

MONO-, DI-, AND TRIACETYLPHLOROGLUCINOLS FROM
PSEUDOMONAS FLUORESCENS

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In the study of the causes of the phytotoxicity of soil microorganisms, from an ethereal extract of an acidified culture liquid of bacteria similar to *Pseudomonas fluorescens*, strain 260, grown on an organic-mineral medium, we have isolated three individual substances with pronounced phenolic properties. The substances isolated inhibited the growth of seven series of plants differently.

The main substance (and that with the highest physiological activity) has mp 169–171° C ($[\alpha]_D^{20} \pm 0^\circ$, c 10.0; ethanol), and amounts to approximately 90% of the sum of the three phenols isolated, being obtained with an average yield of 40 mg/l of fermentation medium.

Under the usual conditions, the substance forms a 2,5-dinitrophenylhydrazone (mp 253–255° C) and two acetylation products, with mp 90–92° C and 116–118° C. The iodoform test is positive.

On the basis of its elementary composition, molecular weight (mass spectrometry) of 210.050; the percentage of nitrogen in the 2,4-dinitrophenylhydrazone, 14.40, and its IR, UV, and NMR spectra [ν_{\max} , cm^{-1} : 1580, 1628, 3175, 3480; $\lambda_{\max}^{\text{CH}_3\text{OH}}$ 271 μ , $\lambda_{\max}^{\text{CH}_3\text{OH}+\text{NaOH}}$ 289 μ ; $\delta = 6.5$ (phenolic proton), $\delta = 5.75$ (aromatic proton), $\delta = 2.58$ (proton of a methyl group)], the substance was identified as 2,4-diacetylphloroglucinol, the melting point [1], IR spectrum [2], and UV spectrum [3,4] of which are close to those for our substance. This gave no depression of the melting point with a sample of 2,4-diacetylphloroglucinol obtained by the method of Desai et al. [1].

The acetyl derivative with mp 90–92° C was identical with 1,3,5-triacetoxy-2,4-diacetylphloroglucinol [5], and the substance having mp 116–118° C with 3,5-diacetoxy-2,4-diacetylphloroglucinol.

The minor substances with mp 158–159° C and 217–218° C were identified on the basis of the results of elementary analysis, physicochemical properties, and the absence of depressions of the melting points with the synthetic material [1] as 2,4,6-triacetylphloroglucinol and phloroacetophenone, respectively. This is the first time that mono-, di-, and triacetylphloroglucinols have been detected in the products of the metabolism of microorganisms.

The mass and NMR spectra of 2,4-diacetylphloroglucinol were obtained by Dr. J. A. Wunderlich (CSIRO, Melbourne).

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OBITUARY NOTICE: NIKOLAI ALEKSEEVICH PREOBRAZHENSKII
(1896–1968)

Professor Nikolai Alekseevich Preobrazhenskii, Hero of Socialist Labor, Honored Worker in Science and Technology of the RSFSR, Laureate of the State Prize, Honorary Doctor of the Budapest Technical University, Director of the Department of Chemistry and Technology of the Fine Organic Compounds of the M. V. Lomonosov Moscow Institute of Fine Chemical Technology, and Doctor of Chemical Sciences, died suddenly on November 20, 1968.

The scientific and teaching work of N. A. Preobrazhenskii began in the Lomonosov Moscow State University, from which he graduated in 1924. After postgraduate study in Moscow State University, he worked in the leading