

表24-2 実験途中で死亡又は剖検したラットの病理学的所見Ⅱ(ホコッシ抽出物の発がん性試験)

Organ	Finding	Male				Female				
		0% (n=16)	0.04% (n=12)	0.20% (n=13)	1% (n=13)	0% (n=22)	0.04% (n=19)	0.20% (n=23)	1% (n=6)	
Adrenal	adenoma			1						
	bleeding				1	8	8	9	4	
	calcification					1				
	cell infiltration						1			
	sclerosis							1		
	fibrinoid deposit							1		
Pituitary	pituitary tumor	4	4	7	10	20	15	19	6	
Thyroid and Parathyroid	c-cell tumor					2	3	1		
	follicular tumor	1	1	2	2	1	1			
	papillary tumor				1			2		
	goita	1	2	2	1		1	1		
	hyperplasia	1								
	atrophy	1								
Mammary gland	parathyroid tumor		2							
	adenocarcinoma	1				1	2	4		
	adenoma					4	2			
	fibroadenoma					7	5	7	1	
	papilloma					1				
	squamous cell metaplasia							1		
	ulcer					1				
Pancreas	milk secretion					5	5	4	1	
	islet tumor	2			1					
	metastasis of neoplasm			1						
	islet hyperplasia	1	1		1					
	acinar cell fatty degeneration	4	5	8	6	12	13	14	4	
	acinar cell atrophy					1	1			
Abdominal, Subcutis, Skin and Others	sarcoma	3	3	2						
	osteosarcoma					1				
	squamous cell carcinoma	1	2							
	duodenum adenocarcinoma		1							
Male Only	lipoma	1		4	1		1			
	Prostate	ventral prostate tumor	2							
		seminal vesicle tumor		1						
		seminal vesicle hyperplasia	3							
		fibrosis			1					
cell infiltration					2					
Testis	seminoma	1	2	1						
	seminiferous tubule atrophy	4	2	7	2					
	seminiferous tubule vacuolar		1							
Female Only	Uterus	adenocarcinoma						1		
		hyperplasia					2	1	2	2
		squamous cell metaplasia					1			
		stromal fibrosis					1			
		fibrosis						1	1	
		cyst					6	3	6	4
Ovary	atrophy					1				

表25-1 各実験群に認められた病理学的所見 I (ホコッシ抽出物の発がん性試験)

Organ	Finding	Male				Female				
		0% (n=34)	0.04% (n=38)	0.20% (n=37)	1% (n=37)	0% (n=28)	0.04% (n=31)	0.20% (n=27)	1% (n=44)	
Brain	brain neoplasm			1	1				1	
	atrophy	+				1				
	bleeding	+		1						
Eye	cataract					1				
Thymus	thymic lymphoma		1	2	2	1	2	2	4	
	cyst				2	1				
	hyperplasia	+				1				
	atrophy	+	11	11	2	1			1	
	hemosiderin deposition	+					2		1	
Lymph node	non-thymic lymphoma						1			
	cyst		1	1	1					
	metastasis of neoplasm	+	1	1						
	hyperplasia	+				1				
	hemosiderin deposition	+						1		
	fibrosis	+		1	1					
	fatty degeneration	+			1					
Heart	schwanoma			2						
	atrophy	±			1					
		+	16	14	8	3				
	necrosis	+			2					
	thrombosis	+	1	1	1				2	
	fibrosis	+						2		
	cell infiltration	±			2					
		+	1	1	2	3		2	2	
Lung	adenoma		2		1	1				
	squamous cell carcinoma						1			
	papilloma					1				
	metastasis of neoplasm	+	1							
	cell infiltration	±					1			
Liver	hepatoma		4		2				1	
	glioma					1				
	cyst			1	1		2			
	metastasis of neoplasm	+		1		1				
	foci	+	24	26	20	26				
		++			1	1	4	4	1	6
	bile duct hyperplasia	±	2	3	4	4	4	3	2	6
		+	19	17	15	8	12	17	17	18
				2				2		
	fatty liver	±		1	2	3	1			
		+	4	5	2	3	1	4	2	1
cell infiltration	±	2	2	4	5	4	1		2	
	+	1	6	5	5	2	1	5	4	
	bile duct enlargement	+		3					1	
Spleen	non-thymic lymphoma		1	2					1	
	hyperplasia	+				2				
	congestion	+				1				
	bleeding	+		1						
Stomach	papilloma		1	2						
	sarcoma		1	2						
	cyst							1		
	metastasis of sarcoma	+	1							
	ulcer	+			1	1				
	edema	+	1	2						
	cell infiltration	+	3		2					
	atrophy	+						1		
Kidney	sarcoma					1				
	squamous cell carcinoma		1							
	cyst		2	5	1	1	2	1	1	1
	squamous cell metaplasia	+	4	2	1	2	5	6	4	6
	sclerosis	+	3	5	5		1	1		
	hydronephrosis	+	1	1			1		1	4
	cast	±	1	2	8	1		4	1	6
		+	21	15	17	20	12	8	10	12
	regenerative epithelium	+	17	20	21	20	3	3	4	
	cell infiltration	±	1	4	3	1	1			
		+	21	15	11	7	5	1	4	2
		calcification	+				12	13	12	21

±; minimal, +; mild, ++; moderate

表25-2 各実験群に認められた病理学的所見Ⅱ (ホコッシ抽出物の発がん性試験)

Organ	Finding	Male				Female			
		0% (n=34)	0.04% (n=38)	0.20% (n=37)	1% (n=37)	0% (n=28)	0.04% (n=31)	0.20% (n=27)	1% (n=44)
Adrenal	adenoma	2		2				1	1
	cyst					1			
	fatty degeneration	+	1						
Bladder	papilloma						1		
	hyperplasia	+			1				
Pituitary	pituitary tumor	3	2	4	8	18	18	19	25
Thyroid	c-cell tumor	4	5	3	7	5	6	3	6
	follicular tumor	2	1	2	1	1	1		2
	papillary tumor	2				1	1		1
	cyst					1			
	goita	+	1	2	2				2
	atrophy	+	1	1					
Mammary gland	fibrosis	+							1
	adenocarcinoma						1		
	adenoma					2			
	fibroadenoma					6	8	3	
	squamous cell metaplasia	+				1			
	milk secretion	+				5	2	2	2
Pancreas	islet tumor	5	3	2	2	2	1	3	
	metastasis of neoplasm	+				1			
	islet hyperplasia	+	1	1					
	acinar cell fatty degeneration	±					2		6
		+	23	27	29	26	24	23	24
		++		1					
	acinar cell atrophy	+		1	1		1	1	1
Abdominal, Subcutis, Skin and Others	adenoma				1			1	
	lipoma	6	5	5	3			1	3
	sarcoma	5	2	1	3		1		
	squamous cell carcinoma	1							
	papilloma	1			1				
	mesothelioma	2							
	epididymis tumor		1						
	hemangioma			1					
Male Only									
Prostate	ventral prostate tumor	1		1					
	seminal vesicle tumor	4	6	2	1				
	seminal vesicle hyperplasia	16	6						
	fibrosis	+			1				
	cell infiltration	±			1				
		+				2			
	bleeding	+				1			
Testis	seminoma	2	3	5	2				
	seminiferous tubule atrophy	+	16	14	15	14			
	seminiferous tubule vacuolar	+			1	1			
Female Only									
Uterus	adenocarcinoma								1
	adenomatous polyp							1	3
	sarcoma					1		1	
	cyst					18	14	12	23
	hyperplasia	+	3	4	4	4	7		
	metastasis of neoplasm	+	1						
	squamous cell metaplasia	+						1	
	stromal fibrosis	+	1						
	fibrosis	+					2	7	5
Ovary	atrophy	+				1			
	cyst	+							1

±; minimal, +; mild, ++; moderate

表26 各実験群の雄ラットに認められた腫瘍発生(ホコツジ抽出物の発がん性試験)

Group	Pituitary and Parathyroid	Thyroid	Heart	Lung	Liver	Stomach	Kidney	Pancreas	Adrenal	Prostate	Testis	Abdominal, Subcutis and Skin	Others
0%	pituitary adenoma (7)	c-cell tumor (4) follicular tumor (3) papillary tumor (2)	shwannoma (1)	adenoma (2)	hepatoma (4)	papilloma (1) sarcoma (1) squamous cell carcinoma (1)	squamous cell carcinoma (1)	islet tumor (7)	adenoma (2)	ventral prostate tumor (3) seminal vesicle tumor (4)	seminoma (3)	lipoma (7) sarcoma (8) squamous cell carcinoma (2) papilloma (1) mesothelioma (2) adenoma (1)	mammary tumor (1) thyric lymphoma (1) non-thyric lymphoma (1) brain neoplasm (4) astrocytoma (1)
0.04%	pituitary adenoma (5)	c-cell tumor (5) follicular tumor (2) parathyroid tumor (1)	shwannoma (2)			papilloma (5) sarcoma (2)	mesenchymal tumor (1) adenocarcinoma (1) sarcoma (1) squamous cell carcinoma (1)	islet tumor (3)		seminal vesicle tumor (7)	seminoma (5)	lipoma (5) sarcoma (5) epididymis tumor (1) squamous cell carcinoma (2)	thyric lymphoma (3) non-thyric lymphoma (2) brain neoplasm (1) diaphragm adenocarcinoma (1)
0.20%	pituitary adenoma (11)	c-cell tumor (3) follicular tumor (4)		adenoma (1)		papilloma (1)		islet tumor (2)	adenoma (3)	ventral prostate tumor (1) seminal vesicle tumor (2)	seminoma (6)	lipoma (9) sarcoma (3) hemangioma (1)	thyric lymphoma (3) brain neoplasm (1)
1%	pituitary adenoma (18)	c-cell tumor (7) follicular tumor (3) papillary tumor (1)			hepatoma (2)			islet tumor (3)		seminal vesicle tumor (1)	seminoma (2)	fibroadenoma (1) lipoma (4) sarcoma (3) papilloma (1)	thyric lymphoma (3) non-thyric lymphoma (1) brain neoplasm (1)

表27 各実験群の雌ラットに認められた腫瘍発生(ホコツジ抽出物の発がん性試験)

Group	Pituitary	Thyroid	Heart	Lung	Liver	Stomach	Kidney	Pancreas	Adrenal	Mammary gland	Uterus	Abdominal, Subcutis and Skin	Others
0%	pituitary adenoma (38)	c-cell tumor (7) follicular tumor (2) papillary tumor (1)		adenoma (1) papilloma (1)	hepatoma (1) glioma (1)	papilloma (1) sarcoma (1)	sarcoma (1)	islet tumor (2)		adenocarcinoma (1) adenoma (6) fibroadenoma (13) papilloma (1)	sarcoma (1)		thyric lymphoma (1) brain neoplasm (1) osteosarcoma (1) hemangioma (1)
0.04%	pituitary adenoma (33)	c-cell tumor (9) follicular tumor (2) papillary tumor (1)		squamous cell carcinoma (1)		papilloma (1)		islet tumor (1)		adenocarcinoma (3) adenoma (2) fibroadenoma (13)		sarcoma (1) lipoma (1)	thyric lymphoma (3) non-thyric lymphoma (1) bladder papilloma (1)
0.20%	pituitary adenoma (38)	c-cell tumor (4) papillary tumor (2)		adenoma (1)		papilloma (3)		islet tumor (3)	adenoma (1)	adenocarcinoma (4) fibroadenoma (16)	adenocarcinoma (1)	adenoma (1) lipoma (1)	thyric lymphoma (4)
1%	pituitary adenoma (31)	c-cell tumor (6) follicular tumor (2) papillary tumor (1)			hepatoma (1)				adenoma (1)	fibroadenoma (1)	adenocarcinoma (1)	lipoma (3)	thyric lymphoma (4) non-thyric lymphoma (1) brain neoplasm (1)

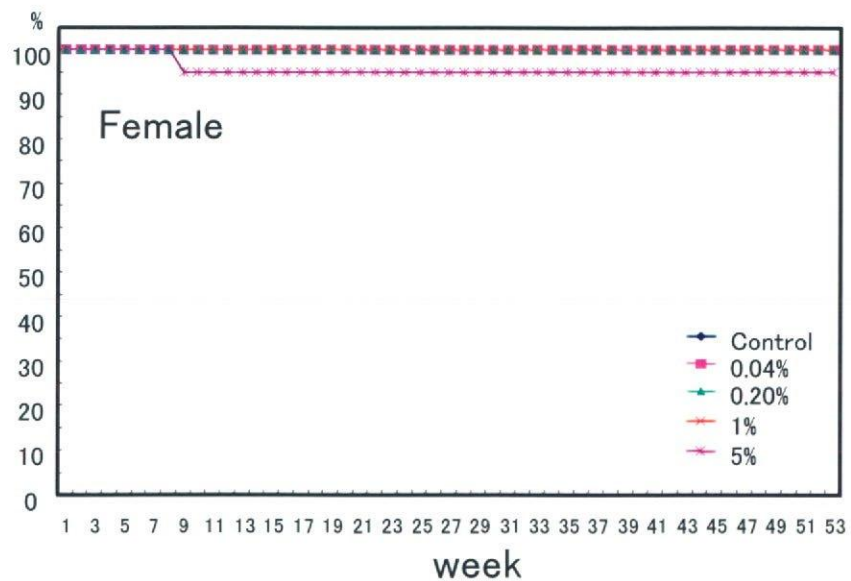
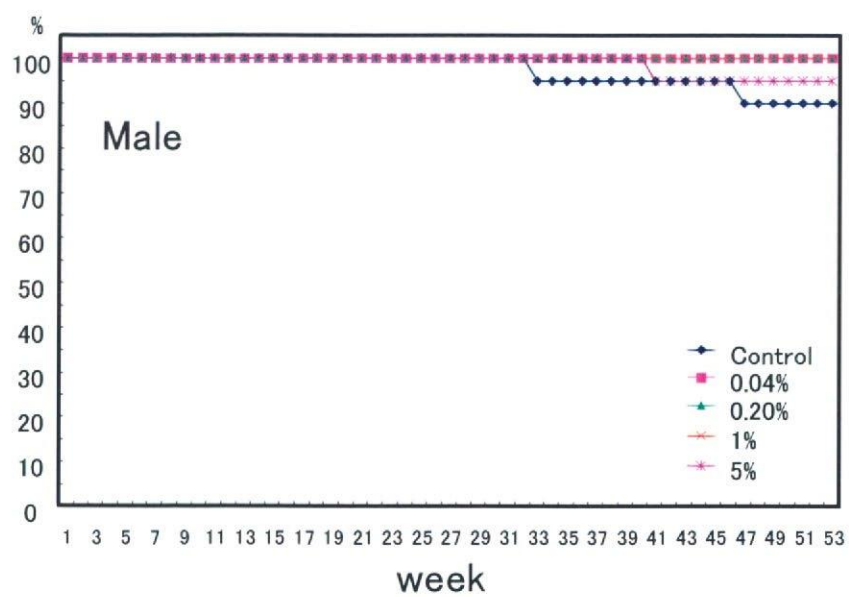


Figure 1 Survival curves in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

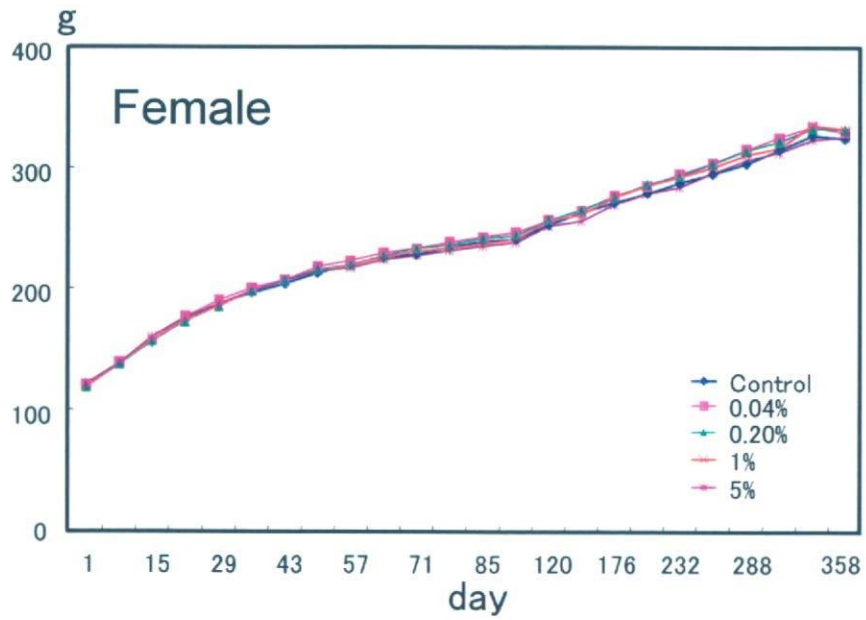
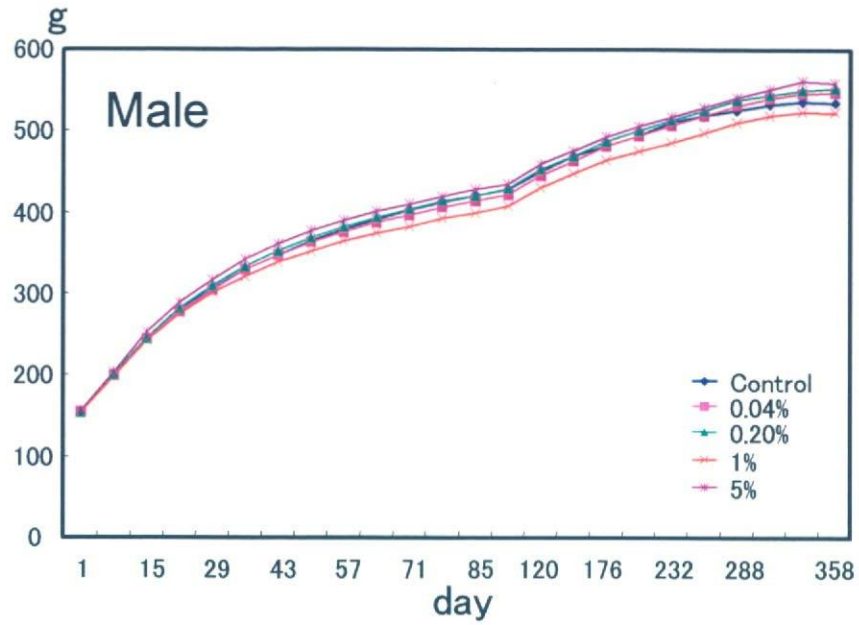


Figure 2 Body weight curves in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

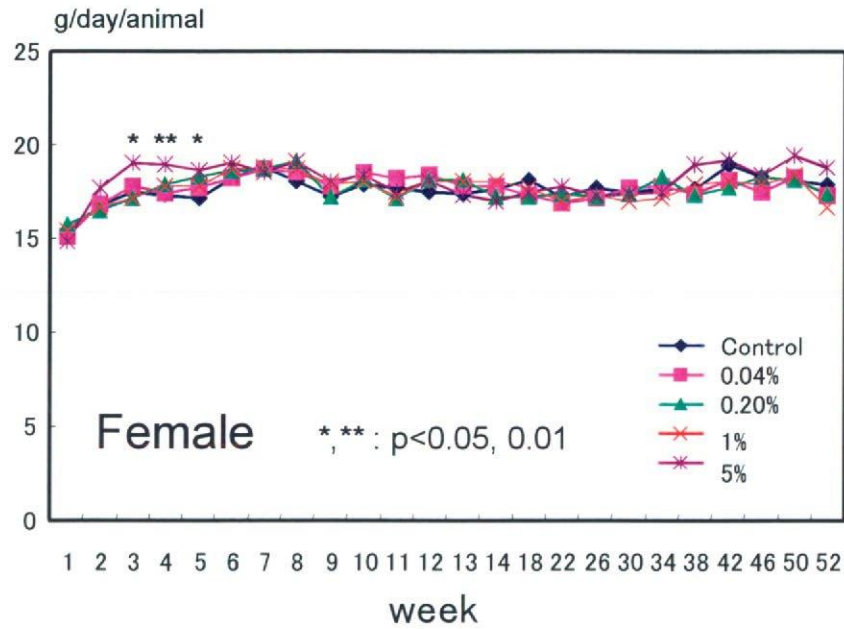
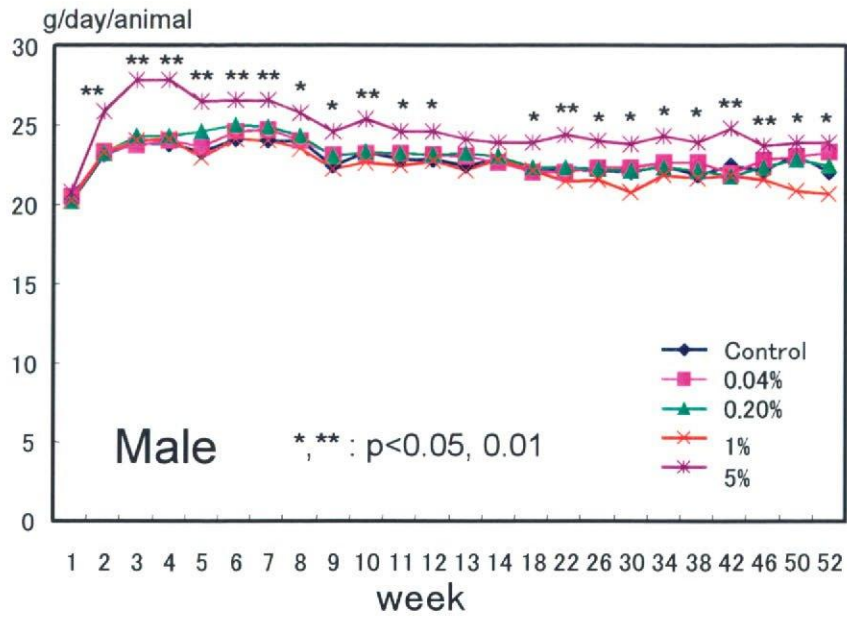


Figure 3 Food consumption in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

Table 1-1 Clinical signs in male rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

Findings	Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Control																											
Alopecia of forearm				4	7	7	7																				
Subcutaneous nodule																											
Facial subcutaneous nodule																											
Staining of urogenital region																											
Deep respiration																											
Cloudy urine																											
Plantar erosion																											
0.04%																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	140	136	133	133	133	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
0.20%																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	1	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	139	133	132	133	133	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
1%																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	131	127	133	133	134	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
5%																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	140	140	133	133	133	137	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
1%																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140

Table 1-1 Clinical signs in male rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks
(Continued)

Findings	Week 27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Control																											
Alopecia of forearm																			1	7							
Subcutaneous nodule				2	7	1																					
Facial subcutaneous nodule																										3	
Staining of urogenital region																									1	7	
Deep respiration																										1	
Cloudy urine																										1	
Plantar erosion																7	7	7	7	7	7	7	7	14	14	19	21
Total number of objects observed	140	140	140	140	140	140	134	133	133	133	133	133	133	133	133	133	133	133	133	133	126	126	126	126	126	126	
Number of animals with findings	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	2	2	1	1	2	2	2	4	
Number of objects without findings	140	140	140	140	138	133	133	133	133	133	133	133	133	133	133	126	126	126	125	119	119	119	112	112	106	94	
0.04%																											
Swelling of left foot																											
Crust formation													7	7	2												
Crust of dorsal neck																											
Alopecia of chest																											
Staining around eye																											
Plantar erosion																7	9	7	7	7	7	7	7	10	15	21	21
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	
Number of animals with findings	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	3	3	3	
Number of objects without findings	140	140	140	140	140	140	138	139	140	140	140	133	133	133	133	133	131	133	133	133	133	133	130	125	119	119	
0.20%																											
Crust of dorsal neck																											
Crust of back																											
Auricular swelling																											
Plantar erosion																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	
Number of animals with findings	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	2	2	3	3	4	3	
Number of objects without findings	140	140	140	139	133	133	133	133	133	133	133	133	133	133	133	130	126	126	119	126	126	123	119	118	118	119	
1%																											
Alopecia of chest																											
Crust of back																											
Loose stool																											
Plantar erosion																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	
Number of animals with findings	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4	
Number of objects without findings	133	133	133	133	133	133	133	133	133	133	133	134	140	140	140	133	132	126	120	119	119	119	119	113	112	112	
5%																											
Crust formation																											
Alopecia of abdomen																											
Staining of urogenital region																											
Limping																											
Chromaturia																											
Plantar erosion																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	
Number of animals with findings	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2	3	3	3	3	3	3	3	3	
Number of objects without findings	140	140	140	140	140	140	135	140	140	140	140	140	140	140	140	139	133	132	126	120	119	119	119	113	112	112	

Table 1-2 Clinical signs in female rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

Findings	Week 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Control																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
0.04%																											
Alopecia of gluteal resion																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	140	140	140	140	139	133	133	133	133	133	133	133	140	140	140	140	140	140	140	140	140	140	140	140	140	140
0.20%																											
Alopecia of forearm																											
Alopecia of chest																											
Alopecia of gluteal resion																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
1%																											
Alopecia of forearm																											
Alopecia of chest																											
Alopecia of gluteal resion																											
Total number of objects observed	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings	0	0	1	1	1	1	1	1	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings	140	140	136	133	133	133	133	133	126	126	126	126	126	133	138	140	140	140	140	140	140	140	140	139	133	133	133
5%																											
Systemic anemia																											
Cold to touch																											
Staining of urogenital region																											
Alopecia of gluteal resion																											
Decrease of locomotor activity																											
Deep respiration																											
Lacrimation																											
Hematuria																											
Opacification of vitreous body																											
Chromaturia																											
Total number of objects observed	140	140	140	140	140	140	140	140	135	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133
Number of animals with findings	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of objects without findings	140	140	140	140	140	140	140	133	126	126	126	126	126	126	126	126	126	126	126	126	126	126	119	119	120	126	126

Table 1-2 Clinical signs in female rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks
(Continued)

Findings	Week Day	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
Control																													
Total number of objects observed		140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	
Number of animals with findings		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings		140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
0.04%																													
Alopecia of gluteal resion																													
Total number of objects observed		140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of objects without findings		140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
0.20%																													
Total number of objects observed																													
Number of animals with findings																													
Number of objects without findings																													
1%																													
Alopecia of forearm																													
Alopecia of chest																													
Alopecia of gluteal resion																													
Total number of objects observed		140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Number of animals with findings		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Number of objects without findings		133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	
5%																													
Systemic anemia																													
Cold to touch																													
Staining of urogenital region																													
Alopecia of gluteal resion																													
Decrease of locomotor activity																													
Deep respiration																													
Lacrimation																													
Hematuria																													
Opacification of vitreous body																													
Chromaturia																													
Total number of objects observed		133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133	133
Number of animals with findings		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Number of objects without findings		126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	126	

Table 2 Body weight changes in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

SEX	GROUP AND DOSE	DATE	BODY WEIGHT (G)																		
			1	8	15	22	29	36	43	50	57	64	71	78	85	92					
MALE	CONTROL	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	153.5	198.9	244.3	278.1	305	328.4	346.5	364.9	377.6	391.3	402.4	412.3	419.9	427.3	427.3	427.3	427.3	427.3	427.3
	S.D.	8.9	11.8	15.9	21.4	25.7	29.5	32.9	34.4	36.4	37.9	39.6	39.5	42	40.8						
	0.04%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	154.2	199.5	244.2	277.7	304.3	328.4	347.1	362.6	376	387.5	395.8	406.5	413.9	421.4	421.4	421.4	421.4	421.4	421.4
	S.D.	7.9	12.1	13.9	18.4	22.1	25.4	28.5	30.6	32.4	33.8	35.1	35.9	38.2	39.3						
0.20%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	MEAN	153.6	199.8	244.5	281.1	308.3	332.4	351.2	368.3	381.4	393.5	403.1	413	419.8	428.7	428.7	428.7	428.7	428.7	428.7	428.7
S.D.	8.6	11.8	14.2	16.4	18.3	21.5	23.5	26.1	29.2	29.5	31.5	31.9	33.3	33.8							
1%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	MEAN	153.5	198.3	241.6	274.5	299.8	320.4	337.5	352.1	364.2	374.3	382.4	391.5	398.7	406.8	406.8	406.8	406.8	406.8	406.8	406.8
S.D.	8	12	15	18.1	20.7	24	25.7	30	32.1	34	34.2	35.6	36.5	37.2							
5%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	MEAN	154.7	203.2	251.7	288.3	316.6	341.1	360.4	377.1	389.1	400.7	410.2	419.1	427.3	434.1	434.1	434.1	434.1	434.1	434.1	434.1
S.D.	7.7	11.8	15.8	18.2	21.5	23.8	26.9	29.2	31.2	32.2	34.1	35.8	37.3	38.1							
FEMALE	CONTROL	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	120.3	137.7	155.6	173.6	186.6	196.1	203.5	212.9	219.5	224.9	228	233.8	238.5	240.5	240.5	240.5	240.5	240.5	240.5
	S.D.	6.2	7.3	10.7	11.3	11.7	13.6	14.9	15.8	16.4	16.8	18.2	19.3	19.6	19.5						
	0.04%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	119.5	138.4	155.7	176	189.6	200	206.9	217.4	222.8	229.3	233.2	237.9	242.1	246.1	246.1	246.1	246.1	246.1	246.1
	S.D.	7.2	10.1	9.8	11.5	12.6	12.1	11.9	14.4	15	12.4	12.9	15.2	16.4	14.4						
0.20%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	MEAN	118.4	137.1	155.9	172	184.4	197.6	206.6	215.1	219.6	227	233	235.7	241.2	244	244	244	244	244	244	244
S.D.	5.9	8.8	10.6	10.7	10.8	11.5	11.8	14.2	12.8	13.5	14.8	15.9	17.5	15.1							
1%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	MEAN	118.5	137.8	156.7	172.9	185.2	197.5	205.5	214.1	218.5	225.4	230.2	233.3	237.5	240.7	240.7	240.7	240.7	240.7	240.7	240.7
S.D.	6	8.7	10.2	10.6	11.3	13.8	14.2	13.8	13.9	14.8	15.5	15.2	15.5	16.4	16.4	16.4	16.4	16.4	16.4	16.4	16.4
5%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	MEAN	120.6	137.8	159.6	175.6	186.2	197.7	206	214.6	217.2	223.5	226.7	230.9	234.8	238	238	238	238	238	238	238
S.D.	6.2	8.2	8.6	9.3	10.8	12.8	12.7	11.4	15	14.1	15.1	16.1	20.4	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2

Table 2 Body weight changes in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks
(Continued)

SEX	GROUP AND DOSE	DATE	BODY WEIGHT (G)													GAIN
			120	148	176	204	232	260	288	315	344	358	358	0-358		
MALE	CONTROL	N	20	20	20	20	19	19	19	19	18	18	18	18	18	18
		MEAN	450.2	488.8	481.6	494.6	510.8	518.3	524.9	532.1	536.2	534.5	538.7	538.7	380.7	
		S.D.	45.4	49.3	51.7	52.1	55.1	55.5	56	56.7	64.5	66.5	66.5	66.3		
0.04%		N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	445.1	462.1	481.7	493.9	506.9	517.7	531.3	539	545.4	547.4	547.4	547.4	393.2	
		S.D.	43.3	47.6	52.1	55.2	57.5	59.8	63.6	67.8	71	73.2	73.2	69.6		
0.20%		N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	452.4	488.8	486.7	500.7	513.2	524.6	536.6	543.9	549.9	551.7	551.7	551.7	398.1	
		S.D.	35.7	35.2	35.5	37	38.6	39.9	40.5	42.6	41.2	43.3	43.3	40.8		
1%		N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	430.3	447	463.9	475.1	485.8	496.8	509	517.5	523.4	523.4	523	523	369.5	
		S.D.	41	40.9	41.8	44.2	44.1	44.5	47.3	48	48	48.5	48.5	45.3		
5%		N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	458.8	475.8	493.2	505.7	517.4	527.8	540.7	550.6	560.3	560.3	557.9	557.9	403.4	
		S.D.	38.2	39.7	42.7	43	44.4	45.5	49.2	50.5	53	50.8	50.8	48.2		
FEMALE	CONTROL	N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	252.7	262.7	270.9	278.7	287.1	294.2	302.9	315	326.8	324.4	324.4	324.4	204.1	
		S.D.	21.6	24.1	27.2	27.2	29.4	33.9	38.6	43.2	45.3	45.7	45.7	41		
0.04%		N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	256.4	264.5	276.9	284.5	294.3	303.4	314.5	324.8	334.3	329.3	329.3	329.3	209.9	
		S.D.	15.3	19	19.8	25.5	28.6	30.4	34.5	38.7	40.3	41.7	41.7	38.5		
0.20%		N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	256.8	265.3	275	285.8	292.9	302.9	314	321.4	332.1	331.8	331.8	331.8	213.4	
		S.D.	18.6	21.2	23	25.7	29.8	32.1	34.8	35.3	38.6	38	38	36.9		
1%		N	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	255.3	260.8	275	285	291.6	300	310.4	316.8	335.1	331.4	331.4	331.4	213.0	
		S.D.	19	18.4	20.6	22.1	23.8	27.2	27.5	30.9	32.7	33.7	33.7	31.4		
5%		N	19	19	19	19	19	19	19	19	19	19	19	19	19	
		MEAN	251.3	255.9	269.2	278.1	283.9	295.5	306.1	312.1	323	323	326	326	205.7	
		S.D.	20.3	19	23.3	28.3	24.7	27.6	30.7	34.1	34.3	37.1	37.1	35.0		

Table 3 Food consumptions in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

SEX	GROUP AND DOSE	WEEK	FOOD CONSUMPTION (G)																						
			1	2	3	4	5	6	7	8	9	10	11	12	13										
MALE	CONTROL	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	20.2	23.1	23.8	23.8	23.3	24.1	24	24	24	24.1	24	24	24	24.1	24	24	24	24	24	24	24	24	24
		S.D.	1.5	1.6	1.7	1.8	1.9	2.1	2.3	2.1	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	0.04%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	20.5	23.3	23.7	24	23.6	24.6	24.7	24	23.1	24.6	24.7	24	23.1	24.6	24.7	24	23.1	24.6	24.7	24	23.1	24.6	24.7
		S.D.	2	2.3	2.5	2.3	2.5	2.4	3.2	2.5	2.3	2.4	3.2	2.5	2.3	2.4	3.2	2.5	2.3	2.4	3.2	2.5	2.3	2.4	3.2
	0.20%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	20.2	23.2	24.3	24.3	24.6	25	24.9	24.3	23	25	24.9	24.3	23	25	24.9	24.3	23	25	24.9	24.3	23	25	24.9
		S.D.	1.8	1.7	1.7	1.7	1.9	2.1	2	2	2	2.1	2	2	2.1	2	2	2	2.1	2	2	2	2	2	2
	1%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	20.3	23.3	24	24.1	22.9	24.1	24	23.5	22.3	24.1	24	23.5	22.3	24.1	24	23.5	22.3	24.1	24	23.5	22.3	24.1	24
		S.D.	1.7	1.5	1.5	1.6	1.7	1.6	2.1	1.7	1.9	1.6	2.1	1.7	1.9	1.6	2.1	1.7	1.9	1.6	2.1	1.7	1.9	1.6	2.1
	5%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
MEAN		20.8	25.9 **	27.8 **	27.8 **	26.5 **	26.6 **	26.6 **	25.8 *	24.6 **	26.6 **	26.6 **	25.8 *	24.6 **	26.6 **	26.6 **	25.8 *	24.6 **	26.6 **	26.6 **	25.8 *	24.6 **	26.6 **	26.6 **	
S.D.		1.5	1.7	1.9	1.8	2	1.9	2.3	2.3	2.3	1.9	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
FEMALE	CONTROL	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	15.4	16.7	17.5	17.3	17.1	18.2	18.8	18	17.2	18.2	18.8	18	17.2	18.2	18.8	18	17.2	18.2	18.8	18	17.2	18.2	
		S.D.	1.1	1.3	1.4	1.6	1.7	2	2	2	2.2	2	2	2	2.2	2	2	2	2.2	2	2	2	2	2	2
	0.04%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	15.1	16.8	17.8	17.4	17.7	18.2	18.7	18.5	17.8	18.2	18.7	18.5	17.8	18.2	18.7	18.5	17.8	18.2	18.7	18.5	17.8	18.2	18.7
		S.D.	1.5	1.7	1.7	1.2	1.6	1.9	2.3	1.2	1.6	1.9	2.3	1.2	1.6	1.9	2.3	1.2	1.6	1.9	2.3	1.2	1.6	1.9	2.3
	0.20%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	15.7	16.5	17.1	17.9	18.3	18.6	18.7	19.1	17.2	18.6	18.7	19.1	17.2	18.6	18.7	19.1	17.2	18.6	18.7	19.1	17.2	18.6	18.7
		S.D.	1.4	1.5	1.3	1.4	1.5	2.1	2.1	2.2	1.8	2.1	2.1	2.2	1.8	2.1	2.1	2.2	1.8	2.1	2.1	2.2	1.8	2.1	2.1
	1%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
		MEAN	15.4	16.6	17.1	17.8	17.8	18.7	18.8	18.7	17.9	18.7	18.8	18.7	17.9	18.7	18.8	18.7	17.9	18.7	18.8	18.7	17.9	18.7	18.8
		S.D.	1.6	0.9	1.6	2.1	1.7	1.6	1.8	1.8	1.8	1.6	1.8	1.8	1.8	1.6	1.8	1.8	1.8	1.6	1.8	1.8	1.6	1.8	1.8
	5%	N	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
MEAN		14.8	17.7	19 *	18.9 **	18.6 *	19.0	18.5	19.1	18	19.0	18.5	19.1	18	19.0	18.5	19.1	18	19.0	18.5	19.1	18	19.0	18.5	
S.D.		1.1	1.4	1.8	1.5	1.7	2	2	1.9	1.6	2	2	1.9	1.6	2	2	1.9	1.6	2	2	1.9	1.6	2	2	

*: P<0.05, **: P<0.01 (SIGNIFICANT DIFFERENCE FROM CONTROL)

Table 3 Food consumptions in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks (Continued)

SEX	GROUP AND DOSE	FOOD CONSUMPTION (G)												
		WEEK	14	18	22	26	30	34	38	42	46	50	52	
MALE	CONTROL	N	20	20	20	20	20	19	19	19	19	19	17	
		MEAN	22.8	22.2	22.3	22.2	22.1	22.5	21.9	21.9	22.5	22.2	23.1	
	S.D.	2.1	2	2.1	1.9	2	2	2.2	2.2	2.4	2.2	5.5	1.8	
	0.04%	N	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	22.6	22.1	22.1	22.4	22.4	22.6	22.6	22	22.8	22.8	23	
	S.D.	2.7	2.2	2.7	2.9	2.6	3.1	2.6	3	3.4	3.4	3.7	3.6	
	0.20%	N	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	23	22.4	22.4	22.3	22.2	22.4	22.2	21.8	22.4	22.8	22.5	
	S.D.	1.7	1.2	1.7	1.5	1.5	1.4	1.5	1.7	1.5	1.5	1.6	1.7	
	1%	N	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	22.8	22.2	21.5	21.6	20.8	21.9	21.7	21.9	21.6	20.9	20.7	
	S.D.	1.7	1.6	1.4	1.4	1.8	1.6	1.7	1.7	1.5	1.4	1.5	1.6	
5%	N	20	20	20	20	20	20	20	19	19	19	19		
	MEAN	23.9	23.9 *	24.4 **	24.0 *	23.8 *	24.3 *	23.9 *	24.8 **	23.7 **	23.9 *	23.9 *		
S.D.	1.6	1.6	2.3	1.9	1.8	1.8	2.4	2.3	2.3	1.7	2.1	2.2		
FEMALE	CONTROL	N	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	17.6	18.1	17.2	17.7	17.5	17.6	17.6	18.3	18.3	18.1	17.9	
	S.D.	2.5	2.5	2.3	1.9	2.4	2.2	2.4	4.1	1.8	2.9	3.2		
	0.04%	N	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	17.8	17.3	16.9	17.1	17.7	17.8	17.4	18.1	17.5	18.3	17.3	
	S.D.	2.6	2	2.2	2.2	3.1	3.4	2.2	3	2.7	3.5	2		
	0.20%	N	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	17.2	17.2	17.4	17.2	17.4	18.3	17.3	17.7	18.3	18.1	17.4	
	S.D.	2.1	2.5	2.3	2	2.6	3.2	2	3.2	2.6	2.3	2.8		
	1%	N	20	20	20	20	20	20	20	20	20	20	20	
		MEAN	18	17.7	17	17.3	17	17.1	17.9	18	17.9	18.4	16.6	
	S.D.	1.4	1.6	1.5	1.8	1.6	2.3	2.8	2.4	2.1	3	2.7		
5%	N	19	19	19	19	19	19	19	19	19	19	19		
	MEAN	17	17.5	17.8	17.3	17.4	17.5	18.9	19.2	18.4	19.4	18.8		
S.D.	1.7	2.7	1.9	2.1	1.6	1.8	2.8	3.2	3.2	3.2	2.6			

*: P<0.05, **: P<0.01 (SIGNIFICANT DIFFERENCE FROM CONTROL)

Table 4 Achieved test article intake in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

GROUP SEX AND DOSE	ACHIEVED TEST SUBSTANCE INTAKE (MG/KG)														
	DAY	4	11	18	24	32	39	46	52	60	67	74	81	88	95
MALE CONTROL	CONC.(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.04%	CONC.(%)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	MEAN	53.07	46.69	38.84	34.56	30.91	29.99	28.36	26.45	24.61	23.96	23.43	22.7	22.25	21.45
	S.D.	3.73	2.75	2.5	1.7	1.57	1.28	2.13	1.82	1.5	1.42	1.17	1.35	1.59	1.53
0.20%	CONC.(%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	MEAN	262.75	231.83	198.51	173.24	159.73	150.33	141.55	131.98	120.77	118.37	115.23	112.02	110.77	107.72
	S.D.	12.96	9.17	8.97	7.8	8.03	7.97	6.31	6.63	7.75	6.84	5.23	6.1	6.7	6.18
1%	CONC.(%)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	MEAN	1322.33	1175.55	994.22	879.3	764.51	752.81	710.12	668.52	612.56	605.06	589.19	583.32	559.16	561.93
	S.D.	85.86	49.1	34.98	41.99	39.73	37.93	32.08	39.46	35.59	38.85	38.79	45.23	39.21	38.26
5%	CONC.(%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	MEAN	6733.86	6383.41	5533.88	4836.33	4192.4	3901.89	3685.96	3428.21	3165.26	3174.04	3002.56	2941.23	2823.93	2763.14
	S.D.	386.44	316.62	264.82	266.1	214.87	202.8	192.94	235.4	198.49	235.26	231.08	185.83	191.77	179.96
FEMALE CONTROL	CONC.(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.04%	CONC.(%)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	MEAN	50.71	48.53	45.7	39.74	37.28	36.43	36.17	34.24	32.08	32.31	31.21	30.86	29.47	28.86
	S.D.	3.74	4.65	4.09	3.3	3.05	3.04	4.2	2.98	3.26	2.96	3.37	2.42	2.3	3.26
0.20%	CONC.(%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	MEAN	266.15	241.5	220	209.47	198.42	189.18	180.81	178.37	156.75	159.67	147.01	153.55	151	140.95
	S.D.	22.79	26.45	22.45	21.31	18.46	23.85	19.62	23.65	18.27	22.96	15.79	18.94	21.38	16.34
1%	CONC.(%)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	MEAN	1297.57	1204.79	1092.64	1028.19	961.87	947.1	917.18	871.35	818.58	799.08	746.14	770.27	757.24	748.29
	S.D.	129.52	72.68	105.11	91.41	67.47	80.07	91.35	71.92	72.5	69.32	74.44	57.18	70.93	67.19
5%	CONC.(%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	MEAN	6129.87	6445.58	5941.44	5390.56	4993.55	4812.54	4500.13	4460.39	4148.32	4113.45	3865.42	3903.62	3686.12	3579.07
	S.D.	469	434.32	494.62	417.51	528.63	425.3	454.94	361.22	330.15	376.33	309.77	323.89	297.4	283.25

Table 4 Achieved test article intake in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks (Continued)

GROUP SEX AND DOSE	DAY	ACHIEVED TEST SUBSTANCE INTAKE (MG/KG)													MEAN ACHIEVED INTAKE			
		123	151	179	207	235	263	291	319	319	263	291	319	347		361		
MALE CONTROL	CONC.(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	S.D.	19.89	1.36	18.59	1.16	17.84	1.2	16.58	0.98	16.88	1.04	16.88	0.98	16.88	1.04	16.88	1.14	16.84
0.04%	CONC.(%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	MEAN	99.5	95.77	91.9	88.81	87.5	84.66	81.32	82.73	84.66	81.32	82.73	84.66	81.32	82.73	83.1	81.64	83.1
	S.D.	6.98	7.42	6.3	4.31	5.73	4.83	4.86	4.91	4.83	4.86	4.91	4.83	4.86	4.91	4.2	6.14	4.2
1%	CONC.(%)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	MEAN	517.23	483.79	466.53	439.45	452.06	437.44	432.09	419.67	437.44	432.09	419.67	437.44	432.09	419.67	401.15	398.3	401.15
	S.D.	32.54	36.46	30.18	27.24	27.67	29.52	26.28	21.43	29.52	26.28	21.43	29.52	26.28	21.43	22.28	31.91	22.28
5%	CONC.(%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	MEAN	2615.38	2570.59	2435.14	2357.16	2352.71	2266.5	2300.63	2165.14	2266.5	2300.63	2165.14	2266.5	2300.63	2165.14	2141.3	2148.16	2141.3
	S.D.	231.96	218.58	174.6	192.01	182.41	168.46	177.38	165.59	168.46	177.38	165.59	168.46	177.38	165.59	180.39	161.93	180.39
FEMALE CONTROL	CONC.(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MEAN	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	S.D.	26.93	2.84	24.68	2.04	24.04	2.04	22.98	2.74	23.01	2.74	22.98	2.74	23.01	2.74	21.8	21.24	21.8
0.04%	CONC.(%)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	MEAN	134.34	130.93	125.14	121.79	125.51	114.84	112.73	114.83	114.84	112.73	114.83	114.84	112.73	114.83	109.56	105.06	109.56
	S.D.	17.83	15.6	12.94	15.23	20.55	12.04	16.78	17.46	12.04	16.78	17.46	12.04	16.78	17.46	11.88	15.25	11.88
0.20%	CONC.(%)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	MEAN	695.42	653.63	629.15	596.71	589.17	597.43	580.18	566.32	597.43	580.18	566.32	597.43	580.18	566.32	549.99	501.18	549.99
	S.D.	71.4	58.18	58.78	55.25	69.02	73.79	64.26	55.6	73.79	64.26	55.6	73.79	64.26	55.6	88.03	62.62	88.03
1%	CONC.(%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	MEAN	3486.89	3486.82	3214.94	3149.38	3087.83	3207	3143.98	2943.37	3207	3143.98	2943.37	3207	3143.98	2943.37	3011.05	2892.29	3011.05
	S.D.	400.53	331.23	344.1	381.99	319.26	392.67	459.67	363.02	392.67	459.67	363.02	392.67	459.67	363.02	397.32	375.99	397.32
5%	CONC.(%)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	MEAN	4066.4	4066.4	3486.82	3214.94	3149.38	3087.83	3207	3143.98	2943.37	3207	3143.98	2943.37	3207	3143.98	3011.05	2892.29	3011.05
	S.D.	400.53	331.23	344.1	381.99	319.26	392.67	459.67	363.02	392.67	459.67	363.02	392.67	459.67	363.02	397.32	375.99	397.32

Table 5 Hematology in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

Group	WBC 10 ³ /μl	RBC 10 ⁶ /μl	HB g/dl	HT %	MCV fl	MCH pg	MCHC g/dl	Plate 10 ³ /μl	Ret %	Neutro %	Lymph %	Mono %	Eosino %	Baso %		
Male	Cont.	Mean	8.20	15.3	44.4	18.6	34.2	959	4.7	28.4	66.7	2.6	1.6	0.4		
		SD	2.00	1.28	2.5	6.0	1.1	1.9	222	7.5	9.1	9.4	1.1	1.0	0.2	
	0.04%	Mean	6.60	8.33	15.6	44.9	18.9	34.7	918	3.6	27.2	67.7	2.4	1.8	0.3	
		SD	2.21	1.08	1.9	4.0	1.2	1.6	178	5.5	8.9	8.9	1.0	0.6	0.1	
	0.2%	Mean	5.84	8.43	15.8	45.8	18.8	34.5	938	2.9	24.3	71.1	2.1	1.6	0.4	
		SD	1.53	0.92	1.7	3.5	0.9	1.7	139	3.2	9.9	9.7	0.9	0.6	0.2	
	1%	Mean	6.09	8.37	15.6	44.8	18.6	34.8	999	3.2	26.4	68.8	2.3	1.5	0.4	
		SD	1.96	0.83	1.6	3.2	0.8	1.7	247	4.2	9.9	9.8	0.8	0.8	0.2	
	5%	Mean	7.29	8.38	15.8	45.6	19.0	34.6	887	2.0	22.1	72.9	2.6	1.4	0.4	
		SD	8.06	1.29	2.0	5.7	4.1	1.4	204	0.4	6.2	5.9	1.0	0.7	0.2	
	Female	Cont.	Mean	3.75	7.64	15.0	44.3	19.7	34.0	758	2.2	25.4	69.5	2.5	1.9	0.5
			SD	1.10	0.33	0.4	1.4	1.6	0.7	131	0.5	7.7	7.8	0.8	0.5	0.2
0.04%		Mean	3.69	7.86	15.4	45.2	19.6	34.1	768	2.2	23.9	70.5	2.9	1.9	0.5	
		SD	0.77	0.32	0.5	1.5	1.3	0.4	122	0.4	5.4	5.9	1.3	0.5	0.2	
0.2%		Mean	3.39	7.79	15.3	44.7	19.7	34.3	834	2.1	24.9	70.1	2.3	1.9	0.5	
		SD	0.83	0.29	0.5	1.7	0.6	0.7	102	0.5	6.6	7.1	0.9	0.8	0.2	
1%		Mean	3.97	7.79	15.4	45.0	19.7	34.1	819	2.1	24.1	70.7	2.4	1.9	0.5	
		SD	0.79	0.35	0.5	1.7	1.4	0.7	101	0.4	4.6	5.3	1.0	1.0	0.1	
5%		Mean	3.40	7.79	15.3	45.1	19.6	33.8	800	2.2	23.6	71.4	2.4	1.8	0.5	
		SD	0.66	0.21	0.5	1.6	1.7	0.5	105	0.4	5.3	5.5	1.1	0.7	0.2	

Table 6 Blood biochemistry in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks

Group	TP g/dl	ALB g/dl	A/G	Glu mg/dl	CHO mg/dl	TG mg/dl	T-BIL mg/dl	γ -GTP IU/L	ALT IU/L	AST IU/L		
Male	Cont.	Mean	2.8	0.8	148	89	0.1	1	74	136		
		SD	0.2	0.1	10	26	77	0.0	2	44	68	
	0.04%	Mean	2.8	0.8	147	90	159	0.1	0	55	101	
		SD	0.2	0.2	14	16	51	0.0	1	21	31	
	0.2%	Mean	2.9	0.9	155	81	164	0.1	0	56	105	
		SD	0.2	0.2	19	20	51	0.1	1	27	37	
	1%	Mean	2.9	0.9	150	75	126	0.0	0	48	92*	
		SD	0.2	0.2	13	14	32	0.1	1	15	28	
	5%	Mean	2.8	0.9	159	77	165	0.0	0	74	115	
		SD	0.3	0.1	16	19	74	0.1	1	43	52	
	Female	Cont.	Mean	3.2	1.0	145	75	171	0.1	0	115	192
			SD	0.3	0.2	15	20	127	0.0	1	66	96
0.04%		Mean	3.2	1.0	142	66	185	0.1	1	122	178	
		SD	0.3	0.2	12	16	142	0.0	2	63	90	
0.2%		Mean	3.3	1.0	144	77	197	0.1	1	141	201	
		SD	0.2	0.1	16	23	138	0.0	1	90	117	
1%		Mean	3.3	1.0	143	62	201	0.1	1	118	185	
		SD	0.4	0.2	16	14	156	0.0	1	96	133	
5%		Mean	3.3	1.0	145	65	146	0.1	0	86	158	
		SD	0.4	0.2	17	19	115	0.0	1	61	78	

*: P<0.05 (Significant difference from control)

Table 6 Blood biochemistry in rats treated with the enzymatically-decomposed rutin by dietary administration for 52 weeks (Continued)

Male	Group		ALP IU/L	UN mg/dl	CRE mg/dl	CK IU/L	Ca mg/dl	IP mg/dl	Na mEq/L	K mEq/L	Cl mEq/L
Cont.		Mean	368	20	0.35	575	10.1	5.3	143	4.5	105
		SD	159	3	0.04	365	0.4	1.0	2	0.4	2
0.04%		Mean	362	21	0.33	482	10.0	5.0	143	4.5	105
		SD	117	2	0.05	271	0.3	0.6	1	0.4	1
0.2%		Mean	337	20	0.33	502	10.1	4.9	143	4.5	105
		SD	100	2	0.04	207	0.3	0.5	1	0.3	1
1%		Mean	432	19	0.34	421	10.0	5.0	144	4.4	105
		SD	126	3	0.05	194	0.3	0.6	1	0.3	1
5%		Mean	371	19	0.32	429	10.1	5.1	143	4.4	104
		SD	91	3	0.03	192	0.2	0.4	1	0.4	1
Cont.		Mean	258	24	0.33	261	10.2	4.7	143	4.1	105
		SD	120	3	0.03	118	0.4	1.0	2	0.5	2
0.04%		Mean	252	23	0.33	286	10.2	4.6	143	4.0	105
		SD	112	3	0.04	118	0.1	0.8	2	0.4	2
0.2%		Mean	242	23	0.33	240	10.4	4.7	143	4.1	105
		SD	87	2	0.04	95	0.3	0.9	2	0.3	2
1%		Mean	237	23	0.33	265	10.3	4.8	142	4.0	105
		SD	103	3	0.03	101	0.4	0.8	2	0.3	2
5%		Mean	212	23	0.33	317	10.4	4.6	143	3.9	106
		SD	101	3	0.04	132	0.3	0.9	1	0.4	2