

تأثير الديلتين على عسير الكرش في الماعز

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ثبت أن الديلتين له تأثير على الكرش ومحتوياته ، وبتان الزيادة الكلية
للحامضية ، حامض اللاكتيك ، وكذلك الامونيا نيتروجين يؤدي الى نقصان في
الاس الهيدروجيني في محتويات الكرش ، وأدى أيضا الى تأخير كل من النشاط
الترمسيبي وهضم السليلوز ، ويؤدي أيضا الى نقص كبريتيد الايدروجين ونشاط
الكائنات الدقيقة (أنغزوريا) بمحتويات الكرش عن المعدل الطبيعي .

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EFFECT OF DIFFERENT DOSES OF DITILIN
ON RUMINAL JUICE IN GOATS.

By

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SUMMARY

- 1) Ditilin affect on the rumen and its contents.
- 2) Increase of the total acidity, lactic acid as well as ammonia nitrogen result in a decreased ruminal pH.
- 3) The sedimentation activity test, cellulose digestion test will be delayed.
- 4) The hydrogen sulphide, and infusorial activity will be decreased than normal.

INTRODUCTION

Ruminal microorganism, protozoa and yeasts, bacteria hydrolyse the cellulose and synthesis protein and vitamins. A symbiotic relationship prevails between the adult ruminant and the bacteria living within its rumen. The animal eats food stuffs which are fermented by ruminal microorganisms to obtain substances for energy and bacterial multiplication. The results of this bacterial activity burns to the benefit of ruminant host, because the primary end products of bacterial carbohydrate fermentation is a stream of volatile fatty acids that provides the main source of energy in ruminants, Furthermore the bacteria in the rumen synthesis produce several vitamins required by the ruminant which provide the bacteria with food.

In the veterinary clinic, used muscle relaxant for treatment of some of diseases of the animals egg tetany, strychnine poisoning, colic....etc, and in surgical operations. On this respect we studied one of the muscle relaxants on rumen juice of goats, because the work on this species of animals is very scanty.

MATERIAL AND METHODS

- I) Ditolin (Pharmcochemistry institute, USSR) is a diodo-methyle diethyleamine ethyle ether, which is a water soluble white powder.
- II) Animals: in this work twelve goats were used (9 females and 3 males) the age from 9 to 18 monthes, 12 to 20 kg. bwt. All animals proved to be clinically normal and the diet supplied was strictly balanced. The animals were divided into 3 groups each group of 4 goats. Group 1, 2 and 3 were injected with ditilin in doses of 0.5, 1 and 1.5 mg/kg bwt. respectively, the injection was I.M in concentration of 1%.
- III) Ruminal contents: The ruminal contents were collected from fistulated goats, About 150 ml of the contents were collected from each animal before and after injection 0.5, 1, 2 and 4 hours from injection. The contents were sieved and strained through four folds of surgical gauze and subjected to the following investigations.
 - A) Biophysical examination including:
 -) Sediment activity test after NICHOLS and KATHERINE (1958)
 -) Cellulose digestion test after NICHOLS and KATHERINE 1958
 - B) Biochemical examination including:
 -) Hydrogen ion concentration; was estimated directly using

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Bechman pH meter at room temperature.

-) Estimation of free and total acidity after VARLEY (1969) and HAWK et al. (1954).
 -) Estimation of lactic acid after VARLEY, (1969).
 -) Estimation of hydrogen sulphide after HAKEL, (1952).
 -) Estimation of rumen ammonia nitrogen according to the method of Conway after HAWK et al. (1954) and VARLEY (1969).
- C) Microscopical examination of the infusorial activity, viability and density.

DISCUSSION

Ruminal juice examination, usually indicates the functional state of other stomachs. Since microbial digestion and fermentation of ingesta are the main function of that organ, so abnormality of one leads to abnormality of the other. This is because the stomachs of ruminants are closely associated anatomically and functionally.

On auscultation of ruminal motility, it was observed that there was a decrease in the motility due to relaxation of the muscle of the wall of the rumen due to the effect of the drug.

Concerning the pH of rumen liquor which ranges from 5.56 - 6.80 in clinically healthy goats, these values are similar to that reported by KNOTH (1928), **FREBER** (1928) and MAYBURGH and QUIN (1944) in sheep.

The ingesta in the rumen is subjected after 1 - 4 hours from injection to very limited fluctuation during the course of digestion of a single meal and this in agree with **MAYBURGH** and QUIN (1944). Half an hour after injection, pH was decreased from 6.80, 6.40 and 6.25 to 6.20, 5.90 and

5.65 respectively. This drop in pH may be attributed to the decreased absorption and accumulation of acids from the rumen due to the ruminal stasis induced by ditilin and this agrees with MONROE and PERKINS (1939), QUIN (1944), BROBERG (1960) and TELLE and PRESTON (1971).

Total acidity in the ruminal contents of normal goats before injection were 12.33, 15.00 and 16.66 mEq/L and increased to 42.0, 20.06 and 19.40 mEq/L respectively.

Lactic acid contents were 0.05% before injection and increased to 0.1% after injection. This increased acidity and lactic acid may be attributed to the decreased absorption and increased accumulation of the acids in the ruminal contents of the static rumen. This confirms the report of HOFIRCK (1970), DUNLOP (1972) and NULLEN (1973).

Ammonia values were 17.44, 18.26 and 18.26 mg Amm. nitrogen before the experiment and rose to 21.20, 22.86 and 24.86 mg Amm. nitrogen. This may be due to the decreased absorption and elimination of ruminal ammonia nitrogen. Hydrogen sulphide present in normal goats was decreased after injection of ditilin. This possibly due to increased ruminal acidity. These biochemical changes well correlated with the activity of the ruminal wall i.e it returns to about normal when the activity returned to normal. The sediment activity of rumen juice obtained in normal goats ranged from 78 - 95 minutes. After treating with drug in different doses, the sediment activity test was decreased as shown in the table. Cellulose digestion test of rumen juice obtained from normal goats ranged from 52 - 60 hours, after treating with drug at different doses it delayed. Before injection, infusoria were highly motile active, large and small ones were absent as when the pH was lowered infusoria were affected and

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killed as reported by KROGH (1963). Also one hour after injection, infusoria were sluggish, then became normal.

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Table (1)

Effect of Ditilin on ruminal juice in doses 0.5, 1.0 and 1.8 mg/kg. bwt.

Time Hours	Dose	pH	F.A mEq/L	T.A. MEq/L	I.A. %	AMM. mg.	H2s	S.R. Min.	C.D Hour	Infusoria
0.0	Before	6.80	---	12.33	0.05	17.24	+++	95	60	Highly active and crowded
0.5		6.20	---	42.00	0.10	21.20	++	75	60	" " " " " "
1.0	0.5 mg	6.28	---	40.00	0.10	23.80	+	117	60	Sluggish and less crowded
2.0		6.45	---	51.33	0.10	21.10	++	92	60	Moderately active
4.0		6.45	---	49.00	0.10	18.90	+++	100	60	Active and actively motile
0.0		6.40	---	15.00	0.05	18.26	+++	80.0	52	Highly active and crowded
0.5	1.0 mg	5.90	---	20.06	0.10	22.86	++	75	52	Dead infusoria
2.0		6.06	---	15.00	0.05	23.80	+	98	D	Moderately active
2.0		6.26	---	14.00	0.05	20.10	++	101	D	Motile actively
4.0		5.76	---	26.33	0.10	7.20	+++	110	D	Motile actively
0.0		6.25	---	16.66	0.05	18.26	+++	78	57	Highly active and crowded
0.5	1.5 mg	5.56	---	19.40	0.05	24.85	++	73	72	Dead infusoria
1.0		6.0	---	8.33	0.05	26.53	+	61	70	Moderately active
2.0		6.27	---	17.0	0.05	25.07	+++	103	60	Motile actively
4.0		5.80	---	47.0	0.10	8.00	+++	120	55	Moderately active

+++ = Dark brown

++ = Brown

+ = Light brown

Ditilin in different doses affects the ruminal motility and consequently, as shown in the Table, affects the biophysical biochemical and infusorial activity of the rumen contents.

