

The Diversity of Parasitic Invasions upon the Cattle of Different Ages in the Republic of Moldova

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Abstract. The level of geoparasites invasion (*S. papillosus*, *N. vitulorum*, *Eimeria spp.*) upon the cattles, decreases with age probably as a cause of immunity. So, adult cattle are still carriers for parasitic forms. The level of infestation with biohelminthes (*E. granulosus larvae*, *F. hepatica*, *D. lanceolatum*) increases with age probably due to long contact with infesting forms on the pasture. The prevalence species is *D. lanceolatum* which is characteristic for the steppe and forest steppe ecosystems, where the intermediary hosts and complementary hosts shelter. Absence or irregular dehelminthisation, permanent contact of cattle with intermediate and complementary hosts on the pasture, as well as massive pollution of pastures with parasitic elements of different invasive forms, keep a permanently high level of infestation in cattle.

Keywords: parasitism, bovine, larvae, invasion.

INTRODUCTION

The areas occupied by pastures have an important share in the anthropic ecosystems. In the grassland ecosystems the basis are represented by the vegetal components, on which the productivity depends, associated to this are numerous species of wild and domestic vertebrates [5].

The parasitic fauna of the host depends on the season and zoogeographic factors (latitude and longitude with different climatic conditions, presence or absence of intermediary or complimentary hosts, physic-chemical composition of the soil, salinity of water etc.). that is why , in many cases the same host in various locations of an area has a parasitic fauna which is qualitatively and quantitatively different [1, 2, 3, 7].

MATERIALS AND METHODS

The research aimed at establishing the parasitic fauna in cattle of various age in steppe and meadow ecosystems in around Colonița village, mun. Chișinău. For each animal specimen the level and structure of parasitic invasion was determined (EI – extensivity of invasion, II – intensivity of invasion). The parasitological investigations were performed according to the following methods: Popova, Baermann, Fülleborn, Darling and successive washing, in the Parasitology and Helminthology Laboratory of the Zoology Institute of

A.Ş.M. [4, 6, 9]. The sample collecting was performed individually after which Invasion extensivity (EI) in 5g of feces and Invasions intensity (II) with *Eimeria spp.* oocysts, *F. hepatica* eggs, *D. lanceolatum* eggs, *N. vitulorum* eggs, in 10 microscopic fields (10x40) was determined. Samples for coprological examination from 260 specimens of different ages (2-6 months, 12-18 months, 4-6 years) were collected for the determination of the parasitological situation. The infestation level with *Echinococcus granulosus larvae* was determined by indirect haemagglutination reaction, a positive reaction was considered when the antibody titer was higher than 1:320 [8].

RESULTS AND DISCUSSIONS

The result of coprological analysis of cattle aged 2-6 months, feeding on the meadow near the village, the following data were established: EI (extensivity of invasion) with *Strongyloides papillosus* was 44,0%, II (intensity of invasion) 2-18 larvae; *Neoscaris vitulorum* – 53,0%, II – 3-9 eggs, *Eimeria spp.* – 60,0%, II – 2-18 oocysts. The Mixed EI was 68,0%. So, in the examined cattle the geohelminthes were predominant, because they did not have contact with intermediate and complementary hosts on the pasture.

The cattles aged 12-18 months with mixed feeding (pasture, paddock) and watering at the lake near the village, the following data were established: EI with *S. papillosus* 44,0 %, II – 3-20 larvae; *N. vitulorum* – 48,0%, II – 1-9 eggs, *E. granulosus larvae* – 37,1%, *F. hepatica* – 38%, II – 3-7 eggs; *D. lanceolatum* – 58,0%, II – 3-8 eggs; *Eimeria spp.*- 58,0%, II – 3-15 oocysts. Mixed EI is 98%. The data show that in this area the cattle which access the pasture, contact the intermediate and complementary hosts, which are reservoirs for the parasites infesting forms.

For the adult cattles with daily feeding on the pasture, the following data were established: EI with *S. papillosus* 28,0%, II – 1-5 larvae; *N. vitulorum* – 3,0%, II – 1-3 eggs, *E. granulosus larvae* – 60,1%, *F. hepatica* – 46,0%, II – 3-10 eggs; *D. lanceolatum* – 63,0%, II – 3-11 eggs; *Eimeria spp.* – 36,0%, II – 2-14 oocysts. the mixed EI is 100 %. The extensivity of geohelminthes invasion decreases with age probably as a cause of acquired immunity, while EI with biohelminthes increases. This is probably due to the long time contact with the infesting forms on the pasture.

As a result of the research 4 *Eimeria* species were found :*Eimeria bovis*, *E. smithi*, *E. zuernii* and *E. ellipsoidalis*, with *E. bovis* predominant in the parasitic associations.

The high level of EI as well as II remains in all age groups, probably, due to permanent pollution of the pasture and shelters with parasitic forms.

So, the parasitic forms need ecological conditions specific to the ecosystems of the pasture in each stage of development. All measures for limiting the pollution of ecosystems with parasitic elements can be achieved by sanitation activities and by creating biological comfort conditions. The principles as well as the actions must be designed differently, according to the specific conditions of different ecosystems.

CONCLUSIONS

- The level of geoparasites invasion (*S. papillosus*, *N. vitulorum*, *Eimeria spp.*) upon cattles, decreases with age probably as a cause of immunity. So, adult cattle are still carriers of parasitic forms.
- The level of infestation with biohelminthes (*E. granulosus larvae*, *F. hepatica*, *D. lanceolatum*) increases with age probably due to long contact with infesting forms on the pasture.

- The prevalence species is *D. lanceolatum* which is characteristic for the steppe and forest steppe ecosystems, where the intermediary hosts (land gastropods) and complementary hosts (ants) shelter.
- Absence or irregular dehelminthisation, permanent contact of cattles with intermediate and complementary hosts on the pasture, as well as massive pollution of pastures with parasitic elements of different invasive forms, keep a permanently high level of infestation of cattles.

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