

ABSTRACT

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Title of diploma thesis: Liver fluke - treatment and resistance

Fasciola hepatica is a parasite of global importance that we find both in farm animals and in humans. This thesis aims to summarize information on the potential of drugs and treatment alternatives that are suitable for treatment of *F. hepatica*. Given that for a number of drugs used in the past, as well as the drugs currently administered, resistance developed, this thesis is also focused on this phenomenon, especially the mechanisms of its origin.

The drugs used to treat fasciolosis are called antitrepatodal drugs. They can be divided into five chemical groups, of which the most important group are currently benzimidazoles and their representative triclabendazole. Also other drugs as albendazole, clorsulon, hexachlorophene, closantel, diamphenitide, bithionol, rafoxanide are important.

The rate of resistance development is affected by many factors that may be genetic, biological or functional. *F. hepatica* actively uses its enzymatic system, especially oxidation enzymes or efflux transporters. The influence on the development of resistance, apart from the parasite itself, have also breeders and farmers. Frequent use and, optionally, administration of lower than therapeutic doses greatly contribute to the development of resistance to these anthelmintics.

The emergence of resistance needs to be overcome, especially by a well-chosen treatment strategy, choosing and alternating anthelmintics in one place and other methods. An important factor in the fight against this fluke is also the knowledge of resistance at the treatment site, which is currently possible to use some methods such as the egg hatch test, the fecal egg count reduction test or the coproantigen reduction test.