



WAAVP

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Sifting and Winnowing the Evidence in Veterinary Parasitology



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Abstract Book

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retested at D60 leading to a 100% parasite removal. The most important risk factor was found to be lifestyle and owner education. It was concluded that the combination of milbemycin oxime and praziquantel (Milpro, Virbac) offers an effective solution to control common gastrointestinal and respiratory helminths in dogs and cats in Greece.

PS01.81 Acaricidal Activity of Plant-Derived Essential Oil Components Against Psoroptes Ovis In Vitro and In Vivo

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Psoroptes ovis is a major health problem in beef cattle. Treatment is limited to local administration of amitraz or pyrethroids or systemic administration of macrocyclic lactones. Treatment failures with macrocyclic lactones have been reported in recent years. To investigate potential alternative treatments, the acaricidal activity of four plant-derived essential oil components, i.e. geraniol, eugenol, 1,8-cineol and carvacrol against *P. ovis* was assessed in vitro and in vivo. Three components showed a concentration-dependent acaricidal activity in a contact assay, with LC50 of 0.56 %, 0.38 % and 0.26 % at 24 h for geraniol, eugenol, and carvacrol, respectively. In a fumigation bioassay, carvacrol demonstrated the best efficacy as it killed all mites within 50 min after treatment, whereas geraniol, eugenol, and 1,8-cineol needed 90 min, 150 min, and 90 min, respectively. Following a 72 h incubation period in a residual bioassay, eugenol and carvacrol killed all mites after 4 h of exposure to LC50 and LC90, while geraniol killed all mites only after 8 h exposure at LC50. Topical treatment with 2 % carvacrol in Tween-80 of six calves with experimental *P. ovis* infestations, reduced mean mite counts by 98.48±2.36 % at 6 weeks post treatment. In the control group which was treated with Tween-80 only, the mite population increased

with similar kinetics as a typical experimental mite infestation. Topical application of carvacrol on shaved skin caused mild and transient erythema 20 min after treatment. No other side effects were observed. Considering the strong acaricidal activity of carvacrol in vitro and in vivo and the mild and transient local side effects after topical treatment, carvacrol shows potential as an acaricidal agent in the treatment of *P. ovis* in cattle.

PS01.82 Evaluation of Levamisole Pharmacokinetics and Milk Excretion in Dairy Goats

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Introduction: Levamisole (LVM) is a nematocidal compound available for veterinary medical use for over 50 years. Since the widespread development of drug resistance is a serious productive inconvenient, LVM is currently used extralabel as a therapeutic alternative in dairy sheep and goats. Thus, information on drug residual concentrations in milk is needed to assure protect consumer`s safety. The current work aimed to evaluate the concentration profiles of LVM in plasma and its pattern of milk excretion in lactating dairy goats treated at different stages of lactation.

Material and Methods: Twelve (12) female Saanen dairy goats at early-mid stage of lactation (group A) and at mid-late stage of lactation (group B) were orally treated with LVM (7.5 mg/kg) (Ripercol®, Zoetis). Blood and milk samples were collected between 0 and 5 days post-treatment to characterize the plasma and milk disposition kinetics. LVM concentrations in plasma and milk were determined by HPLC with UV detection. Results: LVM parent compound was detected in plasma and milk up to 8 h and 12 h post-treatment, respectively. Plasma concentrations

increased progressively to a maximum concentration (C_{max}) of 0.89 ± 0.2 µg/ml at 0.27 h (group A) and 0.77 ± 0.3 µg/ml at 0.2 h (group B). LVM milk residual concentrations were lower than measured in plasma.

Conclusion: The pharmacokinetic results reported here confirm that LVM is excreted by milk in lactating dairy goats. The residual concentrations in milk (0.05 µg/ml) detected up to 12 h, should be considered before issuing any recommendation on the manufacturing of milk from dairy goats under antiparasitic treatment with LVM.

PS01.83 Uptake of Ivermectin from Growing Substrate to Plant Species

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Ivermectin (IVM) is a worldwide-used antiparasitic drug. However, its high level of faecal elimination together with its transfer from dung pats to the underlying soil as well as the common practice of using manure for soil amendment represents a potential risk to plants growing in these substrates. Two trials were conducted to evaluate the uptake of IVM to: 1) a crop of ryegrass (*Lolium multiflorum*) and clover (*Trifolium repens*) growing for 120 days post treatment (dpt) in IVM-spiked soil at 3000 (High group, HG) and 90ng/g (Low group, LG); and 2) a crop of radish (*Raphanus sativus*) and lettuce (*Lactuca sativa*) growing for 60 dpt in a mix of soil and 10% IVM-spiked manure at 3000ng/g. Soil, soil-manure mix and plants were sampled starting at 15 dpt and at the end of each trial. All matrices were analyzed by HPLC to quantify IVM concentration. Trial 1: In HG, IVM concentration in soil decreased

from 2154 ng/g to 225 ng/g; mean IVM concentration in ryegrass ranged between 378.65ng/g and 21,74ng/g. Strikingly, clover development was delayed until 30 dpt and IVM concentration in this specie ranged between 94,09 ng/g and 4,56ng/g. Significant differences were detected between species (p=0,0374). In the LG, IVM concentration was between 22,26ng/g and 1,02ng/g in ryegrass, and between 10ng/g and 1,02ng/g in clover, without statistically significant differences between species (p=0,8301). Trial 2: IVM was detected in both plant species at significant levels (p>0,05) in all the sampling times; mean IVM concentration was between 10ng/g and 5ng/g in radish, and 17,70ng/g and 6,55ng/g in lettuce. IVM concentration in the substrate decreased from 1311ng/g to 116ng/g. In conclusion, IVM concentrations in soil or composted substrate are transferred to plants during growth period, and could be incorporated into the food chain of both livestock and humans.

PS01.84 The Efficacy of a Proprietary Formulation of Imidacloprid 10% + Moxidectin 1% (Advantage Multi®, Advocate®) Spot-On for the Treatment Against Microfilariae of *Brugia pahangi* in Naturally Infected Cats

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Lymphatic filariasis (LF) is one of the most debilitating neglected tropical diseases (NTDs). It is caused by parasitic worms transmitted to humans by mosquitoes. Recent evidence has also indicated that *Brugia pahangi*, a filarial nematode that is naturally found in cats, can cause clinical infection in humans, with clinical presentations that are consistent with lymphatic filariasis. Imidacloprid 10% + Moxidectin 1% has more recently been introduced as a topical spot-on, and marketed worldwide as Advantage Multi® or Advocate® by Bayer Animal Health (Leverkusen, Germany). However, the efficacy against infections with *B. pahangi* in cats