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Dermacentor albipictus is a one-host tick capable of parasitizing a wide range of hosts and is broadly distributed across North America. Two color variants are known to occur, one of which is ornate and the other inornate/brown. The inornate/brown variant was formerly known as *Dermacentor nigrolineatus*, but has subsequently been synonymized with *D. albipictus*. Additionally, there is evidence for two genetic lineages within the species based on partial mt-cox1 and mt-16S sequences, which do not match the delineation of the color variants. In this study, the complete mitochondrial genomes of 13 *D. albipictus* ticks isolated from horses was amplified as two overlapping segments and sequenced on the Illumina platform. Phylogenetic and comparative genetic analysis of the assembled and annotated mitochondrial genomes of the two-color variants including representatives of each genetic lineage is presented. The mitochondrial genomes of *D. albipictus* lineage 1 and lineage 2 differed by 10.7%. All sequences of the inornate variants were found to belong to lineage 2, while ornate variants occurred in both lineage 1 and 2. This is the first study to sequence the complete mitochondrial genomes of this tick species, and analysis suggests that *D. albipictus* may be a species complex. For future diagnostic applications, comparative analyses of the color and lineage variants at 15 mitochondrial gene loci is presented. mtDNA data generated in this study has been submitted to GenBank for future studies on tick taxonomy, phylogenetics and molecular epidemiology.

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In vitro effects of phyto-medicine against _Ascaridia galli_

Muhammad Arfan Zaman*, Amna Shahid, Warda Qamar
University of Veterinary and Animal Sciences, Lahore (Jhang Campus)

Ascaridia (A.) galli posed major economic threat for sustainable business of backyard poultry. The present study was conducted to evaluate the anthelmintic activity of aqueous extracts of *Azadirachta (A.) indica* (Neem), *Mallotus (M.) philippinensis* (Kamala), *Melia (M.) azedarach* (Bakain) and their combined herbal extract against *A. galli*. Methods to determine the efficacy included egg hatching test and adult motility assay in which increasing concentrations (12.5 mg/ml, 25 mg/ml, 50 mg/ml and 100 mg/ml) of aqueous extracts of these plants with Albendazole (7.5 mg/ml) and 1X Phosphate buffered saline as positive and negative control, respectively were used. 100% mortality was observed of combined herbal extract (LC50 =36.7 µg/ml) followed by *M. philippinensis* (LC50 =41.4 µg/ml), *M. azedarach* (LC50 =147 µg/ml) and *A. indica* (LC50 =189 µg/ml) with 87.5%, 62.5% and 50% mortality, respectively, at 15 hours post-exposure.

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Monitoring of ivermectin residues in bovine and pork tissues

Lucila Canton, Candela Canton*, Paula Dominguez, Cristina Farias, Luis Alvarez, Carlos Lanusse, Laura Moreno
Laboratorio de Farmacología, Centro de Investigación Veterinaria de Tandil (CIVETAN), UNCPBA-CICPBA-CONICET, Facultad de Ciencias Veterinarias

Argentina is traditionally a beef-producing country. However, in recent years other productions have grown exponentially. Due to improvements in technology or economic issues, consumer preferences have changed for cheaper meats. Animal production systems are closely linked to veterinary drug use for prevention, control, or treatment of parasitic diseases. Consequently, if good agricultural practices are not respected, products obtained from these productions could

present residues above the Maximum Residue Limits (MRLs). In this context, ivermectin (IVM) is one of the most widely used to treat parasitic diseases. Consequently, the current study aimed to assess the presence of IVM residues in bovine and pork tissues for local consumption in Buenos Aires province (Argentina). Samples of bovine/pork tissues were taken for 3 years in 5 cities of Buenos Aires province. Tissue samples were analyzed by HPLC (fluorescence detector). Using the @Risk software the risk of consuming tissues with IVM residues above the *Admitted Daily Intake* (ADI) was evaluated. IVM residues were quantified in 87 (12.5%) samples (out of a total of 691). However, only 13 samples showed concentrations above the Codex MRL. Mean IVM concentrations (range) were 42.18(0.11–587.15), 31.66(2.96–283.33), 162.61(1.32–516.55), 22.78(1.51–65.40), 15.26(0.07–194.25) and 22.14(1.58–126.76) ppb for bovine meat, bovine fat, bovine liver, bovine kidney, pork meat, and pork fat, respectively. Fortunately, the probability of consuming bovine and porcine tissues with IVM residues above the ADI was nil. However, 1.88% of the samples showed IVM concentrations above the MRL, thus the implementation of residue surveillance programs guaranteeing consumer health is strongly recommended.

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Screening pipeline for gastrointestinal nematodes drug discovery

Emily Goetz*[1], Mostafa Elfawal[1], You-Mei Kim[1], Sergey Savinov[2], Raffi Aroian[1]
[1]UMass Chan Medical School, [2]Tufts University

Gastrointestinal nematodes have a remarkable impact on the health of human, livestock, and companion animals. They are responsible for an estimated tens of billions of dollars in losses due to the harmful effects they cause on their human and animal hosts. Infections are controlled by a regular treatment of anthelmintic drugs. These parasites have become resistant to most classes of available drugs. A new class of drugs is needed to combat these resistant parasites. Phenotypic screening is the gold standard in the drug discovery field against pathogenic diseases. In phenotypic screening, the whole organism is challenged by a multitude of compounds, selecting for those that kill or visibly weaken the parasite. However, due parasitic nematodes being multicellular organisms, requiring laboratory animals for maintenance, and low yield, the parasitic stages are not efficient for high throughput screening. Fortunately, some parasitic nematodes have free-living larval stages such as *Anclyostoma. ceylanicum*, making it a good model for the parasitic stages: the main source of pathogenicity. A past screening of an FDA approved library tested against both the parasitic and larval stages of *A. ceylanicum* have shown that the larval stages are a good predictor for drug susceptibility in adult parasites. Using the larval development assay, we screened more than 33,000 compounds for potential activity. Larvicidal compounds were validated through an *ex vivo* screen against the adult stage of *A. ceylanicum* and then tested against an evolutionary distant whipworm parasite, *Trichuris muris*. As the two parasites are evolutionarily distant, compounds that are effective against both parasites can be considered broad spectrum and likely to target other parasitic nematodes. Broad spectrum compounds were then tested in a dose response against the adult stages of these two parasites to prioritize compounds based off IC50. Here we will present our revised screening pipeline including the hit rates, mammalian cytotoxicity and IC-50 values of potential candidates.