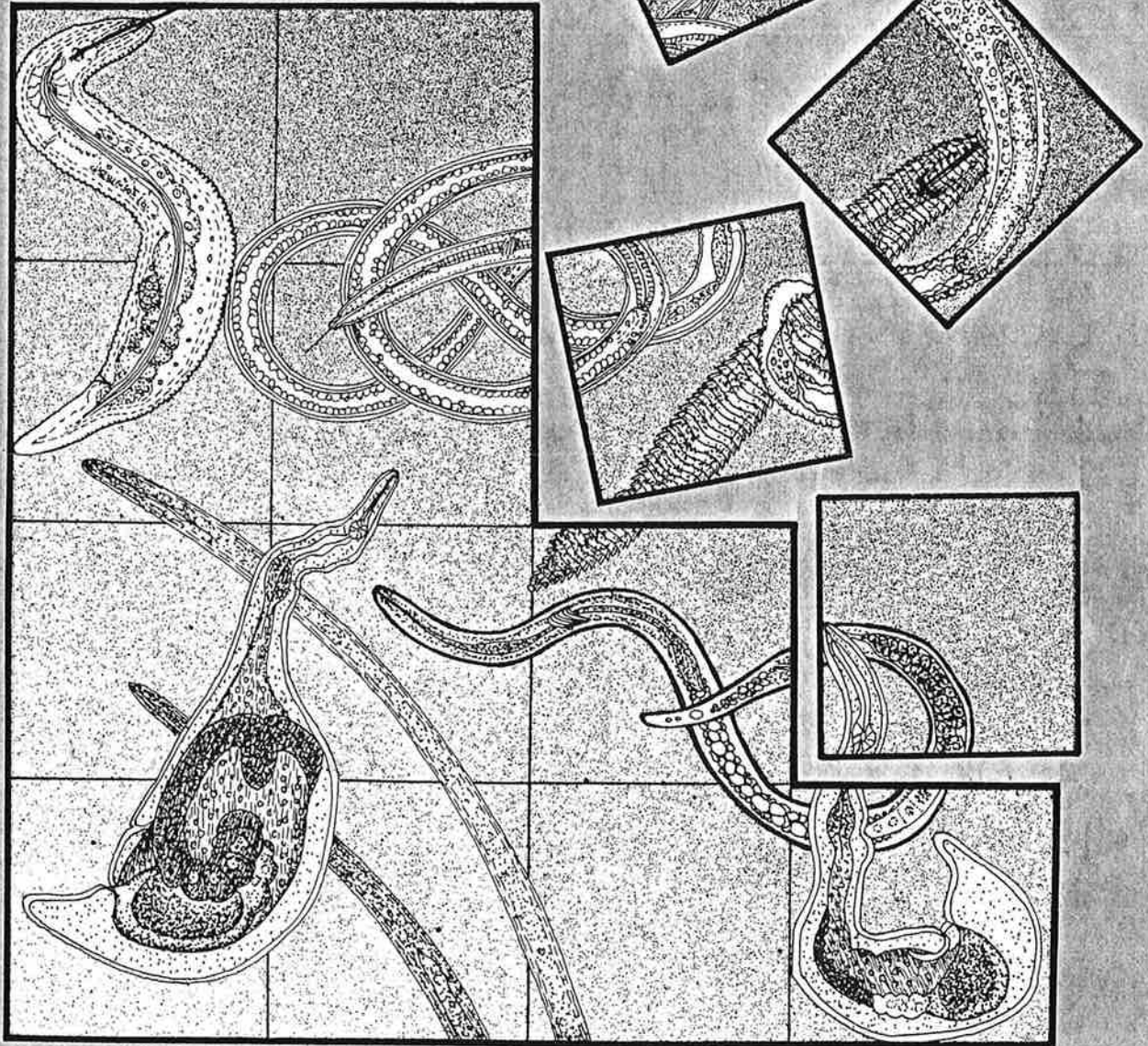


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**KUZMINA, T. A.<sup>1</sup>, ZVEGINTSOVA, N. S.<sup>2</sup> & KHARCHENKO, V. A.<sup>1</sup> Study of the intestinal strongyloid community of horses, donkeys and zebras *in vivo* using the diagnostic deworming method.**

Generally, intestinal helminthes of equids are studied with *post mortem* methods. Our aim was to study the structure of intestinal strongyloid 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 into 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 strongyloid species were found. *Cylicocyclus nassatus* and *Cyathostomum catinatum* were dominant ones. They were found in 100% of horses, and comprised 36.3% and 17.6% of total strongyloid number, respectively. *Cylicocyclus ashworthi*, *C. leptostomus*, *Cylicostephanus longibursatus*, *C. calicatus* and *C. minutus* were subdominant species. They were found in more than 80% of horses, and totally comprised 39.9% of strongyloid number. In donkeys, twenty-three strongyloid species were found. *C. nassatus*, *C. catinatum* and *Cyathostomum tetracanthum* dominated and comprised 47.3%, 16.7% and 11.4% of total strongyloid number, respectively. Seventeen strongyloid species were found in zebras. *C. catinatum*, *C. nassatus* and *Cylicostephanus goldi* were dominant, and comprised 41.3%, 29.2% and 13.8% of total strongyloid number, respectively. The results obtained confirmed the possibility of *in vivo* studies of equid intestinal strongyloids community using the diagnostic deworming method. - <sup>1</sup>Schmalhausen Institute of Zoology NAS of Ukraine, Kiev. E-mail: taniak@izan.kiev.ua; <sup>2</sup>F.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/1 m<sup>2</sup>, 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/m<sup>2</sup> 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/ m<sup>2</sup>, 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.

**MAAFI, Z. T. <sup>1</sup>, STURHAN, D.<sup>2</sup>, HANDOO, Z. <sup>3</sup>, MOR, M.<sup>4</sup>, MOENS, M.<sup>5</sup> & SUBBOTIN, S. A. <sup>6,7</sup> Morphological and molecular characterisation of *Heterodera sacchari* Luc & Merny, 1963 and *H. goldeni* Handoo & Ibrahim, 2002 (Nematoda: Heteroderidae).**

*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. leuceilyma* are provided and discussed. *Heterodera sacchari* has generally smaller cysts than *H. goldeni* (average 640-735 Ч 430-470 µm vs 707-766 Ч 437-481 µm) and has a shorter fenestral 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 rm) 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 are presented. - <sup>1</sup>Plant Pests and Diseases Research Institute, P.O. Box 1454-Tehran, 19395, Iran; <sup>2</sup>Institut für Nematologie und Wirbeltierkunde, 48161, Münster, Germany; <sup>3</sup>Nematology Laboratory, Plant Sciences Institute, Beltsville Agricultural Research Center, Beltsville, MD 20705-2350, USA; <sup>4</sup>The Volcani Center, Bet-Dagan, Israel; <sup>5</sup>Agricultural Research Centre, Merelbeke, 9820, Belgium, <sup>6</sup>University of California, Riverside, CA 92547, USA; <sup>7</sup>Institute of Parasitology of the Russian Academy of Science, Moscow, 117071, Russia

**MAHMOUD, M. F.<sup>1</sup> & POMAZKOV, Y. I.<sup>2</sup> *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, LC<sub>20</sub>, LC<sub>50</sub> and LC<sub>90</sub> 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. - <sup>1</sup>Plant Protection Department, Faculty of Agriculture, Peoples' Friendship University, Russia. E-mail: mfmfmousa@hotmail.com; <sup>2</sup>Plant Protection Department, Faculty of Agriculture, Peoples' Friendship University, Russia. E-mail: pomazkov35@mail.ru

**MAHMOUD, M. F.<sup>1</sup> & POMAZKOV, Y. I.<sup>2</sup> 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. - <sup>1</sup>Plant Protection Department, Faculty of Agriculture, Peoples' Friendship University, Russia. E-mail: mfmfmousa@hotmail.com; <sup>2</sup>Plant Protection Department, Faculty of Agriculture, Peoples' Friendship University, Russia. E-mail: pomazkov35@mail.ru

**MAHMOUD, M. F.<sup>1</sup> & POMAZKOV, Y. I.<sup>2</sup> 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, LC<sub>20</sub>, LC<sub>50</sub> and LC<sub>90</sub> 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*. - <sup>1</sup>Plant Protection Department, Faculty of Agriculture, Peoples' Friendship University, Russia. E-mail: mfmfmousa@hotmail.com; <sup>2</sup>Plant 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 Rhigonematoidea, Ransomnematoidea и Thelastomatoidea. Significant level of sexual dimorphism in pharynx structure was demonstrated for the nematodes of the species *Carnoya 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