

ABSTRACT

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Title of diploma thesis: Effect of monepantel on expression of biotransformation enzymes in sheep

Monepantel (MOP) represents a new anthelmintic drug from the amino-acetonitrile derivatives group with the different mode of action in comparison with commonly used broad-spectrum drugs. It is used for the treatment and control of gastrointestinal nematode infection in sheep and cattle. This study focuses on the effect of MOP on expression of selected cytochromes P450 (CYP) in sheep *in vivo* and *in vitro*. The sheep treated with the recommended therapeutic dose of MOP was used for the *in vivo* experiment. Non-treated animals represented the control group. Changes of mRNA expression of selected CYPs in primary cultures of ovine hepatocytes were observed after 24 h incubation with MOP (10 μ M) in the *in vitro* experiment. The qPCR method (real time quantitative PCR) was used for the quantification of transcription levels of mRNA. Both *in vivo* as well as *in vitro* results showed a significant up-regulation in CYP3A24 expression. The induction effect of MOP was even stronger than induction effect of well-known CYP3A inducer rifampicin. Induction effect of CYP3A enzymes may have serious pharmacological and/or toxicological consequences. These facts should be taken into account when other drugs together with or after MOP are administered to sheep.