ASSESSMENT OF INFLUENCE OF PLANT RESPONSES ON PHYTOPHAGES IN SYSTEMS "POTATO – *GLOBODERA ROSTOCHIENSIS* W."

N.E. Agansonova

All-Russian Institute of Plant Protection, St. Petersburg-Pushkin, Russia, e-mail: aghansonova@mail.ru

Nematodes are obligate pathogens of numerous plant species. Potato cyst nematodes, including *Globodera rostochiensis* (Wollenweber, 1923, Behrens, 1975) (Tylenchida: Heteroderidae), are important pests of potato *Solanum tuberosum* L. (Solanaceae).

Infestation of potato plants with potato cyst nematode *G. rostochiensis* W. (pathotype R_o1) increases their attractivity to colorado beetle *Leptinotarsa decemlineata* Say (Coleoptera: Chrysomeiidae).

At induction by potato cyst nematode, the increase of plant attraction degree for colorado beetle and the increase of the pest number are found. Quantity and combination of the interacting inductors (phytohelminths, phytopathogens, inductors of resistance to nematodes) change the nature of the induced responses of potato plants [Agansonova, 2015].

The glass containers studies revealed changes in feeding behaviour of the colorado beetle, when potato plants were treatment with entomopathogenic nematodes symbiotic bacteria (Xenorhabdus, Enterobacteriaceae).

The metabolism products of entomopathogenic nematodes symbiotic bacteria were obtained from the All-Russian Institute of Plant Protection (St. Petersburg-Pushkin, Russia).

Results showed that studied metabolism products of entomopathogenic nematodes symbiotic bacteria had decreased the attractivity of potato plants to colorado beetle.

The contents of photosynthetic pigments (chlorophyll (Chl) *a*, chlorophyll (Chl) *b* and carotenoids (Car)) in the leaves of plants are important to evaluate the photosynthetic apparatus of plants. Chlorophylls and carotenoids are essential pigments of higher plant. We studied the effect of treatment with of metabolism products of entomopathogenic nematodes symbiotic bacteria on the content of chlorophyll *a*, chlorophyll *b*, total chlorophyll *a*+*b* and total carotenoids in the leaves of phytoparasitic nematode infected potato plants. Chlorophylls, carotenoids content was determined by spectrophotometric method.

Treatment with metabolism products of entomopathogenic nematodes symbiotic bacteria resulted in a rise in chlorophylls and carotenoids content in the leaves of the plants. Application of metabolism products of entomopathogenic nematodes symbiotic bacteria to potato plants increases the contents of photosynthetic pigments.

The using of metabolism products of entomopathogenic nematodes symbiotic bacteria increased the activity of enzyme peroxidase in potato roots and in leaves. The peroxidase activity for all treatments was significantly different from control in the potato plants. Increased activities of peroxidase in plants serve as marker for induced resistance.

This study shows that application of metabolism products of entomopathogenic nematodes symbiotic bacteria affects enzymatic activities within the potato plant. They increased chlorophylls and carotenoids content, which suggests a protective action of the preparation on photosynthetic apparatus against oxidative damage.