

Table 8

プロポリスの発がん性試験

SUMMARY OF GROSS PATHOLOGY DATA
- TERMINAL SACRIFICE AND FOUND DEAD OR MORIBUND SACRIFICE

ORGAN AND FINDINGS	NO. OF ANIMALS EXAMINED	DOSE (%)	MALE		FEMALE				
			Group1	Group2	Group3	Group4	Group5	Group6	
Zybal gland(s)		--							
Normal	49	50	(50)	50	49	50	50	50	50
Discolored	1	0	0	0	0	0	0	0	0
Enlargement	0	0	0	0	1	0	0	0	0
Harder's gland(s)									
Normal	50	50	(50)	50	49	50	50	50	50
Enlargement	0	0	0	0	1	0	0	0	0
Brain									
Normal	50	48	(50)	50	50	49	49	49	50
Nodule/mass	0	1	0	0	0	0	0	0	0
Discolored	0	0	0	0	0	1	0	0	0
Discolored spot	0	1	0	1	0	0	0	1	0
Urinary bladder									
Normal	50	50	(50)	50	50	49	50	50	50
Hemorrhage	0	0	0	0	0	1	0	0	0

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ORGAN AND FINDINGS	NO. OF ANIMALS EXAMINED	DOSE (%)	MALE		FEMALE			
			Group1	Group2	Group3	Group4	Group5	Group6
		--	0	0.5	2.5	0	0.5	2.5
Bone	50	--	(50)	50	50	50	50	50
Normal				(50)	(50)	(50)	(50)	(50)
Skeletal muscle			(50)	(50)	(50)	(50)	(50)	(50)
Normal			50	50	50	50	50	50
Ear(s)			(50)	(50)	(50)	(50)	(50)	(50)
Normal			50	50	50	50	50	50

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ORGAN AND FINDINGS	DOSE (%) -- NO. OF ANIMALS EXAMINED --	MALE		FEMALE			
		Group1	Group2	Group3	Group4	Group5	Group6
Eye(s)		0 (50)	0.5 (50)	2.5 (50)	0 (50)	0.5 (50)	2.5 (50)
Normal		50	50	50	50	50	50
Aorta		(50)	(50)	(50)	(50)	(50)	(50)
Normal		50	50	50	50	50	50
Spinal cord		(50)	(50)	(50)	(50)	(50)	(50)
Normal		50	50	50	50	50	50
Sciatic nerve		(50)	(50)	(50)	(50)	(50)	(50)
Normal		50	50	50	50	50	50

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS Incidence (%)	MALE						FEMALE					
	1	2	3	4	5	6	1	2	3	4	5	6
Group	0	0.5	2.5	0	0.5	2.5	0	0	0	0	0.5	2.5
No. Animals	50	49	50	46	49	47	46	49	49	46	49	47
Liver												
Clear cell foci of cellular alteration	26	28.57	18	6.52	0	4.26						
Fatty metamorphosis	6	2.04	2	13.04	12.24	2.13						
Fibrosis	14	4.08	0	10.87	12.24	2.13						
No. Animals	49	50	49	45	48	49						
Kidneys												
Chronic nephropathy	57.14	24	22.45*	37.78	22.92	14.29*						
Tubular cell hyperplasia	51.02	16*	10.20*	13.33	6.25	2.04*						
Fibrosis	16.33	8	0	4.44	10.42	0						

*Significant at P<0.01 v.s. male or female control diet groups

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS		MALE			FEMALE		
Incidence (%)							
Group		1	2	3	4	5	6
Propolis (%)		0	0.5	2.5	0	0.5	2.5
No. Animals		50	50	50	50	50	50
Mandibular lymph node							
Lymphoid hyperplasia		48	30	18*	36	28	14*
Hemorrhage		0	4	4	0	2	0
Mesentelial lymph nodes							
Lymphoid hyperplasia		26	20	14	40	30	16
Thymus							
Lymphoid hyperplasia		20	16	6**	18	4	4*

*, ** Significant at P<0.01 and P<0.001, respectively, v.s. male or female control diet group

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS Incidence (%)	MALE		FEMALE			
Propolis (%)	1	2	3	4	5	6
No. animals	0	0.5	2.5	0	0.5	2.5
	50	50	50	48	50	49
Thyroid(s)						
C-cell hyperplasia	32	18	28	20.83	22	10.20
Follicular hyperplasia	2	4	2	6.25	2	0
Parathyroid(s)						
Hyperplasia	0	0	0	4.17	4	0

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS	MALE		FEMALE	
	Incidence (%)	No. Animals	Incidence (%)	No. Animals
Group	1	2	3	4
Propolis (%)	0	0.5	2.5	0
No. Animals	50	50	50	48
Spleen				
Erythromyeloid hyperplasia	10	6	8	8.89
No. Animals	50	50	50	50
Lung(s)				
Inflammation (pneumonia)	10	6	2	6
Alveolar hyperplasia	0	2	4	2
Pancreas				
Atrophy of acinar cells	12	6	2	4
Islet-cell hyperplasia	2	4	2	0
Acinar cell hyperplasia	2	0	0	0

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS	MALE		FEMALE	
	Incidence (%)	No. Animals	Incidence (%)	No. Animals
Group	1	2	3	4
Propolis (%)	0	0.5	2.5	0
No. Animals	47	50	48	41
Heart				
Myocardial fibrosis	14.89	8	0	4.88
No. Animals	50	50	50	50
Brain				
Hemorrhage	0	0	2	2
Stomach				
Glandular cell hyperplasia	2	0	0	0
Erosion, glandular stomach	4	2	0	0
Squamous cell hyperplasia	0	0	2	0
Basal cell hyperplasia	2	0	2	0
Esophagus	0	0	0	0

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS Incidence (%)	MALE			FEMALE		
	1	2	3	4	5	6
Group	0	0	0	0	0	0
Propolis (%)	0	0.5	2.5	0	0.5	2.5
No. Animals	50	50	50	50	50	50
Duodenum	0	0	0	0	0	0
Jejunum						
Ulceration	0	0	0	1	0	0
Ileum						
Ulceration	1	1	0	0	0	0
Cecum	0	0	0	0	0	0
Colon	0	0	0	0	0	0
Rectum	0	0	0	0	0	0
Urinary bladder	0	0	0	0	0	0
Aorta	0	0	0	0	0	0
Spinal cord	0	0	0	0	0	0
Harderian gland	0	0	0	0	0	0
Sciatic nerve	0	0	0	0	0	0
Femur	0	0	0	0	0	0
Sternum	0	0	0	0	0	0
Musculature	0	0	0	0	0	0

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS	MALE		
Incidence (%)			
Group	1	2	3
Propolis (%)	0	0.5	2.5
No. Animals	50	50	50
Testis (Testes)			
Atrophy	10	4	14
Epididymis			
Atrophy	6	2	4
Seminal vesicle(s)			
Atrophy	2	0	2
Prostate			
Hyperplasia	12	16	6
Atrophy	4	0	0

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS Incidence (%)	FEMALE	
Group	4	5
Propolis (%)	0	0.5
No. Animals	50	50
Uterus		
Cystic endometrial hyperplasia	28	16
Endometrial stromal polyp	16	16
Ovary		
Interstitial cell hyperplasia	8	4
Cyst	32	16
Tubulostromal hyperplasia	2	4
Oviduct	0	0

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS	MALE		FEMALE	
	Incidence (%)	No. Animals	Incidence (%)	No. Animals
Salivary glands	1	2	3	4
Hyperplasia	0	0.5	2.5	0
Mammary gland	50	50	50	50
Lobular hyperplasia	2	0	0	0
Follicular hyperplasia	0	0	6	10
	0	0	0	12
				5
				6
				0.5
				2.5
				50
				0
				50
				0
				18
				14
				10
				8

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS	MALE		FEMALE	
	Incidence (%)	No. Animals	Incidence (%)	No. Animals
Group	1	2	3	5
Propolis (%)	0	0.5	2.5	0.5
No. Animals	50	50	50	50
Adrenals				
Hemorrhage	2	0	2	12
Fatty metamorphosis	20	26	4	0
Cortical hyperplasia	6	4	4	26*
Medullary hyperplasia	6	0	2	0
Pituitary gland				
Hemorrhage	12	4	4	12
Hyperplasia	10	18	14	20
Zymbal gland(s)				
Hyperplasia	2	2	0	0

*, ** Significant at $P < 0.05$ and $P < 0.01$, respectively, v.s. male or female control diet group

Table 9. Microscopic pathological findings. Non-neoplastic or preneoplastic lesions (Incidence %)

ORGAN AND FINDINGS	MALE			FEMALE		
	Incidence (%)	No. Animals	Propolis (%)	Incidence (%)	No. Animals	Propolis (%)
Group	1	2	3	4	5	6
Propolis (%)	0	0.5	2.5	0	0.5	2.5
No. Animals	50	50	50	50	50	50
Bone Marrow						
Autolysis	10	4	12	18	12	4
Hemorrhage	8	6	2	2	4	2
Erythroid hyperplasia	0	0	0	12	8	2
Eye(s)						
Hyperplasia of corneal epithelium	0	0	0	2	0	0
Ear(s)						
Otitis	2	2	0	2	0	0
Nasal cavity	0	0	0	0	0	0
Trachea	0	0	0	0	0	0
Tongue	0	0	0	0	0	0

Table 10. Microscopic pathological findings. Neoplastic (benign) and neoplastic (malignant) lesions (Incidence %)

ORGAN AND FINDINGS	MALE			FEMALE		
	1	2	3	4	5	6
Incidence (%)						
Group	1	2	3	4	5	6
Propolis (%)	0	0.5	2.5	0	0.5	2.5
No. Animals	50	49	50	46	49	47
Liver						
Metastasis (M.lymphoma/leukemia)	2	4.08	4	4.35	0	0
Hepatocellular adenoma	0	2.04	0	0	2.04	0
No. Animals	49	50	49	45	48	49
Kidneys						
Adenoma	4.08	0	0	0	0	0
Liposarcoma	0	0	2	0	0	0

* Significant at $P < 0.01$ v.s. male or female control diet group

Table 10. Microscopic pathological findings. Neoplastic (benign) and neoplastic (malignant) lesions (Incidence %)

ORGAN AND FINDINGS	MALE		FEMALE	
	Incidence (%)	No. Animals	Incidence (%)	No. Animals
Group	1	2	3	4
Propolis (%)	0	0.5	2.5	0
No. Animals	50	50	50	50
Lymphoma/leukemia	16	8	2**	6
Abdominal cavity Mesothelioma	4	0	4	0
Thymus Thymoma	6	4	4	6
Brain Astrocytoma	0	0	0	0
			2	0*

* , ** Significant at $P < 0.01$ and $P < 0.001$, respectively, v.s. male or female control diet group

Table 10. Microscopic pathological findings. Neoplastic (benign) and neoplastic (malignant) lesions (Incidence %)

ORGAN AND FINDINGS Incidence (%)	MALE		FEMALE			
Propolis (%)	1	2	3	4	5	6
No. animals	0	0.5	2.5	0	0.5	2.5
	50	50	50	48	50	49
Thyroid(s)						
C-cell adenoma	4	4	0	0	12	10.20
Follicular adenoma	4	4	2	8.33	2	4.08
Follicular carcinoma	6	0	2	8.33	2	2.04

Table 10. Microscopic pathological findings. Neoplastic (benign) and neoplastic (malignant) lesions (Incidence %)

ORGAN AND FINDINGS Incidence (%)	MALE			FEMALE		
	1	2	3	4	5	6
Group	1	2	3	4	5	6
Propolis (%)	0	0.5	2.5	0	0.5	2.5
No. Animals	50	50	50	50	50	50
<hr/>						
Lung(s)						
Adenoma	2	0	0	0	0	0
<hr/>						
Pancreas						
Islet-cell adenoma	6	2	2	2	0	2

Table 10. Microscopic pathological findings. Neoplastic (benign) and neoplastic (malignant) lesions (Incidence %)

ORGAN AND FINDINGS Incidence (%)	FEMALE	
Group	4	5
Propolis (%)	0	0.5
No. Animals	50	50
Uterus		
Endometrial stromal polyp	16	16
Adenoma	2	2
Squamous cell carcinoma	2	0
Leiomyosarcoma	2	0
Adenocarcinoma	0	2
Vagina		
Metastasis from uterus (Adenocarcinoma)	0	0
Metastasis from uterus (Leiomyosarcoma)	2	0

Table 10. Microscopic pathological findings. Neoplastic (benign) and neoplastic (malignant) lesions (Incidence %)

ORGAN AND FINDINGS	MALE		FEMALE	
	1	3	4	5
Incidence (%)	2	3	4	5
Group	1	3	4	5
Propolis (%)	0	2.5	0	0.5
No. Animals	50	50	50	50
Skin/subcutis				
Fibrosarcoma	6	2	0	0
Lipoma	0	0	2	0
Squamous cell carcinoma	0	2	0	0
Mammary gland				
Adenoma	0	4	0	0
Fibroadenoma	0	0	16	12
Adenocarcinoma	0	0	6	14
Fibroma	0	0	2	2
Adenolipoma	0	0	0	2