

APPENDIX I TABLES

Table 20: Year of birth, sex, place of birth and diets of adult cheetahs used for faecal culturing

Animal Number	Year of birth	Sex	Place of birth	Diet
F 282	1996	F	De Wildt	Meat
F 283	1998	M	De Wildt	Meat
F 331	approx. 1998	F	Kalahari	Meat
F 318	1998	F	De Wildt	Meat
F 327	1998	F	De Wildt	Meat
F 362	2000	F	De Wildt	Meat
F 309	1996	F	De Wildt	IAMS
Q 46	1998	F	De Wildt	IAMS
M286	1996	M	De Wildt	Meat
F 352	1999	F	De Wildt	IAMS

Table 21: Ages, sex and camps of cheetahs in Probiotic Group

Camp No	Sex/ Animal #	Date of birth	Age at start of probiotic trial in month
5	F 460	01.06.2002	10
5	F 465	unknown	10 ^a
55	M 438	28.04.2002	12
55	M 450	30.05.2002	11
55	M 455	05.06.2002	10
55	M 437	21.04.2002	12
55	F 446	18.05.2002	11
55	F 459	02.06.2002	10
55	F 461	01.06.2002	10
54	K 50 ^b	17.04.2002	12
54	M 433	17.04.2002	12
54	M 434	17.04.2002	12
54	M 440	28.04.2002	12
54	M 441	28.04.2002	12
57	M 458	01.08.2002	8
57	F 457	01.08.2002	8

^a approximated age of cheetah, ^b King cheetah- male

Table 22: Ages, sex and camps of cheetahs in Control Group

Camp No	Sex/ Animal #	Date of birth	Age at start of probiotic trial in months
6	M 430	16/04/2002	12
6	M 431	16.04.2002	12
6	M 432	16.04.2002	12
6	M 435	20.04.2002	12
6	M 436	20.04.2002	12
6	F 447	20.04.2002	12
53	M 426	22.03.2002	13
53	M 427	22.03.2002	13
53	M 428	22.03.2002	13
56	M 443	12.05.2002	11
56	M 444	12.05.2002	11

Table 23: Bacteria (CFU) isolated per gram of faeces

Aerobic	Anaerobic	Enterococci
4.67×10^6	4.66×10^7	1.00×10^5
1.56×10^9	6.12×10^8	5.00×10^8
6.40×10^5	1.94×10^6	1.40×10^5
3.50×10^7	0 ^a	6.60×10^3
1.86×10^6	2.54×10^6	1.88×10^4
2.34×10^8	1.32×10^6	2.20×10^3
4.77×10^8	3.06×10^9	4.60×10^5
1.44×10^6	1.30×10^6	7.00×10^3

^a no growth after 48 hours of incubation

Table 24: Number of bloody/mucoid faecal samples in individual camps

Camp Date/ Day	Control Group			Probiotic Group				Total	
	Camp 6	Camp 53	Camp 56	Camp 5	Camp 54	Camp 55	Camp 57	Control	Probiotic
19.02.03 Day -70	0	0	0	0	0	0	0	0	0
26.02.03 Day -63	0	0	0	0	0	0	0	0	0
05.03.03 Day -56	0	0	0	0	0	0	0	0	0
12.03.03 Day -42	1	0	0	1	0	0	0	1	1
19.03.03 Day -35	1	0	0	0	0	1	0	1	1
26.03.03 Day- 28	0	0	0	0	0	0	0	0	0
02.04.03 Day -21	0	0	0	0	0	0	0	0	0
09.04.03 Day -14	0	0	1	0	0	1	0	1	1
16.04.03 Day -7	0	0	1	0	0	0	1	1	1
23.04.03 Day 0				No data-start of probiotic trial					
30.04.03 Day 7	1	0	0	0	0	0	0	1	0
07.05.03 Day 14	0	1	1	0	0	0	0	2	0
14.05.03 Day 21	0	1	2	0	0	0	0	3	0
21.05.03 Day 28				No data-end of probiotic trial					
28.05.03 Day 35	0	0	0	0	0	0	0	0	0
04.06.03 Day 42	0	0	0	0	0	0	1	0	1

University of Pretoria etd - Koeppel, KN (2004)

Table 25: Serum biochemistry and haematology results Control Group on day 0

Variables	Units	M 430	M 431	M 432	M 435	M 436	F 447	M 426	M 427	M 428	M 443	M 444	Median	St dev.	Mean	Min	Max
TSP	g/l	61.6	64.6	59.8	51.7	60.9	63.9	62.6	60.2	63.5	72	65.1	62.6	4.87	62.35	51.7	72
Alb	g/l	32.2	34.6	32.5	27.8	33.2	35.3	34.1	33.2	36.7	37.2	35.5	34.1	2.58	33.85	27.8	37.2
Globulin	g/l	29.4	30	27.3	23.9	27.7	28.6	28.5	27	26.8	34.8	29.6	28.5	2.69	28.51	23.9	34.8
A/G		1.1	1.15	1.19	1.16	1.2	1.23	1.2	1.23	1.37	1.07	1.2	1.2	0.08	1.19	1.07	1.37
Bil-T	ymol/l	1.8	1.9	2.2	1.9	2.5	2.8	2.6	3	2.5	2.6	3.2	2.5	0.46	2.45	1.8	3.2
Cholesterol	mmol/l	2.74	2.38	2.98	3.03	3.53	3.59	2.72	3.2	2.58	4.82	4.03	3.03	0.72	3.24	2.38	4.82
Urea	mmol/l	12.4	11.5	14	14	11.6	14.1	11.7	11.9	12.2	13.5	15.3	12.4	1.30	12.93	11.5	15.3
Creatine	ymol/l	198	212	217	177	205	206	201	191	225	226	227	206	15.75	207.73	177	227
Haemoglobin	g/l	134	130	137	136	142	130	146	135	147	137	147	137	6.33	138.27	130	147
RCC	1000/yl	7.58	7.54	7.94	8.27	8.35	8.1	8.89	8.17	8.21	8.28	8.67	8.21	0.40	8.18	7.54	8.89
Haematocrit	l/l	0.46	0.442	0.473	0.465	0.474	0.443	0.499	0.462	0.488	0.469	0.505	0.469	0.02	0.47	0.442	0.505
MCV	fL	60.8	58.7	59.6	56.2	56.8	54.7	56.1	56.5	59.5	56.6	58.3	56.8	1.87	57.62	54.7	60.8
MCHC	g/dl	29.2	29.3	28.9	29.4	30	29.3	29.2	29.2	30.1	29.2	29.2	29.2	0.36	29.36	28.9	30.1
RDW		22.3	22.3	22.3	22.1	23.6	24.3	22.1	23.3	21	22.4	20	22.3	1.17	22.34	20	24.3
WBCC	1000/yl	13.7	13.3	7.8	15	12.6	13.3	7.7	11.5	12.2	9.7	10.3	12.2	2.41	11.55	7.7	15
seg. Neutrophils	1000/yl	8.22	9.14	4.76	7.2	8.08	6.25	5.08	7.21	8.7	4.85	6.18	7.2	1.57	6.88	4.76	9.14
Neutrophils bands	1000/yl	0	0	0	0.3	0.25	0	0	0	0	0	0	0	0.11	0.05	0	0.3
Lymphocytes	1000/yl	5.21	2.27	2.18	6.3	2.12	5.45	2	3.05	1.83	3.3	3.09	3.05	1.58	3.35	1.83	6.3
Monocytes	1000/yl	0.27	1.08	0.31	0.6	0.86	0.13	0	0.87	0.96	0.97	0.62	0.62	0.38	0.61	0	1.08
Eosinophils	1000/yl	0	0.82	0.53	0.6	1.3	1.46	0.62	0.21	0.7	0.58	0.41	0.6	0.42	0.66	0	1.46
Basophils	1000/yl	0	0	0.02	0	0	0	0	0.17	0	0	0	0	0.05	0.02	0	0.17
ThrC	1000000/yl	739	140	236	400	437	212	264	141	454	543	439	400	185.04	364.09	140	739
MPV	fl					40.6	28.6			27.3		30.2	29.4	6.07	31.68	27.3	40.6
PDW	%					24.9	21.5			22.6		22.5	22.55	1.44	22.88	21.5	24.9
Aniso		2+	3+	2+	2+	2+	2+	1+	2+	2+	1+	1+					
H.J.B.		1+	1+	2+	1+	1+	1+			1+	1+	1+					
L BI		1+	1+	1+	1+	1+	1+	1+	1+	1+	1+	1+					
Norm	% of NCC																
Para																	
Comment																	B.felis+

University of Pretoria etd - Koeppel, KN (2004)

Table 26: Serum biochemistry and haematology values Control Group on day 28

Variables	Units	M430	M431	M432	M435	M436	F447	M426	M427	M428	M443	M444	Median	St dev.	Mean	Min	Max
TSP	g/l	57.7	64.6	62.8	60.8	62.2	61	64.7	61.5	65	59.6	62.6	62.2	2.26	62.05	57.7	65
Alb	g/l	32.1	33.8	34.1	32.7	34.7	34.1	36.4	33.9	37.4	33.8	35.1	34.1	1.51	34.37	32.1	37.4
Globulin	g/l	25.6	30.6	28.7	28.1	27.5	26.9	28.3	27.6	27.6	25.8	27.5	27.6	1.37	27.65	25.6	30.6
A/G		1.25	1.1	1.19	1.16	1.26	1.27	1.29	1.23	1.36	1.31	1.28	1.26	0.07	1.25	1.1	1.36
Bil-T	ymol/l	2.5	2.6	3.1	2.7	2.2	2.5	3.3	3.6	2.7	1.9	2.4	2.6	0.49	2.68	1.9	3.6
Cholesterol	mmol/l	2.84	3.17	3.57	3.86	4.58	3.95	3.48	3.62	3.21	4.17	4.02	3.62	0.50	3.68	2.84	4.58
Urea	mmol/l	9.5	9.8	11.3	10.6	10.4	11.8	9.8	10.6	10.5	10.8	10.9	10.6	0.68	10.55	9.5	11.8
Creatine	ymol/l	195	219	221	226	225	204	182	173	179	226	269	219	27.91	210.82	173	269
Haemoglobin	g/l	128	129	133	137	158	125	153	128	147	114	124	129	13.39	134.18	114	158
RCC	1000/y1	7.02	7.44	7.94	7.94	8.93	7.64	9	7.44	7.94	6.83	7.32	7.64	0.69	7.77	6.83	9
Haematocrit	l/l	0.4	0.418	0.429	0.473	0.505	0.397	0.49	0.423	0.458	0.375	0.412	0.423	0.04	0.43	0.375	0.505
MCV	fL	57	56.1	56	59.6	56.6	51.9	54.4	56.9	57.7	54.9	56.3	56.3	1.96	56.13	51.9	59.6
MCHC	g/dl	32	30.8	31	28.9	31.2	31.6	31.1	30.3	32.1	30.4	30.2	31	0.92	30.87	28.9	32.1
RDW		22.7	21.8	22.2	22.3	23.3	24.3	21.9	22.6	20.4	23.8	22.9	22.6	1.05	22.56	20.4	24.3
WBCC	1000/y1	10.1	11	8.5	7.8	9.9	10.4	9.4	10.3	9.9	11.6	9	9.9	1.09	9.81	7.8	11.6
seg. Neutrophils	1000/y1	5.98	6.71	5.27	4.76	6.1	6.05	5.8	6.02	7.13	8.35	5.62	6.02	0.96	6.16	4.76	8.35
Neutrophils bands	1000/y1	0	0.22	0.09	0	0	0	0.09	0	0.2	0	0	0	0.08	0.05	0	0.22
Lymphocytes	1000/y1	2.5	3.41	2.38	2.18	2.37	2.82	2.38	3.09	2.18	1.62	2.73	2.38	0.49	2.51	1.62	3.41
Monocytes	1000/y1	0.72	0.22	0.34	0.31	0.47	0.62	0.77	0.91	0	1.16	0.43	0.47	0.33	0.54	0	1.16
Eosinophils	1000/y1	0.88	0.44	0.43	0.53	0.95	0.9	0.3	0.26	0.4	0.23	0.23	0.43	0.28	0.50	0.23	0.95
Basophils	1000/y1	0.02	0	0	0.02	0.01	0.01	0.06	0.03	0	0.23	0.01	0.01	0.07	0.04	0	0.23
ThrC	1000000/y1	554	239	320	236	511	286	511	111	470	486	449	449	146.32	379.36	111	554
MPV	fl	14.6		26.8						19.3	23.1	35.1	23.1	7.78	23.78	14.6	35.1
PDW	%	17.7		20.7						20.4	21.2	23.3	20.7	2.01	20.66	17.7	23.3
Aniso		2+	2+	2+	2+	2+	3+	3+	2+	2+	2+	2+					
H.J.B.		1+		1+	2+	1+	1+	1+	1+	1+		1+					
L Bl		1+	1+	1+	1+	1+	1+	1+	1+	1+	1+	1+					
M Bl									1+								
Acanth															few		
Poly															1+		
Para									B.felis2+								
Comment																	Blister cells

University of Pretoria etd - Koeppel, KN (2004)

Table 27: Serum biochemistry and haematology values Probiotic Group on day 0

Variables	Units	K50	M433	M434	M440	M441	M458	F457	F465	M438	M455	F437	M450	F446	F461	F459	F460	Mean	Median	St Dev.	Max	Min	
TSP	g/l	63.3	60.2	61.8	61	62.6	61.2	59.6	63.2	66.7	65.3	66	63.2	62.2	65.70	64.40	65.60	63.24	63.20	2.18	66.7	59.6	
Alb	g/l	34.2	32.5	33	33.8	33.3	34.8	33.3	35.8	35	36.3	37	37.9	36.1	37.80	36.30	35.80	35.18	35.40	1.70	37.9	32.5	
Globulin	g/l	29.1	27.7	28.8	27.2	29.3	26.4	26.3	27.4	31.7	28.6	29	25.3	26.1	27.90	28.10	29.80	28.04	28.00	1.61	31.7	25.3	
A/G		1.18	1.17	1.15	1.24	1.14	1.32	1.27	1.31	1.1	1.28	1.3	1.5	1.38	1.35	1.29	1.20	1.26	1.28	0.10	1.5	1.1	
Bil-T	ymol/l	3.3	3	3.8	3.2	3.4	2.4	2.6	2.3	2.5	2.9	4.2	2.2	1.9	4.00	4.50	3.00	3.08	3.00	0.76	4.5	1.9	
Cholesterol	mmol/l	2.8	2.78	2.77	2.59	2.31	3.46	3.47	3.55	3.28	4.13	2.5	3.28	2.95	2.78	3.06	3.07	3.05	3.01	0.46	4.13	2.31	
Urea	mmol/l	11.9	13.3	13.8	10.6	11.9	8.6	11.1	10.1	13.2	11.3	12	11.5	12.1	15.80	16.80	11.00	12.18	11.90	2.05	16.8	8.6	
Creatine	ymol/l	257	261	213	205	207	167	154	182	216	169	185	174	215	158.00	175.00	190.00	195.50	187.50	31.89	261	154	
Hemoglobin	g/l	140	141	129	134	131	134	129	133	136	138	137	137	121	137.00	128.00	131.00	133.50	134.00	5.18	141	121	
RCC	1000/yl	8.55	8.16	7.8	7.89	7.57	8.03	7.42	7.54	7.98	8.24	8.2	8.44	6.89	7.92	7.60	7.96	7.89	7.94	0.42	8.55	6.89	
Hematocrit	%	0.47	0.47	0.44	0.46	0.45	0.46	0.42	0.46	0.46	0.46	0.5	0.465	0.408	0.47	0.39	0.44	0.45	0.46	0.02	0.469	0.387	
MCV	fL	54.7	57.7	55.8	58.4	59.5	57.2	56.4	60.4	57.3	56.3	57	55.1	58.4	59.00	50.90	55.80	56.86	57.00	2.25	60.4	50.9	
MCHC	g/dl	29.9	30	29.8	29	29.2	29.3	30.8	29.1	29.7	29.7	29	29.4	29.6	29.30	33.10	29.50	29.80	29.55	0.98	33.1	29	
RDW		23.8	22.3	21	22.9	22.4	22.8	23.9	22.1	23.4	21.2	23	21.5	23.8	24.20	21.80	22.40	22.63	22.45	0.99	24.2	21	
WBCC	1000/yl	16.9	12.4	17.7	8.8	13.4	11.6	9.7	9.5	11.4	10.2	9.8	11.8	14.5	13.70	7.80	8.90	11.76	11.50	2.88	17.7	7.8	
seg. N-ophils	1000/yl	10.1	6.94	12.5	4.6	7.5	5.34	5.57	6.73	8.11	6.79	5.5	5.11	6.32	7.67	5.15	5.06	6.81	6.53	2.09	12.48	4.6	
N-phils bands	1000/yl	0	0	0	0	0	0	0.19	0	0	0	0	0	0	0.00	0.00	0.00	0.01	0.00	0.05	0.19	0	
Lymphocytes	1000/yl	5.07	4.15	3.49	3.06	5.09	5.8	2.98	1.67	2.28	2.26	3.7	5.63	3.13	5.21	2.11	2.60	3.64	3.31	1.36	5.8	1.67	
Monocytes	1000/yl	0.68	0.76	1.13	0.7	0.8	0.23	0.51	0.67	0.66	0.81	0.6	0.63	0.61	0.27	0.08	0.52	0.60	0.65	0.25	1.13	0.08	
Eosinophils	1000/yl	0.68	0.55	0.62	0.29	0	0.23	0.46	0.44	0.31	0.34	0	0.3	4.23	0.55	0.46	0.74	0.64	0.45	0.98	4.23	0	
Basophils	1000/yl	0	0	0	0.15	0	0	0	0	0.03	0	0	0.14	0.19	0.00	0.00	0.00	0.03	0.00	0.06	0.19	0	
ThrC	10 ⁶ /yl	434	45.5	155	282	128	660	589	276	634	585	370	333	258	469.00	307.00	215.00	358.78	320.00	187.70	660	45.5	
MPV	fl	16.3					17.4	18.9		16.3	17	21			38.50	18.00		20.40	17.70	7.46	38.5	16.3	
PDW	%	19.5					9.5	19.2		19.3	20.5	19			23.80	18.20		18.61	19.25	4.06	23.8	9.5	
Aniso		2+	2+	1+	2+	1+	2+	3+	2+	2+	2+	2+	2+	2+	2+	2+	2+						
H.J.B.		1+	1+	1+	1+		1+		1+		1+	1+		1+	1+	1+	1+						
L Bl		1+	1+	1+	1+		1+	1+	1+		1+	1+	1+	1+	1+	1+	1+						
M act							1+																
Norm	% NCC								2%														
Parasites							B.felis 2+								B.felis 2+								
Comment																							

University of Pretoria etd - Koeppel, KN (2004)

Table 28: Serum biochemistry and haematology values Probiotic Group on day 28

Variables	Units	K50	M433	M434	M440	M441	M458	F457	F465	M438	M455	F437	M450	F446	F461	Mean	Median	St Dev.	Max	Min
TSP	g/l	63.9	61.9	61	57.9	60.5	59.7	61.9	66	63.5	64.3	61	60.70	67.30	65.80	62.52	61.90	2.69	67.3	57.9
Alb	g/l	37.3	33.8	34.5	32.5	33.5	33.9	35	36.8	36.2	36.7	35	34.90	34.90	35.40	35.03	34.95	1.37	37.3	32.5
Globulin	g/l	26.6	28.1	26.5	25.4	27	25.8	26.9	29.2	27.3	27.6	26	25.80	32.40	30.40	27.49	26.95	1.98	32.4	25.4
A/G		1.4	1.2	1.3	1.28	1.24	1.31	1.3	1.26	1.33	1.33	1.4	1.35	1.08	1.16	1.28	1.30	0.08	1.4	1.08
Bil-T	ymol/l	2.2	2.4	2.9	3.6	2.2	2.3	2.5	2.4	2.4	3	2.1	2.60	3.50	3.30	2.67	2.45	0.50	3.6	2.1
Cholesterol	mmol/l	3.3	3.59	3.4	3.05	3.17	3.35	3.37	3.99	3.65	4.16	3.2	3.90	3.83	2.90	3.49	3.39	0.38	4.16	2.9
Urea	mmol/l	11	12.2	9.6	10.2	10.9	9.7	12.8	10.3	12.6	10.4	15	10.10	14.90	13.30	11.65	10.95	1.85	15.1	9.6
Creatine	ymol/l	214	239	196	181	201	185	167	185	194	202	219	166.00	251.00	185.00	198.93	195.00	24.81	251	166
Hemoglobin	g/l	145	144	138	125	138	144	139	139	137	140	133	134	132.00	133.00	137.21	138.00	5.48	145	125
RCC	1000/yl	8.74	8.32	8.15	7.3	7.54	8.35	7.76	7.72	7.88	8.08	7.8	7.99	7.47	7.89	7.93	7.89	0.38	8.74	7.3
Hematocrit	%	0.48	0.47	0.45	0.41	0.45	0.47	0.45	0.45	0.43	0.44	0.4	0.53	0.42	0.43	0.45	0.45	0.03	0.533	0.408
MCV	fL	54.6	56.3	54.8	56	59	55.7	57.9	58.1	54.9	54.7	56	54.20	56.50	54.20	55.95	55.85	1.53	59	54.2
MCHC	g/dl	30.5	30.7	30.9	30.7	31	31	31	30.9	31.6	31.8	30	30.90	31.40	31.10	30.99	30.95	0.40	31.8	30.3
RDW		23.1	23.1	25.1	22.7	22.9	22.1	22.5	20.4	23	23.3	24	20.90	22.20	22.00	22.67	22.80	1.18	25.1	20.4
WBCC	1000/yl	13.1	9.5	9.9	7.1	10.4	10.2	11.8	8.2	8.3	8.9	11	10.10	17.60	11.30	10.50	10.15	2.56	17.6	7.1
seg. N-phils	1000/yl	8.65	5.86	4.95	4.37	5.06	6.12	7.15	5.41	5.14	6.05	7.6	4.78	5.81	7.24	6.02	5.84	1.23	8.65	4.37
N-phils bands	1000/yl	0.13	0	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.01	0.00	0.03	0.13	0
Lymphocytes	1000/yl	3.16	2.79	2.97	2.13	4.51	3.47	3.59	2.38	2.12	2.31	2.4	4.37	3.52	2.69	3.03	2.88	0.78	4.51	2.12
Monocytes	1000/yl	0.39	0.45	0.79	0.43	0.52	0.41	0.59	0.16	0.7	0.18	0.1	0.62	0.35	0.63	0.45	0.44	0.21	0.79	0.11
Eosinophils	1000/yl	0.77	0.4	1.19	0.16	0.24	0.2	0.44	0.25	0.29	0.36	0.3	0.28	7.92	0.67	0.96	0.34	2.02	7.92	0.16
Basophils	1000/yl	0	0	0	0.02	0.06	0	0.04	0	0.05	0	0.1	0.05	0.00	0.07	0.03	0.01	0.04	0.11	0
ThrC	10 ⁶ /yl	463	269	271	315	297	784	580	172	650	591	337	311	229	381	403.57	326.00	181.39	784	172
MPV	fl	27.3	17.5	26.8			14.7	21.3	19.5	19.5	17					20.45	19.50	4.53	27.3	14.7
PDW	%	22.5	19	24.8			19.4	21.7	19.8	21.4	20.3					21.11	20.85	1.92	24.8	19
Aniso		2+	2+	2+	2+	2+	1+	2+	2+	2+	1+	2+	2+	2+	2+					
H.J.B.		1+		1+	1+	1+		1+		1+		1+			1+					
L BI		1+	1+	1+			1+	2+	1+	1+	1+	1+	1+	1+						
M BI									1+		1+									
Acanth							few													
Schizo										few					few					
Parasites					B.felis 2+									B.felis 2+						
Comment																				

Table 29: Timing of blood collection for intestinal permeability- day 0

Camp	Animal #	Sex	Time of admin.	Time of collection	Time between
6	430	M	09:31	10:35	01:04
	431	M	09:35	11:24	01:49
	432	M	09:40	11:02	01:22
	435	M	09:35	11:20	01:45
	436	M	09:31	10:35	01:04
	447	F	09:40	10:20	00:40
5	460	F	07:32	08:25	00:53
	465	F	07:40	08:30	00:50
55	438	M	11:15	12:25	01:10
	450	M	11:15	12:38	01:23
	455	M	11:15	12:35	01:20
	437	F	11:15	12:20	01:05
	446	F	11:15	12:40	01:25
54	50	K (M)	12:50	14:40	01:50
	433	M	12:50	14:44	01:54
	434	M	12:50	14:40	01:50
	440	M	12:50	14:30	01:40
	441	M	12:50	14:37	01:47
53	426	M	12:00	13:05	01:05
	427	M	12:00	12:55	00:55
	428	M	12:00	13:14	01:14
57	458	M	12:20	15:10	02:50
	457	F	12:20	15:05	02:45
55	459	F	07:45	08:53	01:08
	461	F	07:45	09:00	01:15
56	443	M	07:50	09:15	01:25
	444	M	07:50	09:25	01:35

Table 30: Timing of blood collection for intestinal permeability- day 28

Camp	Animal #	Sex	Time of admin.	Time of collection	Time between
6	430	M	7:15	8:39	1:24
	431	M	7:15	8:45	1:30
	432	M	7:15	8:26	1:11
	435	M	7:15	8:29	1:14
	436	M	7:15	8:55	1:40
	447	F	7:15	8:20	1:05
55	465	F	7:00	7:55	0:55
	438	M	10:35	11:58	1:23
	450	M	10:35	11:45	1:10
	455	M	10:35	12:05	1:30
	437	F	10:35	12:10	1:35
	446	F	10:35	12:27	1:52
	461	F	10:35	11:40	1:05
54	50	K (M)	9:45	10:40	0:55
	433	M	9:45	10:52	1:07
	434	M	9:45	10:40	0:55
	440	M	9:45	10:47	1:02
	441	M	9:45	10:29	0:44
53	426	M	9:00	10:04	1:04
	427	M	9:00	10:00	1:00
	428	M	9:00	10:10	1:10
57	458	M	12:00	13:20	1:20
	457	F	12:00	13:40	1:40
56	443	M	11:30	12:34	1:04
	444	M	11:30	12:40	1:10

Table 31: Sugar concentrations on day 0 of the Control Group

ID/sex	Rhamnose (R) conc.		Lactulose (L) conc.		L/R ratio
	mg/l		mg/l		
430	M	1.4	0.3	0.214	
431	M	2.2	0.1	0.045	
432	M	1.6	0.01	0.006	
435	M	6.2	0.87	0.140	
436	M	5.2	0.99	0.190	
447	F	4.9	1.1	0.224	
426	M	3.4	0.64	0.188	
427	M	0	0	0.000	
428	M	0.6	0.09	0.150	
443	M	1.4	1.1	0.786	
444	M	4.3	1	0.233	

Table 32: Sugar concentrations on day 0 of the Probiotic Group

ID/sex	Rhamnose (R) conc.		Lactulose (L) conc.		L/R ratio
	mg/l		mg/l		
465	F	2	1	0.500	
438	M	0.6	0	0.000	
450	M	5.4	0.41	0.076	
455	M	1.2	1.1	0.917	
437	F	1.7	0.6	0.353	
446	F	0.3	0.03	0.100	
461	F	0.6	0.04	0.067	
50	K	1.1	0.05	0.045	
433	M	1.4	0.04	0.029	
434	M	2	0.08	0.040	
440	M	3.5	2.5	0.714	
441	M	3.4	1.15	0.338	
458	M	1.1	0.08	0.073	
457	F	1.5	0.98	0.653	
459	F	2.3	0.4	0.174	
460	F	2.2	0.4	0.182	

Table 33: Sugar concentrations on day 28 of the Control Group

ID/sex	Rhamnose (R) conc. mg/l	Lactulose (L) conc. mg/l	L/R ratio
430 M	2.2	0.1	0.045
431 M	2.1	0.02	0.010
432 M	1.4	0.02	0.014
435 M	3.3	0.2	0.061
436 M	3.2	0.41	0.128
447 F	5.1	0.04	0.008
426 M	2.6	0.4	0.154
427 M	1.8	0.2	0.000
428 M	4.1	0.3	0.073
443 M	5.2	2.5	0.481
444 M	4.4	0.2	0.045

Table 34: Sugar concentrations on day 28 of the Probiotic Group

ID/sex	Rhamnose (R) conc. mg/l	Lactulose (L) conc. mg/l	L/R ratio
465 F	0.6	0.44	0.733
438 M	1.1	0.11	0.100
450 M	5.3	0.7	0.132
455 M	1.3	0.44	0.338
437 F	1.6	0.09	0.056
446 F	7.2	0.02	0.003
461 F	0.6	0.01	0.017
50 K	1.2	0.01	0.008
433 M	1.2	0.06	0.050
434 M	1.6	0.14	0.088
440 M	0.2	0.12	0.600
441 M	2.3	2.1	0.913
458 M	2.1	0.21	0.100
457 F	1.6	0.9	0.563

APPENDIX II CULTURE MEDIA

SL Medium

(Starr *et al.*, 1981)

Ingredients: for 1 litre

- Trypticase (BBL), 10 g
- Yeast extract, 5 g
- KH_2PO_4 , 6 g
- Diammonium citrate, 2 g
- $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$, 0.58 g
- $\text{MnSO}_4 \cdot 4\text{H}_2\text{O}$, 0.28 g
- Glucose, 10 g
- Arabinose, 5 g
- Sucrose, 5 g
- Tween 80, 1 g
- Na acetate $3\text{H}_2\text{O}$, 2.5 g
- Glacial acetic acid (to titrate medium to pH 5.4), 99.5%
- Agar, 15 g (DIFCO Laboratories)

Dissolve the agar separately by steaming in 500 ml distilled water. Dissolve all the other ingredients except acetate and acetic acid in 300 ml distilled water without heating, then add this to the melted agar and steam for a further 5 min; excessive heating at this stage must be avoided. Dissolve the Na acetate in about 15 ml distilled water, without heating, and add acetic acid as a 10% vol/vol aqueous solution to pH 5.4. Make up volume to 20 ml. Add this buffer mixture to the hot basal medium and mix well. Cool a small portion and check with a glass electrode that the pH is 5.4. If too high, adjust with further acetic acid. While hot, distribute the medium in convenient amounts in sterile screw-capped bottles; no further sterilization is done. The medium should be a clear, light straw colour, giving a firm gel. For use, dissolve in free-flowing steam. Avoid repeated melting and cooling. The addition of arabinose and sucrose as well as glucose allows the growth of strains that preferentially ferment these sugars.

TPY Medium

(Starr *et al.*, 1981)

Ingredients: for 1 litre

- Trypticase (BBL), 10 g
- Phytone (BBL), 5 g
- Glucose, 5 g
- Yeast extract (Difco), 2.5 g
- Tween 80, 1 ml
- Cysteine hydrochloride, 0.5 g
- K_2HPO_4 , 2 g
- $MgCl_2 \cdot 6H_2O$, 0.5 g
- $ZnSO_4 \cdot 7H_2O$, 0.25 g
- $CaCl_2$, 0.15 g
- $FeCl_3$, a trace
- Agar, 15 g (DIFCO Laboratories)
- Distilled water to 1000 ml

Dissolve all ingredients and sterilise. The final pH is about 6.5 after autoclaving at 121°C for 25 min; dilutions can be made with the same liquid medium.

Beehrens Media

(Beehrens, 1990)

Ingredients: for 1 litre

- Columbia agar base (42 g per l)(Merck)
- Glucose 5 g
- Cysteine hydrochloride 0.5 g
- Agar 5 g (Final agar concentration 15 g/l) (DIFCO Laboratories)
- Propionic acid 5 ml

The mixture is boiled to dissolve all the ingredients (except propionic acid). The medium is then cooled to 70°C. Propionic acid (5 ml) is added to 1000 ml of the medium and the pH adjusted to 5.0 with NaOH. The media is not sterilised.