VI.
SUMMARY IN ENGLISH

Parasites are organisms that obtain food and shelter by living on or within another organism. A parasite is an organism that spends a significant portion of its life in or on the living tissue of a host organism and which causes harm to the host without immediately killing it. The parasite derives all benefits from association and the host may either not be harmed or may suffer the consequences of this association, a parasite disease. The parasitic mode of life is common on the planet, with representatives from all major taxa, from the simplest unicellular organisms to complex vertebrates. Every free-living species has its own unique species of parasite. Parasites can infect both humans and animals. In the Central Europe the occur of human parasitic diseases are not frequent, contrary to veterinary practice where almost all species are common host to one or more parasite taxa.

Present breeding of the free living and farm animals must fulfill many requirements including a production of quantity of commodities, which is usually associated with overcrowding of animals and threat of simple and uncontrolled transfer of contagious diseases. Except of zoo-hygienic arrangements, another frequently employed solution of this problem is use of drug for prevention and eventual treatment if infection occurs. Benzimidazole anthelmintic, including albendazole, are pharmaceuticals very frequently used for the mentioned purpose.

After chemical substances enter the organism, their molecules are usually modified by metabolic transformation-biotransformation. Generally, during biotransformation the drugs undergo changes of their structures in one or more steps so that derivatives, that can be eliminated from bodies more easily, are formed. The biotransformation enzymes catalyse those changes. Metabolic pathways may lead to both activation and inactivation of the drug. The biotransformation is frequently characterised as species specific, which makes provision for limiting use or different drug dosage. Farm animals focused similar metabolic pathways of albendazole in term of created product of biotransformation, but the albendazole pharmacokinetics was characterised as species specific.

It has become well known, that frequent administration of drug may lead to a modulation of biotransformation enzymes activities resulting in changes of metabolism velocity and plasmatic concentration of parent compound and metabolites. Various pharmacological consequences can then be expected. Inhibition of enzymes and decreased level of biotransformation can raise plasmatic concentrations of drugs leading to possible toxic effects. Induction, on the contrary, accelerates metabolism and subsequently plasmatic

concentration of active substance can drop below the threshold of therapeutic effect resulting in failure of treatment. In anthelmintic therapy, induction of biotransformation enzymes may contribute to rise of parasitic resistance. In food-producing animals, there is an additional risk of unexpected facilitation or prolongation of elimination of the drug or its metabolites, or a change in a biotransformation pathway, which creates the threat of occurrence of these xenobiotics in animal products. Many benzimidazole anthelmintics have been shown as modulators of biotransformation enzymes in laboratory animals, man and also in certain food-producing animals. Profound interspecies differences, however, do not allow direct extrapolation of data obtained in various species.

Studies performed on target species are necessary for reliable assessments of both pharmacokinetics and modulation of biotransformation enzymes.