.2	93	75	73.4	63.4	95	89	73.4	67.8	100	100	Trace	18	
19	78.8	64.4	100	42	0.0	7.3	84.0	70.0	95	65	78.4	69.4	97	75	78.6	63.0	100	80	0.0	19	
20	80.2	65.7	100	50	2.0	4.2	83.8	71.2	98	70	77.9	70.3	100	81	79.8	67.8	100	100	1.5	20	
21	77.0	65.2	100	59	1.3	6.5	81.0	70.0	99	74	78.6	70.3	99	85	77.2	67.8	100	96	Trace	21	
22	77.0	66.2	100	47	0.0	6.8	80.6	70.0	94	65	76.6	69.4	95	74	77.0	66.6	100	88	0.0	22	
23	78.4	63.1	100	41	0.0	8.0	82.4	69.4	93	60	77.7	68.9	93	68	75.6	66.0	100	68	0.0	23	
24	79.0	66.2	99	42	0.0	5.2	84.2	71.6	86	60	78.4	70.5	90	70	77.0	67.5	100	74	0.0	24	
25	69.8	65.8	100	97	33.0	0.1	75.2	70.7	99	94	73.8	71.6	100	97	70.7	67.6	100	100	22.8	25	
26	77.0	66.9	100	60	1.3	5.7	81.5	71.6	100	73	77.4	72.5	100	87	75.2	68.9	100	100	1.3	26	
27	70.2	64.6	100	84	0.0	0.0	75.2	70.0	97	86	74.3	70.7	98	94	70.7	67.1	100	100	0.0	27	
28	66.4	64.2	100	100	19.0	0.0	71.6	69.3	100	96	71.6	69.6	100	98	68.2	66.2	100	100	12.0	28	
29	65.3	60.8	100	100	41.9	0.0	69.8	66.2	100	97	69.8	66.0	100	99	67.3	62.6	100	100	29.2	29	
30	55.5	57.6	100	75	0.2	0.0	70.7	62.6	100	82	68.0	63.5	100	92	66.0	60.4	100	100	1.3	30	
31	72.9	61.0	100	52	0.0	4.9	75.2	66.2	95	67	71.6	65.8	96	80	59.4	63.5	100	100	0.0	31	
Totals	This page													98.7	58.6						68.1
	Brought forward													164.3	74.8						115.2
	For the month													263.0	133.4						183.3
	Monthly rain days													14						14	

TABLE 4. continued.

Month: 1st half November 1971.

Day of the month	Cleared site						Jungle site						Day of the month								
	Outdoor			In depot			In depot			Outdoor											
	Temperature Max.	Temperature Min.	Humidity	Sun-shine (hr)	Rain-fall (mm)	Temperature Max.	Temperature Min.	Humidity	Temperature Max.	Temperature Min.	Humidity	Rain-fall (mm)									
1	73.6	60.6	100	52	0.0	7.9	78.8	65.8	100	89	73.8	64.8	97	83	71.6	59.9	100	100	0.0		
2	75.4	62.6	100	56	0.0	8.4	80.6	68.0	94	70	76.1	68.0	98	84	73.9	64.6	100	100	0.0		
3	77.9	66.2	100	48	0.0	6.8	84.2	71.2	100	65	77.4	70.9	98	80	75.6	68.0	100	100	0.0		
4	78.8	64.2	100	36	0.0	9.5	84.2	69.6	100	57	77.2	69.4	99	69	75.6	66.0	100	82	0.0		
5	77.2	64.0	100	37	0.0	9.7	F O U R T H O R D E R						78.5	69.6	96	68	76.8	66.2	100	80	0.0
6	77.2	63.0	100	49	0.0	8.5	O F O R D E R						77.0	70.2	93	78	75.4	66.2	100	100	0.0
7	76.8	62.6	100	41	0.0	9.8					76.1	68.0	94	70	75.0	64.6	100	84	0.0		
8	76.8	62.6	100	36	0.0	9.7	81.0	69.4	95	56	76.1	68.7	96	66	73.6	64.8	100	73	0.0		
9	76.6	62.1	100	42	0.0	9.4	86.7	68.2	95	61	77.0	68.2	96	69	75.0	64.4	100	78	0.0		
10	75.4	63.5	100	43	0.0	9.0	80.6	69.6	97	63	75.9	69.6	94	71	73.8	66.0	100	80	0.0		
11	74.8	60.6	100	38	0.0	9.4	80.2	66.4	97	58	75.2	66.7	94	65	73.4	62.8	100	68	0.0		
12	73.6	58.8	100	41	0.0	9.1	78.8	64.9	95	60	74.5	65.8	95	67	72.9	61.7	100	75	0.0		
13	73.6	58.5	100	42	0.0	9.3	78.8	64.0	96	62	73.7	64.6	93	71	72.0	60.8	100	82	0.0		
14	71.6	53.8	100	38	0.0	9.3	76.6	64.6	95	59	72.1	64.4	90	64	70.2	60.8	100	69	0.0		
15	66.6	51.8	92	26	0.0	9.3	72.3	57.2	94	45	68.0	58.5	85	48	65.8	54.5	100	42	0.0		
16	66.7	48.4	93	26	0.0	9.3	72.5	55.0	90	47	68.4	58.5	80	49	66.2	53.6	100	44	0.0		
											This page		0.0		0.0						
											Brought forward		144.4								
											For the month										
											Monthly rain days										

TABLE 4. continued.

Month: 2nd half November 1971.

Day of the month	Cleared site					Jungle site					Day of the month									
	Outdoor		Rain-fall (mm)	Sun-shine (hr)	In depot		In depot		Outdoor			Rain-fall (mm)								
	Temperature Max. Min.	Humidity Max. Min.			Temperature Max. Min.	Humidity Max. Min.	Temperature Max. Min.	Humidity Max. Min.												
17	65.8	48.2	100	32	0.0	9.4	71.6	55.0	90	51	67.5	55.9	82	55	64.4	50.9	100	56	0.0	17
18	68.0	49.1	100	33	0.0	9.2	73.4	55.6	93	53	68.5	56.7	89	59	66.2	51.0	100	60	0.0	18
19	68.0	50.0	100	27	0.0	9.2	73.4	56.5	93	46	68.5	56.5	91	50	66.2	52.2	100	64	0.0	19
20	68.5	51.3	98	36	0.0	9.2	74.3	57.2	92	55	69.8	57.7	90	60	67.5	53.6	100	61	0.0	20
21	68.0	50.0	100	32	0.0	7.8	73.2	56.8	90	51	68.9	57.2	87	51	66.6	52.7	100	52	0.0	21
22	68.9	58.6	70	21	0.0	1.8	73.4	60.2	73	41	69.8	61.5	75	41	67.6	56.5	100	35	0.0	22
23	68.7	52.7	74	28	0.0	7.4	74.3	59.4	79	47	71.2	60.4	70	46	68.0	55.8	100	44	0.0	23
24	69.8	54.9	88	28	0.0	3.3	74.1	61.5	85	47	70.5	62.4	78	48	68.0	57.0	100	45	0.0	24
25	63.5	55.9	100	46	0.0	0.8	69.8	62.6	100	62	66.9	62.6	91	62	63.9	58.3	100	72	0.0	25
26	68.7	54.5	100	56	0.0	2.0	75.2	60.4	100	70	69.8	61.1	94	82	66.0	57.2	100	98	0.0	26
27	77.0	62.1	100	36	0.0	9.0	81.9	68.0	91	56	76.2	67.1	93	65	75.2	63.1	100	73	0.0	27
28	78.8	60.8	100	32	0.0	9.4	82.4	66.9	96	55	77.7	67.1	91	60	77.0	63.1	100	67	0.0	28
29	69.8	63.9	97	60	0.0	1.5	75.6	69.8	95	76	73.4	69.8	87	73	70.3	65.8	100	94	0.0	29
30	69.4	58.1	84	42	0.0	3.4	75.2	65.8	89	61	71.6	66.2	80	64	68.5	62.4	100	74	0.0	30

Totals	This page	0.0	83.1
	Brought forward	0.0	144.4
	For the month	0.0	227.5
	Monthly rain days	-	

TABLE 4. continued.

Month: 1st half December 1971.

Day of the month	Cleared site						Jungle site						Day of the month			
	Outdoor			In depot			In depot			Outdoor						
	Temperature Max.	Humidity Min.	Rain-fall (mm)	Temperature Max.	Humidity Min.	Sun-shine (hr)	Temperature Max.	Humidity Min.	Humidity Max.	Temperature Max.	Humidity Min.	Rain-fall (mm)				
1	59.8	52.7	100	40	0.0	7.8	75.2	59.0	95	50	68.4	56.3	100	77	0.0	1
2	73.4	55.4	100	42	0.0	9.2	78.3	61.7	96	52	73.8	52.6	100	84	0.0	2
3	72.5	59.4	100	46	0.0	6.1	78.3	65.7	95	65	73.4	65.5	100	90	0.0	3
4	75.2	56.8	100	42	0.0	5.4	71.6	64.0	96	60	73.4	63.1	100	90	0.0	4
5	77.0	60.1	100	37	0.0	9.1	82.4	67.1	95	59	77.0	66.0	100	74	0.0	5
6	77.0	63.0	100	37	0.0	6.4	82.6	69.4	97	59	76.8	68.9	100	76	0.0	6
7	77.2	61.7	100	34	0.0	8.0	82.4	67.6	97	58	77.2	68.4	100	71	0.0	7
8	75.2	60.8	100	42	0.0	5.1	79.2	67.6	98	64	74.8	67.6	100	88	0.0	8
9	73.4	59.5	99	43	0.0	4.0	78.6	65.7	96	64	72.3	64.8	100	88	0.0	9
10	73.8	57.2	100	38	0.0	6.4	77.9	63.0	97	59	73.0	62.8	100	75	0.0	10
11	73.2	57.4	100	41	0.0	5.4	77.4	62.8	96	60	61.9	62.6	100	81	0.0	11
12	72.1	55.4	100	27	0.0	9.4	76.0	61.0	96	47	72.1	62.1	100	46	0.0	12
13	71.6	55.2	100	39	0.0	9.5	76.6	60.6	95	53	72.0	61.0	100	57	0.0	13
14	73.4	53.8	100	42	0.0	9.2	78.1	60.6	95	55	73.0	60.8	100	64	0.0	14
15	75.2	58.8	100	49	0.0	5.0	79.3	64.6	97	62	74.8	64.4	100	76	0.0	15
16	73.4	57.2	100	40	0.0	7.5	77.9	62.8	96	53	73.4	62.8	100	58	0.0	16
Totals													This page	0.0	113.5	
Brought forward																
For the month																
Monthly rain days																

TABLE 4. continued.

Month: 2nd half December 1971.

Day of the month	Cleared site						Jungle site						Day of the month											
	Outdoor			In depot			In depot			Outdoor														
	Temperature	Humidity	Rain-fall (mm)	Temperature	Humidity	Sun-shine (hr)	Temperature	Humidity	Humidity	Temperature	Humidity	Rain-fall (mm)												
Max. Min.	Max. Min.		Max. Min.	Max. Min.		Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.	Max. Min.													
17	71.8	53.2	100	36	0.0	9.3	76.8	59.7	93	50	70.7	60.3	85	56	63.7	55.8	100	58	0.0	17				
18	70.2	54.9	100	45	0.0	0.5	76.1	61.7	90	58	70.1	61.7	91	60	68.4	57.0	100	72	0.0	18				
19	75.2	60.8	100	43	0.0	3.1	77.1	61.5	92	58		63.5	90	65	71.8	62.4	100	72	0.0	19				
20	64.4	57.2	100	70	0.0	0.0	69.8	63.5	100	82	66.2	62.6	97	88	64.4	59.7	100	100	0.0	20				
21	69.8	55.4	100	48	0.0	2.7	73.8	61.3	100	65	69.8	60.8	97	74	68.0	58.4	100	88	0.0	21				
22	72.5	60.1	100	46	0.0	4.4	77.0	64.0	95	63	71.6	63.1	92	72	70.2	60.8	100	100	0.0	22				
23	78.4	59.9	100	34	0.0	9.6	85.1	66.2	96	50	75.7	65.5	94	63	74.1	62.2	100	66	0.0	23				
24	82.0	59.9	100	33	0.0	7.7	87.8	66.2	96	50	78.8	66.2	94	62	77.3	62.2	100	66	0.0	24				
25	80.6	62.6	100	38	0.0	6.1	86.0	69.8	95	55	77.4	69.4	91	67	75.6	65.3	100	80	0.0	25				
26	80.6	64.9	100	44	0.0	8.0	87.8	72.7	91	55	77.7	71.6	91	74	75.2	68.0	100	94	0.0	26				
27	80.2	66.3	100	62	0.40	5.6	80.6	65.0	100	70	75.2	68.0	97	80	73.0	66.2	100	100	0.45	27				
28	60.8	55.9	100	80	0.0	0.0	66.7	62.2	95	81	68.0	62.1	92	86	60.8	57.9	100	100	0.0	28				
29	70.7	55.4	100	51	0.0	2.5	77.5	60.8	100	62	69.3	60.8	97	77	69.5	57.2	100	900	0.0	29				
30	73.4	57.3	100	40	0.0	6.9	79.9	62.6	94	53	71.2	62.6	92	65	69.8	59.0	100	69	0.0	30				
31	74.3	54.7	100	35	0.0	9.2	78.8	60.8	98	50	72.9	60.8	94	56	71.6	56.5	100	57	0.0	31				
Totals													This page			0.40			75.6			0.45		
Brought forward													0.0			113.5			0.0					
For the month													0.40			189.1			0.45					
Monthly rain days													1											

DISCUSSION

Test results and changes in physical and biological properties of the combined combat rations can be discussed as follows:

Physical changes

Visual observation of the unexposed test samples showed that a few packages have been attacked by ants. Black mold appeared to have grown on two packages of dessert (candied green squash), as was seen on examination. Exposed test samples were examined after withdrawal and it was found that shrimp powder packages suffered from ant attack. Few packages were broken and leaked. Physical defects of food containers did not occur so frequently as to be a major problem at the first withdrawal.

Weight changes were observed in almost all test items, and most cases were of increasing weight. There appeared to be no significant difference in changes in weight between test samples stored in the depot in cleared site and those in the depot in jungle site. At any rate, the percentage of weight changes is very small and not very significant.

Biological changes

It is believed that degradation of stored samples is largely account for by bacteria and mold growth on the samples. Therefore tests for microbiological growth were made on the combined combat rations. The tests made were aerobic count, mold count, anaerobic count, and coliform tests.

In not very many cases did samples appear to contain anaerobic or coliform bacteria, as confirmed by qualitative tests for these classes of organism. Aerobic and mold count appeared in many cases. It is possible that bacteria and/or mold got into food samples through the breakages in packages caused by ants or other insects. Identification of bacteria and mold species was not attempted due to lack of reference cultures.

CONCLUSION

It appears that the test results for the first withdrawal of the combined combat rations are not very consistent. Although minor changes in weight were observed, the causes could not readily be ascertained. Physical conditions of food containers were not affected very much by insects or rodents. Only a few packages which are believed to have possessed an attractive smell, such as shrimp powder, were attacked by ants. In most cases, aerobic bacteria and mold could be observed and counted, while results of anaerobic and coliform tests appeared to be largely negative. It can be seen that the rations were susceptible to aerobic bacterial and mold growth. Breakages in packages are believed to be responsible for the appearance of bacteria and mold. Comparison of the data obtained at different withdrawals and different seasons of the year should lead to a better understanding of the problems.

ACKNOWLEDGEMENTS

The authors wish to express their thanks to the Microbiology Unit, ASRCT, for their generous cooperation in providing space and facilities in the laboratory. Thanks are also due to Dr. L.E. Wood of ARPA/RDC-T for providing valuable guidance in the prosecution of the project and for having made many arrangements for bringing it into being.

APPENDIX I

TEST PLAN

SAKAEPLAT EXPERIMENT STATION

APPLIED SCIENTIFIC RESEARCH CORPORATION OF THAILAND

<u>Subject</u>	<u>Preserved Foods</u> (Combined combat rations)
1. <u>Sponsor</u>	Preserved Food Organization
<u>Manufacturer</u>	Preserved Food Organization
2. <u>Purpose</u>	To study the changes in physical and chemical properties of the rations when stored under various conditions over different lengths of time. To study their shelf lives. To study microbiological growth.
3. <u>Scope of trial</u>	Number of types 3 Number of replicates 4 Number of withdrawals 8 Number of sites 2 Number of shelf levels 2 Number of specimens on sites: cleared 192 jungle 192 controls 96 Number of specimens subjected to tests prior to exposure 12 Total 492

4. Exposure

Sites: Cleared site 50 x 50 metres area.

Jungle site 35 x 35 metres area, near to the cleared site.

Methods

Test specimens to be contained in cardboard boxes and stored in the shelters, simulating field storage, and in an air-conditioned room.

Controls

To be kept in an air-conditioned room about 250 metres away from the cleared site.

Specimens

5-2-2(2), Combined combat ration No. 2.

Each package of combined combat ration No. 2 contains:

1. Dehydrated, cooked rice (ข้าวสุกอบแห้ง)
2. Steamed, salted meat (เนื้อเค็มอบ)
3. Tamarind and chilly paste (น้ำพริกมะขามเปียก)
4. Candied green squash (ผักเขียวแช่อิ่ม)
5. Dehydrated fish sauce (น้ำปลาผง)
6. Chilly powder. (พริกป่น)

5-2-2(11), Combined combat ration No. 11.

Each package of combined combat ration No. 11 contains:

1. Dehydrated cooked rice (ข้าวสุกอบแห้ง)
2. Tamarind and chilly paste (น้ำพริกมะขามเปียก)
3. Fine shredded, dried pork (หมูหยอง)
4. Dried banana (กล้วยตาก)
5. Chilly powder (พริกป่น)

5-2-2(15), Combined combat ration No. 15.

Each package of combined combat ration No. 15 contains:

1. Dehydrated, cooked rice (ข้าวสุกอบแห้ง)
2. Sour vegetable soup (แกงส้มผัก)

- 3. Shrimp powder (กุ้งป่น)
- 4. Candied green squash (ผักเขียวแช่อิ่ม)
- 5. Dehydrated fish sauce (น้ำปลาผง)
- 6. Chilly powder. (พริกป่น)

- 5. Assessment Visual on site.
Weight changes.
Microbiological growth.
- 6. Withdrawal Programme Two years with withdrawals at 3 monthly intervals.
- 7. Meteorological Data Routine.
- 8. Reports At each withdrawal.

APPENDIX II

IDENTIFICATION CODES

The samples are labelled with a code consisting of a succession of figures and letters occupying eleven positions. Reading from the left, these are as follows:

- Position 1 Arabic figure denoting test material.
(5 is for preserved foods).
- Position 2 Dash
- Position 3 Arabic figure denoting the type of preserved food:
(2 for combat rations)
- Position 4 Dash
- Position 5 Arabic figure "2" indicating that these are combined rations.
- Position 6 Bracketted arabic figure indicating type of combined combat ration (manufacturer's number).
- Position 7 Roman figure indicating the location of the sample during the exposure period, thus
- I in the depot at the cleared site.
- II in the depot at the jungle site.
- No figure in the air-conditioned room.
- Position 8 Upper case letter indicating the storage shelf:
- U for upper.
- L for lower.
- Position 9 A lower case "a" indicating that the samples were enclosed in cardboard boxes or "b" indicating that the samples were outside the cardboard boxes on the shelves.
- Position 10 For all samples covered in this report either an upper case "A" indicating that they were withdrawn on the first withdrawal date or else blank indicating samples which were not exposed.

Position 11 Arabic figure indicating the identity of the sample in a group with otherwise identical labels (i.e. indicating number of replicate in a group).