

## Studies on the endoparasites of goats in spread Belgrade area in period 2009-2010

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### SUMMARY

During 2009-2010, we examined the endoparasitic fauna of goat in spread Belgrade area (Serbia). Coprological and post-mortem examinations revealed the following parasite species: *Coccidiosis* (23.66%), *Cryptosporidium* spp. (29.77%), *Dicrocoelium dentriticum* (98.67%), *Moniezia expansa* (65.78%), *Echinococcus polymorphus* (97.92%), *Ostertagia circumcincta* (95.23%), *O. trifurcata* (91.53%), *Trichostrongylus axei* (100%), *T. colubriformis* (89.57%), *T. capricola* (62.85%), *Nematodirus spathiger* (100%), *N. filicolis* (43.31%), *Haemonchus contortus* (88.95%), *Marshallagia marshalli* (23.77%), *Skrjabinema caprae* (13.28%), *Chabertia ovina* (64.14%), *Oesophagostomum venulosum* (28.39%), and *Dictyocaulus filaria* (60.52%).

Keywords: goats, coccidia, cryptospora, helminths

### INTRODUCTION

During last decade goat production has started to play an important role in spread Belgrade area (Serbia) in providing animal protein for diet, especially for people living in villages close to Belgrade. Goats reared in the area are of milk aptitude, but also constitute a meat supply for the consumers.

No systematic studies had been previously made to determine the endoparasitic fauna of goats in Serbia. Examination of goat parasitoses has been sporadically performed and there are only a limited number of publications about it (Vujić and Bošković, 1981, Ilić, 1990, Vujić et al. 1991, Ilić et al. 1991, Pavlović et al. 1995). In the present study we performed an extensive examination of parasitic fauna of goats at various parts of Serbia during a two year period (2009-2010).

### MATERIAL AND METHODS

The study was performed during years 2009 and 2010 over a total of 131 flocks of goats and sheep belonging to 19 villages from Belgrade area. During

the examinations, a total of 331 fecal samples were analyzed using standard coprological techniques (Pavlović and Anđelić-Buzadžić, 2010).

A total of 67 goats were analyzed by post-mortem examination. Total differential worm counts were performed on all the alimentary tract and lungs using the technique described by Pavlović and Anđelić-Buzadžić (2010). Determination of adult helminthes and eggs and oocysts of parasites were done by keys given by Euzebý (1981) and Pavlović and Anđelić-Buzadžić (2010).

#### RESULTS AND DISCUSSION

The results of the present study are in agreement to epidemiological surveys conducted in close areas of Europe and are of important value to understand the parasitological status of goat population in Serbia. The number of guts and lungs examined was small in number, but in combination with results of coprological examinations represents the population adequately.

During the period 2009-2010 the next helminthic species were found: *Dicrocoelium dentriticum* (98.67%), *Moniezia expansa* (65.78%), *Echinococcus polymorphus* (97.92%), *Ostertagia circumcincta* (95.23%), *O. trifurcata* (91.53%), *Trichostrongylus axei* (100%), *T. colubriformis* (89.57%), *T. capricola* (62.85%), *Nematodirus spathiger* (100%), *N. filicolis* (43.31%), *Hameonchus contortus* (88.95%), *Marshallagia marshalli* (23.77%), *Skrjabinema caprae* (13.28%), *Chabertia ovina* (64.14%), *Oesophagostomum venulosum* (28.39%), and *Dictyocaulus filaria* (60.52%).

Most prevalent species of nematode were *Trichostrongylus* and *Nematodirus* species. Although most of the gastro-intestinal species appear to follow this general pattern of distribution, some variations in intensity and duration of infection with different worm species occurred (Pavlović et al. 2010b). When we compared our results to the similar survey in mountain area of Serbia that have been done at Šara Mountain (Vujić and Bošković, 1981, Vujić et al. 1991, Pavlović et al., 1995), and at East Serbia (Ilić, 1990, Ilić et al. 1991, Pavlović et al., 1991, 2003), we concluded that dominant endoparasite species were *Dicrocoelium dentriticum*, *Moniezia expansa* at of nematode *Trichostrongylus spp.* and *Nematodirus spp.* In the same time, lungworm infections were caused by different nematode species – at Šara and Homolje dominated *Protostrongylus* species (Pavlović et al. 2010a). The same parasite species were diagnosed in other Balkan countries like Macedonia or Bulgaria (Georgievski, 1989, Zurliiski and Rusev, 1990). Occurrence of *E. granulosus* was high in all examined areas (Pavlović et al. 2011).

During the period of examination *Cryptosporidium spp.* was found in 39 (29.77%) flocks, but determination of species was not performed. Goat kids between five and twenty-one days were the most susceptible for

cryptosporidiosis infections. Once kids were infected, they excreted oocysts during about five days. Coccidiosis was found in 31 flocks (23.66%). *Eimeria arloingi* was the species most frequently found with a prevalence of 86%, followed by *E. hirci* (63%), *E. ninakohlyakimovae* (53%), *E. christenseni* (35%), *E. caprina* (25%) and *E. jolchijevi* (2%). Two or more *Eimeria* species were detected in 78%. Coccidiosis was more prevalent in kids less than 3 months old than in weaned but not served goats (from 3 months to 1 year) and in adult goats (1 year or more). The most prevalent *Eimeria* species in kids was *E. arloingi*, while in weaned but not served and adult goats the most frequent was *E. ninakohlyakimovae*.

Generally speaking the parasites represent a global problem. Breeding at pasture usually leads to a lot of infections including parasitoses. Pasture breeding make possible contact within sheep and eggs, larval stages and intermediate host of parasites. It induced that no goats were parasite free. The countries of Maghreb, Middle East and Northern Africa have also permanent problems with parasite infections and losses induced (Abdirahman et al. 1989; Fake 1990; Quesada et al. 1990).

#### CONCLUSIONS

However, since the parasitic infections are in majority sub clinical, due attention is not paid to this problem in Serbia. The prophylactic treatment is not conducted in the majority of the flocks or it is only partially performed as seen in the records from the slaughter line and from production results. With the objective of reducing parasites fauna of goats and prepare measure to its control we must continue our examination. This is the only way to obtain better products, characteristics and quality of goats and kids meat in ecological breeding conditions.

#### ACKNOWLEDGEMENTS

The research was done within the project TR 31053, "Implementation of new biotechnological solutions in breeding of cattle, sheep and goats for the purpose of obtaining biologically valuable and safe food", funded by the Ministry of Science and Technological Development of the Republic of Serbia.

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