



Screening of New Effective Regulators of Oilseed Rape Growth Among Derivatives of Oxazole and Oxazolopyrimidine

Victoria Tsygankova*, Yaroslav Andrusevich, Victor Kopich, Olexandra Shtompel, Stepan Pilyo, Andrii Kornienko Volodymyr Brovarets

Department for Chemistry of Bioactive Nitrogen-Containing Heterocyclic Compounds, Institute of Bioorganic Chemistry and Petrochemistry, National Academy of Sciences of Ukraine, Ukraine.

Corresponding author: Victoria Tsygankova

Department for Chemistry of Bioactive Nitrogen-Containing Heterocyclic Compounds, Institute of Bioorganic Chemistry and Petrochemistry, National Academy of Sciences of Ukraine, Ukraine. Tel: +380681224673
Email: vTsygankova@ukr.net

Citation: Victoria Tsygankova et al. (2019), Screening of New Effective Regulators of Oilseed Rape Growth Among Derivatives of Oxazole and Oxazolopyrimidine Int J Pharm Sci & Scient Res. 5:3, 34.

Copyright: ©2019 Victoria Tsygankova et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Received: February 17, 2019

Accepted: February 27, 2019

Published: April 27, 2019

Oilseed rape is an important energy crop cultivated over the world. Global climatic changes, soil contamination by industrial wastes and pesticides, pathogens and pests adversely affect the growth and decrease the yield of this industrially important culture. The elaboration of new effective and ecologically friendly regulators improving growth and increasing yield of oilseed rape is an actual problem for modern agriculture. Our work was devoted to elaboration of new effective and ecologically friendly regulators on the base of synthetic low molecular weight heterocyclic compounds, derivatives of oxazole and oxazolopyrimidine to improve seed germination and growth of seedlings of oilseed rape (*Brassica napus* L.) of cultivar Kalinivsky. The obtained results showed that synthetic heterocyclic compounds used at low concentration 10^{-9} M revealed high stimulating effect on growth of root and shoot system of 21st-day-old rape seedlings and the most effective synthetic compounds were selected. It was found

that biometric indices of 21st-day-old oilseed rape seedlings grown on the 10^{-9} M solution of derivatives of oxazole and oxazolopyrimidine were increased by an average to 11 - 30 % - by length of shoots, by an average to 8 - 68 % - by total number of roots, and by an average to 5 - 43 % - by total length of roots, as compared with similar indices of 21st-day-old oilseed rape seedlings grown on the distilled water (control) or on the 10^{-9} M solution of plant hormones auxins IAA (1H-Indol-3-ylacetic acid) and NAA (1-Naphthylacetic acid). The content of photosynthetic pigments in the leaves of 21st-day-old oilseed rape seedlings grown on the 10^{-9} M solution of derivatives of oxazole and oxazolopyrimidine was increased by an average to 14 - 20 % - by content of chlorophyll a, by an average to 15 - 21 % - by content of chlorophyll b, by an average to 16 - 18 % - by content of chlorophyll a+b, as compared with similar indices of 21st-day-old oilseed rape seedlings grown on the distilled water (control) and were increased by an average to 14 - 26 % - by content of carotenoids as compared with similar indices of 21st-day-old oilseed rape seedlings grown on the distilled water (control) or grown on the 10^{-9} M solution of IAA and NAA, respectively. The obtained results confirmed possibility of application of derivatives of oxazole and oxazolopyrimidine as new effective regulators to improve the vegetative growth of oilseed rape.

Biography

TSYGANKOVA VICTORIA ANATOLYIVNA, Dr. Biol. Sci., principal researcher, senior staff scientist; b. Kyiv, Ukraine, May 2, 1966; MS, Nat. Pharm. Acad. Ukraine, Kharkov, 1991; PhD in Biological Sci. (Plant Physiology), Inst. Plant Physiology and Genetics NAS Ukraine, Kyiv, 2003; Rsch. asst. geriatric pharmacology dept. Inst. Gerontology Med. Acad. Scis., Kyiv, 1993-97; Sr. staff asst. Inst. Bioorganic Chemistry and Petrochemistry, Nat. Acad. Scis., 2001-13; Dr. Biol. Sci. (Biotechnology), Inst. Food Biotech. and Genomics, Nat. Acad. Scis., 2014. Principal researcher and Head of group of screening of synthetic compounds Inst. Bioorganic Chemistry and Petrochemistry, Nat. Acad. Scis., 2014-18; Contbr. articles to prof. journ. and monographs, innovations in plant biotechnology and plant growing. Office address: Inst Bioorganic Chemistry and Petrochemistry Muzmanskaya St 1 Kyiv 02660 Ukraine; Phone: +38(044)5585388.