

STUDY ON THE THERAPEUTIC EFFECT OF FEEDING SHEEP WITH DIETS CONTAINING AROMATIC PLANTS

Romulus GRUIA¹, Dumitru LĂZURCĂ²,
George PUCHIANU³, Valentin NECULA⁴, Dorin ENACHE⁵

Abstract. *The three most promising plants were tested at the lowest level possible to determine their possible effects on gastrointestinal parasitic load of animals. For this study were used 80 lactating sheep naturally infected with nematodes pluriparous gastrointestinal (GIN). The relationship between the number of eggs and GIN load were assessed before the experiment with direct control of parasitological on a sheep slaughtered in the same herd (the herd). The 80 ewes were divided in 4 groups of 20 each: Group 1 (control), Group 2 (Carum carvi), Group 3 (Coriandrum sativum), Group 4 (Satureja Montana). There was analysed the variation of EPG (Total number of parasitic elements per gram of faeces) and LPG (Total number of larvae per gram of faeces) during the experimental period and the internal organs after the end of experiments.*

Keywords: aromatic plants, feeding, sheep

1. Introduction

One of the problems that the researchers had in view over time was therapy with medicinal and aromatic plants, including the possibility of eliminating intestinal parasites of sheep by feeding on such plants [1-5, 8-14]. Are also described some applications using herbs, with effects on the digestive tract, especially in human nutrition [6,7].

The three most promising plants, *Carum carvi*, *Coriandrum sativum* and *Satureja montana*, were tested at the lowest level possible (resulting from before analysing) to determine their possible effects on gastrointestinal parasitic load of animals. For this study were used 80 lactating sheep naturally infected with nematodes pluriparous gastrointestinal (GIN). The relationship between the number of eggs and GIN load were assessed before the experiment with direct control of parasitological on a sheep slaughtered in the same herd (the herd).

¹ Prof. PhD., Faculty of Food and Tourism, Head of Research Centre EBIOTEFA, Transilvania University of Brasov, Romania (ecotec@unitbv.ro)

² Senior Researcher, Transilvania University of Brasov, Romania (dlazurca@gmail.com)

³ Lecturer PhD., Transilvania University of Brasov, Romania (gpuchianu@yahoo.com)

⁴ Lecturer PhD., Transilvania University of Brasov, Romania (valentinneacula483@yahoo.ro)

⁵ Lecturer PhD., Transilvania University of Brasov, Romania (doenache@yahoo.com)

2. Materials and Methods

The 80 sheep were divided randomly into 4 groups of 20 each: **Lot 1 (Control)**, **Lot 2 (Carum carvi)**, **Lot 3 (Coriandrum sativum)**, **Lot 4 (Satujeja montana)**.

EPG was measured with a fecal performed qualitative and quantitative analysis, 3 days before the experiment, by the methodology of McMaster as described by Raynaud.

2.1 Experimental protocol

During the experimental period (3 months), all sheep were fed together on a pasture between milking in the morning and the evening. Every day, after the evening milking, sheep were separated into 4 experimental groups and kept in separate pens until the next morning. In the pens they have received the amount of feed mixtures rationalized experimental that were available until the morning milking. After the morning milking sheep were mixed and put together at pasture. There have been three forage mixtures at the lowest dose resulting from previous experiences with 3 plants and concentrated. For the control group received the same amount of feed concentrates, no added herbs.

Since experimental day 0 and twice a month individual analyzes were performed quantitative coprologice measuring the number of parasite eggs per gram of faeces EPG from gastrointestinal nematodes GIN, for a total of 560 tests. Each day during the sampling from each of the 4 experimental groups was collected in an aggregate sample of faeces to be subjected to coprocultures (28 in total ie 4 day 0 + 2x3x4) for species identification GIN . Effect of experimental diets was evaluated by calculation if there was a reduction in faecal egg, per g of faeces (FeCr) using the formula: $FeCr = [(geometric\ mean\ EPG\ in\ control - the\ geometric\ mean\ EPG\ animals\ treated) / control\ geometric\ mean\ EPG] \times 100$.

3. Results and discussions

3.1. Laboratory testing situation regarding the parasitic cargo on investigated lots

Before starting the experiment, were collected and analyzed a faeces sample average from the flock to see the degree of infestation with gastrointestinal nematodes.

The relationship between egg count and GIN load were assessed before the experiment starts with direct parasitological control on a slaughtered ewe of the same flock. The test results showed 4 EPG (Total number of parasitic elements per gram of faeces) on the flock and on the slaughtered ewe and 7 LPG (Total number of larvae per gram of faeces) on the flock respectively 5 LPG on the

slaughtered ewe. In the slaughtered ewe liver were found adult fluke (*Fasciola hepatica*) larvae (Fig.1.-a and b).

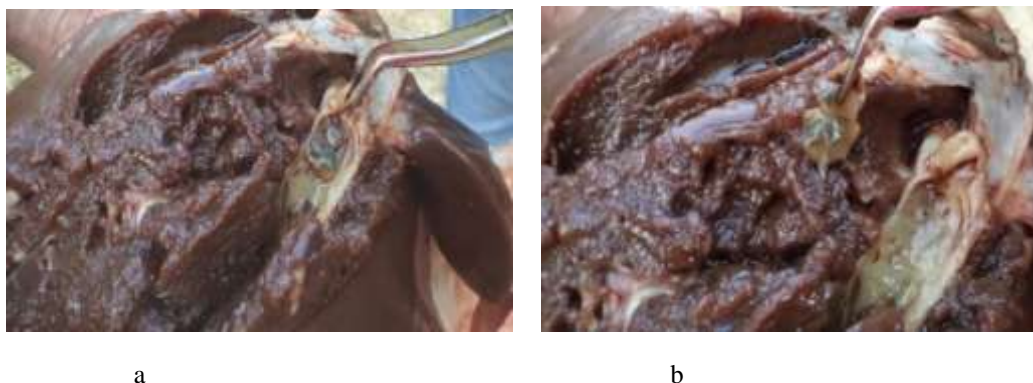


Fig.1. Adult fluke (*Fasciola hepatica*) larvae

From the flock (1000 sheep) were selected 80 ewes for experience. The 80 ewes were divided in 4 groups of 20 each. Sheep in each group were marked with a color out to be easily identified.

Table 1. Variation of EPG and LPG during the experimental period

Nr. crt.	Parasitic load / Experimental day	Analysis type	Livestock/ sacrificed subject	Lot 1 - control	Lot 2	Lot 3	Lot 4
1	before forming experimental lots	EPG	4/4				
		LPG	7/5				
2	DAY 0	EPG		5	8	7	4
		LPG		3	3	2	3
3	DAY 15	EPG		18	7	10	2
		LPG		3	2	3	1
4	DAY 30	EPG		16	6	8	2
		LPG		3	2	2	1
5	DAY 45	EPG		14	1	1	1
		LPG		8	1	1	1
6	DAY 60	EPG		15	1	1	0
		LPG		7	1	0	1
7	DAY 75	EPG		18	0	0	0
		LPG		8	2	1	1
8	DAY 90	EPG		20	0	0	0
		LPG		9	1	2	1

EPG = Total number of parasitic elements per gram of faeces

LPG = Total number of larvae per gram of faeces

Every night the sheep were separated into groups and were given feed supplement as follows:

Group 1 (control) - a mixture of: 2.5kg maize, 2.5 kg peas.

Group 2 - a mixture of: 2.5kg maize, 2.5 kg peas, 1.14kg *Carum carvi*

Group 3 - a mixture of: 2.5kg maize, 2.5 kg peas, 1.16kg *Coriandrum sativum*

Group 4 - a mixture of: 2.5kg maize, 2.5 kg peas, 0.88kg *Satureja montana*

Evening after feed supplementation, experimental animals were kept in separate shelters until morning, when they collected fecal samples.

Faeces samples were collected and analyzed on days 0, 15, 30, 45, 60, 75, and 90 of experience.

The methods used were flotation method – Willis and Berman method, along with the sedimentation and repeated washings method.

Variation of EPG (Total number of parasitic elements per gram of faeces) and LPG (Total number of larvae per gram of faeces) during the experimental period are listed in the Table 1.

3.2. Microscopic research

A series of microscopic analyses were needed to evaluate the evolution of intestinal parasites during the experiment (Fig.2,3 and 4).

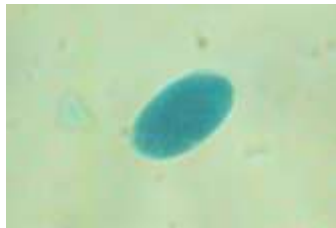


Fig. 2. Gastrointestinal Strongyl egg isolated with Willis method – coloration with lactophenol and toluidin blue – from the initial livestock – objective 20x microphotography with green filter



Fig. 3. *Fasciola hepatica* egg - lot 1 - 45 days-examination sediment-Ob.10

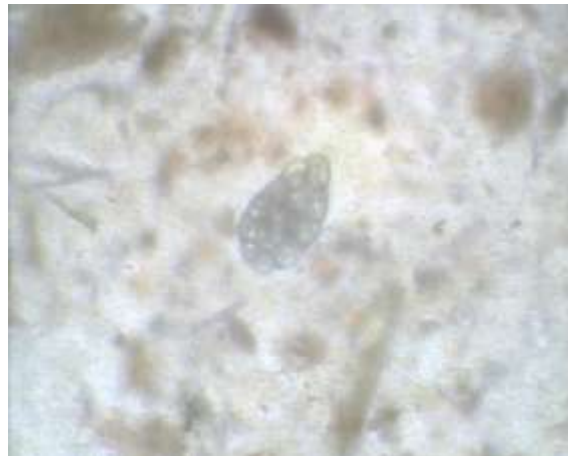


Fig. 4. *Fasciola hepatica* egg - lot 1 - 60 days - exam sediment - Ob.10
- phase contrast microscopy

3.3. Macroscopic analyses

The following are the 4 animals slaughtered at the end of the experience and appearance of internal organs (Fig. 5,6,7 and 8).

Lot 3 (*Coriandrum sativum*)



a.



b.



Fig. 7. a,b,c - We notice (after 90 days) the absence of parasites when given feed that has incorporated *Coriandrum sativum*.

Lot 4 (*Satureja montana*)

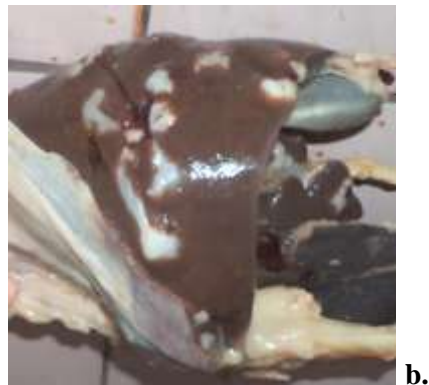
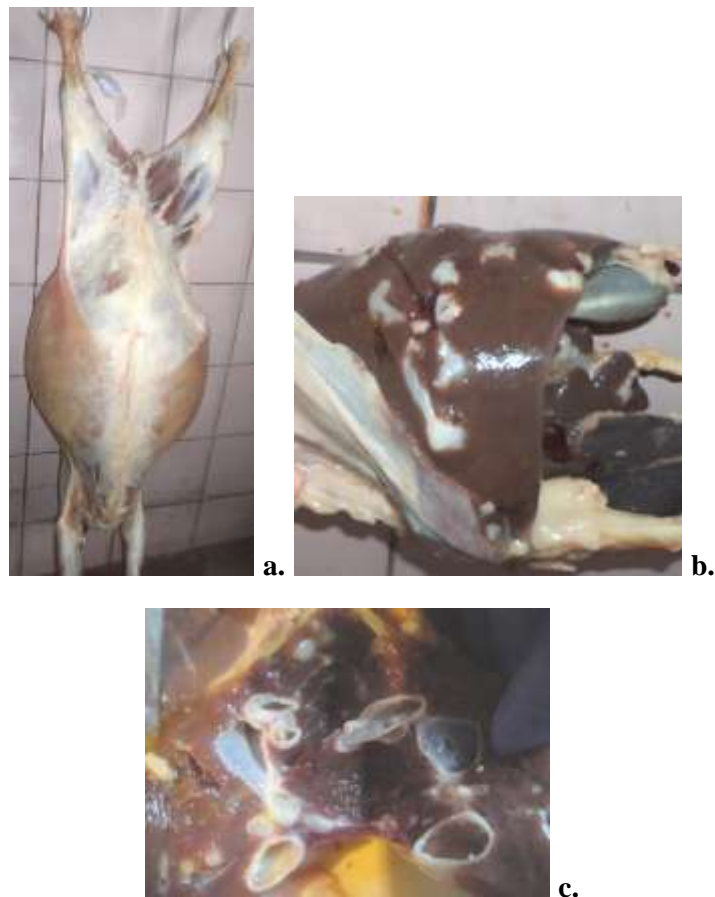


Fig. 8. a,b,c - Angiocolitis parasitary. We notice (after 90 days) the absence of parasites when given feed that has incorporated *Satureja montana*.

Conclusions

- (1) The research shows that the total number of parasitic elements per gram of faeces on lots 2, 3 and 4 decreased from day 0 to day 60 and after day 75 it was practically zero.
- (2) At the end of experiences (90 days) were not detected adult individuals of *Fasciola hepatica* in slaughtered animals.
- (3) Total number of parasitic elements per gram of faeces on control lot varied, with values close to the end of the experience, with the early experience.
- (4) At the end of experiences (90 days) were detected adult individuals of *Fasciola hepatica* in slaughtered animal.
- (5) Doses of medicinal plants at the doses used in experiments led to the decrease in the number of eggs and larvae in feces compared to control.

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