Russian Journal of Nematology
KUZMINA, T. A., ZVEGINTSOVA, N. S. & KHARCHENKO, V. A. Study of the intestinal strongylid community of horses, donkeys and zebras in vivo using the diagnostic deworming method.

Generally, intestinal helminthes of equids are studied with post mortem methods. Our aim was to study the structure of intestinal strongylid communities of horses, donkeys and zebras after their deworming with Univerm aversectin preparation. Forty-four orlovsky trotters from three regions of Ukraine, six donkeys and nine zebras from Askania Nova biosphere reserve were included in the study. Animals were treated with Univerm (0.2% aversectin, PharmBioMed, Russia). Faecal sampling (200 g each) was performed at 24, 36, 48 and 60 hours after treatment; all nematodes expelled were collected and identified. In horses, twenty-five strongylid species were found. Cysticoccus nassatus and Cystostomum catinatum were dominant ones. They were found in 100% of horses, and comprised 36.3% and 17.6% of total strongylid number, respectively. Cysticoccus asworthii, C. leptostomus, Cysticostephanus longibursatus, C. calicus and C. minutus were subdominant species. They were found in more than 80% of horses, and totally comprised 39.9% of strongylid number. In donkeys, twenty-three strongylid species were found. C. nassatus, C. catinatum and Cystostomum tetracanthum dominated and comprised 47.3%, 16.7% and 11.4% of total strongylid number, respectively. Seventeen strongylid species were found in zebras. C. catinatum, C. nassatus and Cysticostephanus goldi were dominant, and comprised 41.3%, 29.2% and 13.8% of total strongylid number, respectively. The results obtained confirmed the possibility of in vivo studies of equid intestinal strongylid communities using the diagnostic deworming method.

- Schmalhausen Institute of Zoology NAS of Ukraine, Kiev. E-mail: taniak@izan.kiev.ua; T.E. Falz-Fein Biosphere Reserve of "Askania Nova", Ukraine

LYCHAGINA, S. V. Agricultural methods of spatial isolation in control of gall nematode Meloidogyne incognita.

Inconvenient places in greenhouses like paths, perimeters of greenhouses, plots located near constructions, and deep layers of greenhouse soil which are hard to treat against gall nematodes typically serve as a source of nematode infestation. Therefore it would be helpful to solve a problem of delaying of nematode hatching from these places to reduce the nematode burden on the crop. In order to isolate non-resistant cucumber plants from sites with high nematode densities several planting schemes were studied. Experimental plants were placed at distances not less than 40 cm from the paths and 60 cm from the plinths of greenhouse where the control ones were planted using the customary scheme. A year before experiment, from 22% to 45.5% of plants were found damaged by Meloidogyne incognita in greenhouses used for experiment. In two experimental greenhouses with plant density 2.9 plants/m², 11.46% and 19.92% plants were found infested by M. incognita to the end of experiment. Damage indexes were 1.44 and 1.34 points accordingly. 0.69% and 1.0 % plants from the total number were discarded with the following replacement of the new ones. In two greenhouses with plant density of 2.6 plants/m² 24.14% and 16.54 % of plants were infested by nematodes, damage indexes were 1.36 and 1.63 points accordingly and 7.43% and 7.0 % plants from the total number were discarded with the following replacement of the new ones. In controls, with plant density 2.9 plants/ m², 25.33% of plants were damaged by nematodes with damage index of 1.96 and 10% plants discarded. Symptoms of disease like daytime wilting of foliage occurred 1.5-5 weeks earlier than in experiment. Thus, replacement of plants from the most heavily infested places in greenhouses affect positively on reducing of damage of nematodes.

- Russian State Agrarian University of distant education, Balashikha, 143900, Russia


Heterodera sacchari and H. goldeni belong to the Sacchari group and share several diagnostic characters: strongly developed underbridge with finger-like projections in cyst and prominent anchor shaped stylet knobs, three incisures in lateral field in second stage juveniles. Heterodera sacchari was found parasitizing sugarcane and rice in several African and Asian countries. Heterodera goldeni was recently described from Egypt where it attacks Qasabagrass (Panicum coloratum). Comparative morphological and molecular analyses of a previously reported cyst nematode species parasitizing Phragmites sp and Juncus acutus from Iran and an unidentified cyst nematode parasitizing Kikuyu grass (Pennisetum clandestinum) from Israel revealed that these nematodes are conspecific with H. goldeni. Morphological characters and morphometrics differentiating cysts and second-stage juveniles of H. goldeni from H. sacchari and H. leucelylma are provided and discussed. Heterodera sacchari has generally smaller cysts than H. goldeni (average 640-735 μm 430-470 μm vs 707-766 437-481 μm) and has a shorter testinal length (average 40-52 μm vs 60-61 μm). Second-stage juveniles of Heterodera goldeni differ from those of H. sacchari by having a slightly longer tail (average 59-65 vs range 50-62 mm) and longer hyaline part of tail (average 34-38 vs 26-32 μm). The phasmid in H. goldeni is situated much closer to anus level. The ITS-rRNA sequences of H. sacchari and H. goldeni differ from each other by 6 insertion/deletion events and 22 nucleotides. The ITS sequences of H. sacchari from Ghana and
Cote d’Ivoire were almost identical while difference between ITS sequences for H. goldeni samples varied from 1 to 6 nucleotides (0.1-0.5%). Phylogenetic relationships between species and populations of the Sacchari group based on the ITS—rRNA sequences were presented. -1Plant Pests and Diseases Research Institute, P.O. Box 1454-Tehran, 19395, Iran; 2Institut für Nematologie und Wirbeltierkunde, 48161, Münster, Germany; 3Nematology Laboratory, Plant Sciences Institute, Beltsville Agricultural Research Center, Beltsville, MD 20705-2350, USA; 4The Volcani Center, Bet-Dagan, Israel; 5Agricultural Research Centre, Merelbeke, 9820, Belgium, 6University of California, Riverside, CA 92545, USA; 7Institute of Parasitology of the Russian Academy of Science, Moscow, 117071, Russia

MAHMOUD, M. F.1 & POMAZKOV, Y. I. 2 Steinernema feltiae, a biological control agent of house fly Musca domestica L. in the laboratory.

Steinernema feltiae was tested for its infectivity towards larvae and pupae of the house fly, Musca domestica. Mortality of 2nd instar larvae 72 h. after exposure ranged from 0 to 58.3 %, 33.3 to 100 % for 3rd instar larvae, 20 to 73.3 % for 1 day old pupae and 0 to 60 % for 5 days old pupae. Slope, LC20, LC50 and LC90 were estimated. Slope values ranged from 1.31 to 2.02 for 2nd instar, 3rd instar larvae and 1.03 to 1.28 for 5 days old and 1 day old pupae. Results demonstrated that 3rd instar larvae and 1 day old pupae of M. domestica were significantly more susceptible to nematode infection than 2nd instar larvae and 5 days old pupae at all concentrations 50, 100, 200, 300, 400 and 500 infective juveniles. -1Plant Protection Department, Faculty of Agriculture, Peoples’ Friendship University, Russia. E-mail: mfmfmousa@hotmail.com; 2Plant Protection Department, Faculty of Agriculture, Peoples’ Friendship University, Russia. E-mail: pomazkov35@mail.ru

MAHMOUD, M. F.1 & POMAZKOV, Y. I.2 Interaction between botanical insecticides NeemAzal T/S 1%, NeemAzal T 5% and entomopathogenic nematode Steinernema feltiae for control onion maggot, Delia antiqua.

Botanical insecticides based on azadirachtin (NeemAzal T/S 1%, NeemAzal T 5%) and entomopathogenic nematode (Steinernema feltiae) have been used to control onion maggots (Delia antiqua). Laboratory bioassays were conducted to evaluate the potential interactions between a biological control agent, S. feltiae and botanical insecticides NeemAzal T/S 1%, NeemAzal T 5% against 3rd instars larvae of D. antiqua. The combination of NeemAzal T/S 1% and S. feltiae showed 20 synergistic response, 6 additive, 0 antagonistic and 10 without any response at 36 total combinations while the combination of NeemAzal T 5% and S. feltiae showed 13 synergistic response, 2 additive, 6 antagonistic and 15 without any response. The combined use of botanical insecticides based on azadirachtin specially NeemAzal T/S 1% with entomopathogenic nematode may offer an integrated approach to increase the efficacy of entomopathogenic nematodes for onion maggots control. -1Plant Protection Department, Faculty of Agriculture, Peoples’ Friendship University, Russia. E-mail: mfmfmousa@hotmail.com; 2Plant Protection Department, Faculty of Agriculture, Peoples’ Friendship University, Russia. E-mail: pomazkov35@mail.ru

MAHMOUD, M. F.1 & POMAZKOV, Y. I.2 Susceptibility of second instar larvae of Calliphora vicina and Lucilia sericata to the insect parasitic nematode Steinernema feltiae in the laboratory.

The susceptibility of 2nd instar larvae of the sheep blowfly Lucilia sericata and Calliphora vicina (Diptera: Calliphoridae) to parasitism by entomopathogenic nematode, Steinernema feltiae were compared in Petri dishes lined with moist filter paper. Higher percentage of parasitism was recorded for 2nd instar larvae of Lucilia sericata than 2nd instar larvae of Calliphora vicina at all concentrations 50, 100, 200, 300, 400 and 500 infective juveniles over three days period. Slope, LC20, LC50 and LC90 were calculated for second instar larvae of Lucilia sericata and Calliphora vicina. The results suggest that entomopathogenic nematode S. feltiae have potential as biological control for L. sericata under laboratory conditions than C. vicina. -1Plant Protection Department, Faculty of Agriculture, Peoples’ Friendship University, Russia. E-mail: mfmfmousa@hotmail.com; 2Plant Protection Department, Faculty of Agriculture, Peoples’ Friendship University, Russia. E-mail: pomazkov35@mail.ru

MALYSHEVA, S. V. Comparative morphological study of anterior end of nematodes inhabiting hind gut of tropical diplopods.

Anterior end structure was studied in four species of nematodes inhabiting the hind gut of tropical diplopods. SEM, TEM and light microscopical study of gross morphology, organization of pharynx structures and ultrastructure of separate tissues revealed profound differences between the nematodes of the superfamilies Rhabdinae and Thelastomatoidea. Significant level of sexual dimorphism in pharynx structure was demonstrated for the nematodes of the species Carnoby kermarreci (obtained through dissection of diplopods Anadenobolus politus, collected on Guadeloupe, French West Indies). When the morphology of male pharynx was quite common, the cuticular lining of pharynx lumen in females was quite complex in structure: profound cuticular