

Fungicidal activity of new 5-arylazo-7-nitro-8-hydroxyquinolines

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Abstract

Currently, agricultural production is impossible without the use of chemical plant protection products, so the search for new effective fungicides is an important and urgent task.

A significant part of the systemic fungicides and antimycotics used today are azole derivatives.

Research conducted at the Department of Chemistry is devoted to the analysis of the fungicidal and biological activity of substances of various classes of organic compounds, including derivatives of azoles. Previously published data on the fungicidal activity of 2-methyl-5-nitrobenzoxazole and its derivatives showed that 2-methyl-5-nitrobenzoxazole shows the highest fungicidal activity for all types of fungal cultures used in the study. The second nitro group introduced into the 2-methyl-5-nitrobenzoxazole molecule reduces fungitoxicity by 1.5-2 times. Replacing the methyl group with phenyl significantly reduces the fungicidal activity.

In continuation of these studies, tests of 5-(4'-chlorophenylazo)-7-nitro-8-hydroxyquinoline, 5-(3',5'-dimethoxyphenylazo)-7-nitro-8-hydroxyquinoline and 5-(3'-methyl-4'-nitrophenylazo)-7-nitro-8-hydroxyquinoline with respect to *V. inaequalis*, the causative agent of apple scab, *R. solani*, the causative agent of rhizoctonia, *F. oxysporum*, *F. moniliforme*, causative agents of cereal crops, *B. sorokiniana* – causative agent of root rot and *S. sclerotiorum* – causative agent of white rot.

The radial growth of mycelium was determined according to the method developed by NIITEKHIM, according to which the fungal cultures were sown in nutrient media with the addition of the studied substances. In parallel, a control experiment was conducted in the aquatic environment. The growth of mycelia was controlled by measurements on days 3, 6 and 9. The percentage of inhibition of fungal growth was calculated using the Abbott formula.

Analysis of the experimental data demonstrates a higher fungicidal activity of 5-(3',5'-dimethoxyphenylazo)-7-nitro-8-hydroxyquinoline compared with other azoquinolines for all types of fungal cultures used in the study.

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- FUNGICIDAL ACTIVITY OF NEW 5-ARYLAZO-7-NITRO-8-HYDROXYQUINOLINES* _____ 156-159
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