

RESULTS

R E S U L T S

I - MINERALS

Changes recorded in the level of serum minerals, tables (1-4).

a - CALCIUM

Effects of daily administration of different doses of B-sitosterol (0.05 mg, 0.25 mg, 0.5 mg, 0.75 mg and 1 mg/kg) for four weeks on the calcium in the serum of lambs and sheep, table (1).

1 - In male lambs :

- After one and two weeks, there was a general increase in the level of serum calcium after injection of B-sitosterol at doses of 0.05 mg, 0.25 mg, 0.5 mg, 0.75 mg and 1 mg/kg. B.W.

- After three weeks, the doses of B-sitosterol induced a significant rise in calcium level at 0.25 mg/kg

- All the tested doses of B-sitosterol with the exception of 0.05 mg/kg dose induced a significant increase in the serum calcium after four weeks.

2 - In female lambs:

- There was a significant increase in serum calcium following injection of 1 mg/kg dose of B-sitosterol after one week.

- After two weeks, the increase became non significant after all the given doses of B-sitosterol.

- The doses of 0.5 mg, 0.75 mg and 1 mg/kg increased significantly the calcium level after three weeks.

3 - In rams :

- After one, two and three weeks of application, there was a slight non significant increase in serum calcium following the doses of B-sitosterol.

- The doses of 0.25 , 0.5 , 0.75 and 1mg/kg resulted in a significant increase after four weeks.

4 - In ewes :

- Although the serum calcium did not increase significantly after one, two and three weeks, yet it increased significantly after four weeks.

Table (2) : Serum level of calcium (m mol/L) in immature and mature sheep after administration of B-Sitosterol.

Group	First week			Second week			Third week			Fourth week		
	Male		Female	Male		Female	Male		Female	Male		Female
	Lamb	ram	Lamb	ewe	Lamb	ram	Lamb	ewe	Lamb	ram	Lamb	ewe
I	3.352	3.170	3.147	2.664	3.401	3.181	3.138	2.700	3.350	3.177	3.140	2.705
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.148	0.235	0.135	0.214	0.213	0.246	0.218	0.228	0.138	0.257	0.129	0.235
II	3.624	3.391	3.312	3.139	3.687	3.300	3.298	3.108	3.951	3.805	3.421	3.421
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.307	0.179	0.153	0.359	0.283	0.251	0.145	0.248	0.248	0.284	0.133	0.290
III	3.651	3.634	3.303	3.195	3.725	3.681	3.314	3.427	3.992	3.824	3.435	3.560
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.315	0.217	0.209	0.420	0.291	0.347	0.177	0.384	0.137	0.198	0.180	0.304
IV	3.740	3.452	3.423	3.114	3.801	3.458	3.456	3.362	3.842	3.745	3.679	3.691
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.218	0.371	0.143	0.595	0.317	0.362	0.237	0.324	0.324	0.450	0.105	0.315
V	3.970	3.531	3.615	3.208	3.781	3.821	3.628	3.356	4.108	4.231	3.840	3.698
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.148	0.451	0.129	0.462	0.248	0.481	0.219	0.381	0.213	0.328	0.147	0.241
VI	3.800	3.784	3.780	3.208	3.940	3.743	3.723	3.481	4.512	4.190	3.991	3.757
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.129	0.390	0.138	0.387	0.273	0.342	0.145	0.425	0.153	0.458	0.123	0.249
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
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	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
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	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
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	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
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	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
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	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
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	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
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	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$
	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205	0.205	0.284	0.113	0.205
	4.513	4.586	4.031	3.826	4.513	4.463	3.864	3.800	4.312	4.463	3.864	3.800
	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$	$\pm$			

b - PHOSPHORUS

Effects of injecting various doses of B-sitosterol (0.05 mg, 0.25 mg, 0.5 mg, 0.75 mg and 1 mg/kg) for four weeks as daily injection, on the serum phosphorus in lambs and sheep, table (2)

1 - In male lambs :

- After one, two, three and four weeks of treatment with B-sitosterol the increase in phosphorus level was not significant.

2 - In female lambs :

- The level of phosphorus was also not significantly raised after one, two, three and four weeks of injection.

3 - In rams :

- A non significant rise appeared after administration of all doses of B-sitosterol for one, two, three and four weeks.

4 - In ewes :

- There was a slight non significant increase in phosphorus level after one, two, three and four weeks of injection.

Table (8) : Serum level of Phosphorus (m mol/L) in immature and mature sheep after administration of D-Sitosterol.

Group	First week			Second week			Third week			Fourth week		
	Male		Female		Male		Female		Male		Female	
	Lamb	ram	Lamb	ewe	Lamb	ram	Lamb	ewe	Lamb	ram	Lamb	ewe
I	3.071 ± 0.327	2.291 ± 0.227	3.001 ± 0.298	2.131 ± 0.247	3.120 ± 0.306	2.289 ± 0.197	3.020 ± 0.287	2.129 ± 0.214	3.104 ± 0.315	2.295 ± 0.203	3.000 ± 0.290	2.138 ± 0.243
II	3.241 ± 0.324	2.240 ± 0.138	3.013 ± 0.224	2.151 ± 0.237	3.523 ± 0.283	2.280 ± 0.179	3.115 ± 0.387	2.163 ± 0.189	3.812 ± 0.296	2.301 ± 0.205	3.013 ± 0.317	2.213 ± 0.203
III	3.412 ± 0.247	2.301 ± 0.167	3.042 ± 0.227	2.210 ± 0.218	3.730 ± 0.384	2.280 ± 0.153	3.215 ± 0.238	2.313 ± 0.348	3.812 ± 0.284	2.360 ± 0.261	3.021 ± 0.304	2.417 ± 0.207
IV	3.523 ± 0.187	2.395 ± 0.217	3.112 ± 0.186	2.344 ± 0.169	3.820 ± 0.327	2.35 ± 0.213	3.412 ± 0.401	2.418 ± 0.327	3.830 ± 0.279	2.399 ± 0.195	3.355 ± 0.315	2.516 ± 0.243
V	3.541 ± 0.196	2.435 ± 0.169	3.114 ± 0.222	2.616 ± 0.157	3.688 ± 0.415	2.513 ± 0.214	3.741 ± 0.415	2.518 ± 0.214	3.922 ± 0.331	2.444 ± 0.188	3.414 ± 0.327	2.717 ± 0.315
VI	3.662 ± 0.396	2.662 ± 0.207	3.218 ± 0.289	2.738 ± 0.213	3.913 ± 0.401	2.616 ± 0.168	3.523 ± 0.279	2.701 ± 0.247	3.903 ± 0.368	2.781 ± 0.233	3.613 ± 0.316	2.800 ± 0.261
									3.961 ± 0.358	2.684 ± 0.247	3.801 ± 0.304	2.810 ± 0.273

± Standard Error

* P < 0.05

c - SODIUM

Effect of daily injection of B-sitosterol in different doses (0.05 mg, 0.25 mg, 0.5 mg, 0.75 mg and 1 mg/kg) for four weeks on lambs and sheeps serum sodium level, table (3)

1 - In male lambs :

- There was a slight non significant fluctuation in serum sodium after injection of different doses of B-sitosterol for one, two, three and four weeks.

2 - In female lambs :

- The serum level of sodium showed a slight non significant fluctuation through the course of the study.

3 - In rams :

- Non significant changes were recorded in the serum level of sodium after one, two, three and four weeks after the various injected doses.

4 - In ewes :

- After one, two, three and four weeks, there were non significant changs in the sodium level.

Table (7) : Serum levels of Sodium (m Eq/L) in male and female lambs and sheep after administration of B-Sitosterol.

Group	First week					Second week					Third week					Fourth week				
	Male		Female			Male		Female			Male		Female			Male		Female		
	Lamb	ram	Lamb	ewe		Lamb	ram	Lamb	ewe		Lamb	ram	Lamb	ewe		Lamb	ram	Lamb	ewe	
I	150 ± 4.76	148 ± 5.23	149 ± 3.78	146 ± 4.76		153 ± 4.37	150 ± 4.16	148 ± 4.39	146 ± 4.65		150 ± 4.85	149 ± 5.23	150 ± 3.96	145 ± 4.98		152 ± 4.72	149 ± 4.24	151 ± 3.85	147 ± 4.58	
II	150 ± 4.33	147 ± 5.42	147 ± 4.37	146 ± 5.04		148 ± 4.48	149 ± 4.75	145 ± 4.49	143 ± 5.60		151 ± 5.61	148 ± 6.27	150 ± 3.29	147 ± 4.27		152 ± 5.31	150 ± 5.75	150 ± 4.92	147 ± 3.96	
III	148 ± 4.51	148 ± 4.69	149 ± 3.69	145 ± 4.15		150 ± 4.93	149 ± 3.16	150 ± 5.37	146 ± 4.27		149 ± 3.69	150 ± 5.47	148 ± 4.57	146 ± 3.98		153 ± 4.49	150 ± 7.29	151 ± 5.65	149 ± 5.47	
IV	151 ± 5.18	149 ± 5.37	148 ± 4.71	148 ± 5.29		152 ± 4.37	148 ± 5.15	145 ± 4.95	148 ± 3.97		154 ± 4.63	152 ± 4.76	145 ± 3.27	144 ± 4.57		156 ± 4.54	152 ± 5.34	149 ± 4.33	148 ± 4.38	
V	153 ± 4.38	150 ± 3.45	150 ± 3.94	147 ± 3.69		152 ± 4.79	151 ± 4.75	152 ± 4.58	149 ± 4.18		154 ± 5.67	149 ± 5.23	150 ± 5.71	152 ± 3.85		156 ± 5.75	151 ± 4.58	156 ± 4.66	151 ± 4.18	
VI	153 ± 5.27	150 ± 4.90	151 ± 5.23	147 ± 4.72		153 ± 4.84	152 ± 4.65	152 ± 3.49	150 ± 4.68		155 ± 5.86	154 ± 5.03	152 ± 4.82	153 ± 3.97		158 ± 5.67	155 ± 4.24	156 ± 4.56	157 ± 5.19	

± Standard Error * P < 0.05