

دراسة عن تأثير الديتلين على عصارة الكرش في الماعز

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الملخص العربي

تم دراسة تأثير مادة الديتلين على الكرش ومحتوياته وقد وجد لهذه الدراسة ما يأتي : -

زيادة في درجة التجمووضة الكلية وحامض اللاكتيك وكذلك الأمونيا نتروجين يؤدي الى نقصان في الأس الهيدروجيني في محتويات الكرش وادى أيضا الى تأخير كل من النشاط الترسبي ومضم السلبيولوز ويؤدي أيضا الى نقص كبريتيد الأيدروجين ونشاط الكائنات الدقيقة (انفوزوريا) بمحتويات الكرش عن المعدل الطبيعي .

EFFECT OF DITILIN ON RUMINAL JUICE OF EGYPTIAN GOATS

By

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SUMMARY

- 1) The effect of Ditilin on rumen and its contents was studied.
- 2) The drug causes increase of the total acidity, lactic acid as well as ammonia nitrogen which results in a decrease ruminal pH.
- 3) The sedimentation activity and cellulose digestion are delayed.
- 4) The hydrogen sulphide and infusorial activity are decreased than normal.

INTRODUCTION

Ruminal microorganisms, protozoa, yeasts and 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 feed stuffs which are fermented by ruminal microorganisms to obtain substances for energy and bacterial multiplication.

Results of this bacterial activity burn to the benefit of ruminant host, because the primary end product of bacterial carbohydrate fermentation is a stream of volatile fatty acids that provide 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, muscle relaxants are used for treatment of some diseases of the animals like tetany, strychnine poisoning. . . . etc, and as preanaesthetics for surgical operations (Soliman et al., 1966). On this respect, we studied the effect of one of the muscle relaxants on rumen juice of goats, because the work on this species of animals is very scanty.

Material and Methods

- 1) Ditilin (pharmacochemistry Institute, USSR) is a diodomethyl diethylamine ethyl ether, which is a water soluble white powder.

II) Animals: in this work three fistulated goats 9 to 18 months age and 12 to 20 kg bwt were used. The animals proved to be clinically normal and the diet supplied was strictly balanced. All animals were used for each experiment. In experiments No. 1, 2 and 3 the animals were injected intra muscularly with ditilin in doses of 0.5, 1 and 1.5 mg/kg bwt. They were left for 15 days between each experiments. The drug solution used for injection was prepared 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 (S.A.), test after NICHOLS and KATHERINE, 1958.
- Cellulose digestion (C.D.) test after NICHOLS and KATHERINE, 1958.

b) Biochemical examination including:

- Hydrogen ion concentration (PH), estimated directly using Beckman PH meter at room temperature.
- Estimation of free and total acidity (T.A.) after VARLEY, 1969, and HAWK *et al.*, 1954.
- Estimation of lactic acid (L.A.), after VARLEY, 1969.
- Estimation of hydrogen sulphide (H_2S) after HAKEL, 1952.
- Estimation of rumen ammonia nitrogen (Amm.) according to the Method of CONWAY after HAWK *et al.* (1954) and VARLEY (1969).

c) Microscopical examination of the infusorial activity, viability and density.

Total acidity in the ruminal contents of normal goats before injection were 12.33, 15.00 and 15.66 meq/L and increased after half an hour from injection to 42.0, 20.06 and 19.40 meq/L respectively. Lactic acid content was 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 reports of HOFIRCK (1970), DUNLOP (1972) and MULLEN (1973).

RESULTS

The results obtained were recorded in the following table :

Effect of Ditilin on ruminal juice in doses 0.5, 1.0 and 1.5 mg/kg Bwt.

Dose/kg B.W.	Time	pH	T.A. meq/L	L.A. %	Amm. in mg.	H ₂ S	S.A. min.	C.D. hour	Infusoria (activity)
0.5 mg	Before	6.80	12.33	0.05	17.24	+++	95	60	Highly active and crowded
	½ hr.	6.20	42.00	0.10	21.20	++	75	60	Highly active and crowded
	1 hr.	6.28	40.00	0.10	23.80	+	117	60	Sluggish and less crowded
	2 hrs.	6.45	51.33	0.10	21.10	++	92	60	Moderately active
	4 hrs.	6.45	49.00	0.10	6.90	+++	100	60	Active and actively motile
1.0 mg	before	6.40	15.00	0.05	18.26	+++	80	52	Highly active and crowded
	½ hr.	5.90	20.06	0.10	22.86	++	85	52	Dead infusoria
	1 hr.	6.06	15.00	0.05	23.80	+	98	60	Moderately active
	2 hrs.	6.25	14.00	0.05	20.10	++	101	55	Motile actively
	4 hrs.	5.76	26.33	0.10	7.20	+++	110	55	Motile actively
1.5 mg	before	6.25	16.66	0.05	18.26	+++	78	57	Highly active and crowded
	½ hr.	5.56	19.40	0.05	24.85	++	73	72	Dead infusoria
	1 hr.	6.00	8.33	0.05	26.53	+	61	70	Moderately active
	2 hrs.	6.27	17.00	0.05	25.07	+++	103	60	Motile actively
	4 hrs.	5.80	47.00	0.10	8.00	+++	120	55	Moderately active

+++ = darkbrown

++ = Brown

+ = light brown

From the above table, it is shown that ditilin injected intramuscular in different doses affects the biophysical, biochemical and infusorial activity of the rumen contents.

Ammonia values were 17.24, 18.26 and 18.26 mg Amm. nitrogen. this may be due to 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 the rumen of normal goats was decreased half and one hour after injection of ditilin. This is possibly due to increased ruminal acidity. These biochemical changes seemed to be well correlated with the activity of the ruminal wall i.e. these changes return to about

normal when the ruminal activity returned to normal. The sediment activity of rumen juice obtained in normal goats ranged from 78-95 minutes. After treating with the drug in the different doses, the sediment activity shows fluctuation. Cellulose digestion of rumen juice of normal goats ranged from 52-60 hours, while after treating with the drug at different doses, in the first dose it shows no variation, while in the second it was delayed after two hours from injection. In the third dose, it was delayed during 90 minutes and then return to normal.

Before injection, infusoria were highly motile and active. As when the pH was lowered, infusoria were affected and killed as reported by KROGH (1963). Also one hour after injection, infusoria were sluggish, then became normal.

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