SUMMARY

A number of 96 immature and adult sheep of both sexes were used in our experiment. These animals were classified into 6 equal groups of both sex and age, with 16 animals in each group. One group was used as control and injected with 1.0 ml olive oil only. The other 5 groups were injected with B-sitosterol in the following doses (0.05, 0.25, 0.5, 0.75 and 1.0 mg/kg body weight) for 4 weeks. Injection continues daily for 4 weeks. Blood samples were taken from all animals at weekly intervals during the whole experiment. In the present study an attempt has been made to determine the effect of B-sitosterol on both calcium and phosphorus as well as the levels of parathormone and calcitonin. In addition the effect of B-sitosterol on the levels of aldosterone, ACTH, Sodium and Potassium were also studied.

1- Effect on serum calcium :

In male lambs, a significant rise appeared after three weeks following the doses 0.25 mg and 1 mg B-sitosterol. The same effect produced after the fourth week with all the doses of B-sitosterol except 0.05 mg dose.

In female lambs, after one week , a significant

increase in serum calcium appeared following the 1 mg dose. The increase was also observed after the third week with doses 0.5 mg, 0.75 mg and 1 mg. After the fourth week, all doses of B-sitosterol elevated calcium significantly.

In rams, the significant increase was produced only after four weeks with the doses 0.25 mg, 0.5 mg 0.75 mg and 1 mg.

In ewes, the calcium increased significantly after four weeks only.

2 - Effect on serum phosphorus :

The phosphorus level in the serum was not significantly changed following the administration of B-sitosterol for one, two, three and four weeks application in male and female lambs rams and ewes.

3 - Effect on serum sodium :

Sodium level in the serum following the different doses of B-sitosteril was changeable according to the sex and age of the tested animal and also the dose concentration as well as the time of application of B-sitosterol.

4 - Effect on serum Potassium :

The different doses of B-sitosterol produced a

slight non significant decrease in the level of serum Potassium after one, two three and four weeks in immature and mature sheep.

5 - Effect on serum parathormone :

The effects ofdifferent doses of B-sitosterol on the different serum parameters of the injected lambs, sheeps and ewe, were obviously changeable in accordance to the dose, concentration, age and sex as well as duration of treatment.

In male lambs, there was no significant rise in hormone level following the administration of B-sitosterol for one, two and three weeks while after four weeks a significant increase appeared as an effect of doses 0.75 mg and 1 mg B-sitosterol.

In female lambs a significant increase observed especially after the third week for the dose of 1 mg B-sitosterol. The same increase appeared also after fourth week of application at doses of 0.75 mg and 1 mg B-sitosterol.

In rams the increase in parathormone was significant after the doses of 0.75 mg and 1 mg B-sitosterol at the third week and after 0.5 mg, 0.75 mg and 1 mg doses at the fourth week.

In ewes, a significant rise in parathormone level appeared only after the fourth week at doses 0.75 mg and 1 mg.

6 - Effect on serum calcitonin :

The effect of B-sitosterol on calcitonin revealed that the effects following the administration of different doses of B-sitosterol for different periods of application 1, 2, 3 and 4 weeks were as follows :-

- In male lambs, the decrease in calcitonin level was not significant after the injection of B-sitosterol in different doses during the weeks of treatment.
- In female lambs the serum level of calcitonin indicated a slight decrease after administration of B-sitosterol for four weeks.
- Moreover in rams and ewes a non significant decrease in calcitonin level was observed following the treatment with various tested doses of B-sitosterol after 1 ,2, 3 and 4 weeks.

7 - Effect on serum aldosterone :

Administration of different doses of B-sitosterol produce some variations in the response of both sexes of immature and mature sheep.

In male lambs, the increase in aldosterone level was significant after two, three and four weeks following the last largest dose only.

In female lambs, the aldosterone level was raised

significantly after four weeks for the doses 0.5 mg, 0.75 mg and 1 mg B-sitosterol.

In rams, the injection of B-sitosterol for one and three weeks resulted in a significant rise following the injection of 1 mg B-sitosterol while 0.75 mg and the 1mg doses produced significant increase after fourth week.

In ewes, the highest concentration of 1 mg B-sitosterol resulted in a significant increase after two and three weeks. Furthermore all the injected doses of B-sitosterol except 0.05 mg and 0.25 mg doses exhibited a significant increase after the fourth week.

8 - Effect on serum ACTH :

The effect of B-sitosterol on the level of ACTH in lambs and sheep was variable.

In male lambs, a significant rise in hormone level was seen following treatment with doses of 0.5 mg and 1 mg B-sitosterol at the second week and after 0.75 mg and 1 mg doses at the third week. Furthermore a significant increase appeared after the highest dose of 1 mg B-sitosterol after the fourth week.

In female lambs, after the first and second week there was a significant rise with the dose of 1 mg

B-sitosterol. Significant increase was observed after the third week with doses of 0.75 mg and 1mg B-sitosterol. After four weeks of application the increase in ACTH level was highly significant especially with 1 mg dose.

In rams the doses of 0.75 mg and 1 mg B-sitosterol induced a significant increase in plasma ACTH after two and three weeks. While after four weeks a significant rise in hormone level appeared after 0.25, 0.5 and 0.75 mg doses. The increase was highly significant by 1 mg dose.

In ewes, the last doses of 0.75 mg and 1 mg of B-sitosterol produced a significant rise after the first week. The same effect was produced after two weeks by the doses of 0.5 mg and 1 mg. After three weeks, the doses 0.5 mg, 0.75 mg and 1 mg produced significant increase in ACTH which was highly significant after the fourth week.

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