EFFECT OF PREPLANTING CULTIVATION BY (THIO) SEMICARBAZONES 2,4-DIARYLBICYCLO [3.3.1] NON-2-EN-9-ONES ON GROWTH OF *TRITICUM AESTIVUM* L.

V. V. Korobko, N. V. Pchelintseva, N. V. Mironova, Ya. G. Krylatova, E. S. Zhestovskaya

N. G. Chernyshevsky Saratov State University
83 Astrakhanskaya Str., Saratov 410012, Russia
E-mail: v.v.korobko@mail.ru

Received February 12, 2019; Revised March 10, 2019; Accepted June 14, 2019

Biological testing of synthetic compounds − (thio)semicarbazones 2,4-diaryl-bicyclo[3.3.1]non-2-en-9-ones, differing in the nature of aryl substituents and N-nucleophile, was carried out. The compounds under study were obtained at the Department of Organic and Bioorganic Chemistry of the Institute of Chemistry of the Saratov National Research State University.The object of the study was seedlings of spring soft wheat *Triticum aestivum* L. of the Saratovskaya 36 variety. Before cultivation, seed treatment with test solutions was performed. To assess the physiological activity of the tested compounds, we used a valuable analysis of the morphometric parameters of growth and development of the root system and shoot of the test and control plants. It has been established that compounds, differing in the character of aryl substituents and N-nucleophile, have a different effect on the growth of the aerial part of plants. Semicarbazone 2,4-diphenyl-bicyclo[3.3.1]non-2-en-9-one at a concentration of 10^{-6} M contributes to the growth of the root system, an increase in the index of root-supply and the root index of seedlings relative to the control. Thiosemicarbazone 2-phenyl-4-(4'-methoxyphenyl) bicyclo[3.3.1] non-2-en-9-one in the concentration of 10^{-6} and 10^{-12} M stimulates the growth of the root system and the shoot, contributes to the increase root index and the index of root-supply. Seed treatment by thiosemicarbazone 2- (4'-chlorophenyl)-4-phenylbicyclo[3.3.1] non-2-en-9-one at a concentration of 10^{-6} M inhibits shoot growth at a concentration of 10^{-12} M shoots and seedling root system.

Key words: growth regulators, biotesting, plant growth and development, soft wheat.

DOI: 10.18500/1682-1637-2019-2-3-124-132

REFERENCES

Zhestovskaya E. S., Krylatova Ya. G. Synthesis of 2,4-dinitrophenylhydrazones and thiosemicarbazones 2,4-diarylbicyclo[3.3.1] non-2-en-9-ones. *Questions*

of biology, ecology, chemistry and teaching methods: Collection of scientific articles, 2012, vol. 14, pp. 38 − 39. (in Russian).

Kolevatova Ya. G. *2,4-Diarylbicyclo[3.3.1] non-2-en-9-ones: synthesis, structure and some chemical transformations*: dis. ... cand. chemical sciences Saratov, 2009. 139 p. (in Russian).

Korobko V. V., Pchelintseva N. V., Samsonova E. A., Batalin S. D., Luneva M. A. Effect of N, O, S-containing heterocyclic compounds on the growth of the root system of Triticum aestivum L. seedlings. *Izvestiya of Saratov University. New series. Series: Chemistry. Biology. Ecology*, 2018, vol. 18, iss. 1, pp. 45 – 51. (in Russian).

Korobko V. V., Stepanov S. A. The influence of temperature on the development of the root system of durum wheat seedlings. *Questions of biology, ecology, chemistry and methods of learning: Collection of scientific articles*, 2017, vol. 19, pp. 3 − 6. (in Russian).

Melnikov N. N., Novozhilov K. V., Belan S. R. *Pesticides and plant growth regulators. Directory*. Moscow: Khimiya, 1995. 576 p. (in Russian).

Cite this article as:
Korobko V. V., Pchelintseva N. V., Mironova N. V., Krylatova Ya. G., Zhestovskaya E. S. Effect of preplanting cultivation by (thio) semicarbazones 2,4-diarylbicyclo [3.3.1] non-2-en-9-ones on growth of *Triticum aestivum* L. *Bulletin of Botanic Garden of Saratov State University*, 2019, vol. 17, iss. 2 − 3, pp. 124 – 132. (in Russian).
DOI: 10.18500/1682-1637-2019-2-3-124-132.