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Antifungal activity of naphthenic acids on phytopathogenic fungi

Jelena Tarlanović[1], Biserka Milić[1], Zoran Keserović[1], Nenad Magazin[1], Mladen Petreš[1], Milan Stević[2], Mila Grahovac[1]

[1]University of Novi Sad, Faculty of Agriculture, Trg Dositeja Obradovića 8, 21000 Novi Sad, Serbia, email: mila@polj.uns.ac.rs

[2]University of Belgrade, Faculty of Agriculture, Nemanjina 6, 11080 Belgrade-Zemun, Serbia

Naphthenic acids (NAs) are carboxylic acids that are natural constituents of naphthenic oils. Their properties depend on the oil source and composition of the mixture. In addition to numerous physiological processes that naphthenic acids may affect, they exhibit some fungicidal activity. The study examines *in vitro* effects of potassium salts of NAs derived from two different sources, Vojvodina (Serbia) and Romania, to the following pathogenic fungi: *Venturia inaequalis, Botrytis cinerea, Fusarium* sp.*, Alternaria alternata, Monilinia laxa*. Mycelial fragments of the fungi were cultivated on potato dextrose agar (PDA) medium amended with a solution of potassium naphthenate at four different concentrations (2.6, 5.2, 26 and 52 mg L^{-1}). Mycelial growth of the fungi was measured after 5 days of incubation, and for *Venturia inaequalis* after 21 days. The effect of NAs is presented as percentage of mycelial growth inhibition compared to the control cultivated on PDA medium without potassium naphthenate. The degree of inhibition depended on the type of NAs and concentration applied. The strongest inhibition was exhibited in *Monilinia laxa* treated with the NAs from Vojvodina at the lowest concentration, where mycelial growth was inhibited by 76.3 %. The results of the study suggest NAs possess antifungal activity, which indicates their potential to be used in the control of plant pathogenic fungi.

Keywords: micelia growth, naphthenic acids, plant pathogenic fungi

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