Abstracts

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Po 41 CHEMOTHERAPY AND DRUG RESISTANCE OF ANIMAL PARASITES

Po 41.09(391) EVALUATION OF DIFFERENT DOSES OF FENBENDAZOLE POUR-ON IN THE REDUCTION OF GASTROINTESTINAL AND LUNGWORM NEMATODES IN CALVES

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Two studies were carried out (in July and October, 1992) to evaluate the efficacy of various doses of fenbendazole pour-on formulation on gastrointestinal and lungworm nematodes in Bovis taurus and Bovis indicus cross-bred calves from Las Margaritas estate, centro Experimental Puebla (State of Mexico, Mexico) in a tropical region. Five batches from 11 to 13 calves, naturally infected with gastrointestinal nematodes, were treated at the end of each study. Batches 1, 2 and 3 were treated with doses of 5, 7.5 and 10 mg/kg and batch 4 was the control. Efficacy, calculated using the Power et al. formula (Val Param. 1992), in eggs per gram of faeces (e.g.) and reduction in the treated batches, 7 days post-treatment, was 82.9%, 93.5%, 95.42% and 93.40%, respectively. Four batches of 12 calves, infected with gastrointestinal nematodes and positive for Dicyoecaus viviparus larvae were used in the second study. Two were treated with 5, 7.5 and 10 mg/kg fenbendazole pour-on and batch 4 was the control. The efficacy of these doses in reducing e.g. gastrointestinal nematodes was 99.22%, 95.16% and 100%, respectively, and 100%. Statistically significant differences (for p < 0.05) in the efficacy of fenbendazole between the batch in the first study treated with 5 mg/kg pour-on formulation and each of the other batches, for both studies, treated in the same way, were detected using one-way analysis of variance and the LSD test. According to the infective larvae, obtained in the coprocultures for each batch, the following genera of gastrointestinal nematodes were identified: Haemonchus, Trichostrongyulus, Cooperia, Oesophagostomum and Bunostomum.

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Po 41.09(564) RESEARCH FOR THERAPEUTIC TARGETS FROM ENERGY METABOLISM IN THE FILARIA MOLINIA DESSETAE

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Several enzymes of energy metabolism from the filariae Molinema dessetae were studied as potential therapeutic target by comparing the enzyme properties between parasite and mammal.

The presence of PEP-carboxylase was detected in M. dessetae. This enzyme has not previously been identified in Helminthus, which have so far only been found to only possess a PEPCK. This difference was then exploited for the drug design. 

Phenoxy-cyclohexane derivatives as new leech-compound emerged as inhibitors of this enzyme system isolated from adult females. These compounds were also active in vitro as adult killer whereas PEP analogs were inactive.

Malate dehydrogenase (MDH) and lactate dehydrogenase (LDH) were then studied. Both isoenzymes pattern and their respective properties after purification. They were evaluated as target by studying the effects of usual anthelmintics. Suramin exhibited an high inhibitory effect (K_i = 1.15 μM) on MDH but similar effects were observed on mammal enzymes. Moreover, analogs of pyruvate were evaluated on filarial LDH and showed slight inhibitory effect.

Po 41.10(59) THE INFLUENCE OF ACTH, ADRENALIC PRAGUINUEL ON THE LEVEL OF DOPAMINE IN THE TISSUES OF HYMENOLEPIS INDIJUTA IN THE INTESTINES OF BAT

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Mediators of the nervous system are most sensitive under the acute influence of ACTH data concerning already used and new anthelmintics on mediators and hormones of the parasite and the host remain very limited. Biogonic amine, namely serotonin, discovered in helminths play an important role in the regulation of many processes of the living organism, having mediator, modulator and hormone functions. The research of serotonin level in 2 animals, of from the I.C., treated with highly effective antihelmintics of wide spectrum prasiquintel (5 mg/kg of animal weight), revealed the decrease of the paracon compared to the control group. Serotonin concentration in small intestine of the treated rats increased under the influence of prasiquintel. These results broaden the idea about the mechanism of influence of prasiquintel and suggest the participation of serotonin system in this process.

Po 41.11(667) EFFICACY OF MOXIDECTIN 0.2% ORAL DRENCH AGAINST NATURAL INFECTION WITH Dicyoecaus filaria IN SHEEP

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Twenty-two Churra ewes ranging from three to six years of age were used. The ewes were housed from 4 days before the beginning of the trial until the end of the study (days 25-36). The animals were allocated into two groups of 11 animals each based on amount of Dicyoecaus filaria larvae per gramme of faeces (LPG) three days before treatment.

The animals in group 1 (G1) were treated on day 0 with moxidectin 0.2% oral drench at a dose of 0.2 mg/kg body weight; animals in group 2 (G2) remained untreated throughout the duration of the trial. All animals were weighed on day -1 and at either the time of death or slaughter, so statistically significant differences were observed.

The number of D. filaria LPG on the day before treatment was not significantly different (p>0.01) between the groups (arithmetic averages of 40.6 for G1 and 31.2 for G2). In the G2, the LPG increased to a level of 108.00 by the end of the trial (day 26), whereas in the G1 decreased to an arithmetic average of 0.5 by the first sampling point treatment (day 6), and were negative for all animals by the following days until the conclusion of the trial. No worms were detected at necropsy in any of the treated animals, however the control animals had an arithmetic average of 86.3 worms each.

Thus, moxidectin 0.2% drench, administered at 0.2 mg/kg body weight is 100% effective against D. filaria infection in sheep. No adverse reactions to the treatment were observed in the animals.