The antifungal effect of some nitrophenyl derivatives expressed in wheat germination experiments

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In the germination experiments using 5 x 10-3 M aqueous solutions, several nitrophenyl derivatives such as p-nitroacetophenone, picric acid, 3,5-dinitrosalicylic acid, 2-oxo(4-nitrophenylacetic) acid, 2,4-dinitrobenzoic acid, 4-nitrobenzoic acid have been tested comparatively with 2-oxoglutaryc acid, L-β-phenylalanine, 2,2'-bipyridine-3,3',6,6'-tetracarboxylic acid, and resorcinol. Most of 7-day old samples were fully contaminated with various fungi, except those treated with 2-oxo(4-nitrophenylacetic) acid, 4-nitrobenzoic acid, which seem to have an anti-fungal action. In addition, picric acid and 3,5-dinitrosalicylic acid inhibited much the germination process of wheat seeds, whereas 4-nitrobenzoic acid proved to have a stimulatory effect. Thus, the mean height of the lots treated with picric acid and 3,5-dinitrosalicylic acid solutions was 4.5 cm and 6.6 cm respectively, as compared to 4-nitrobenzoic acid treatment, which was 9.6 cm (more then the height of the blank-9.0 cm). Accordingly, the mass of the resulted plantlets was diminished by the picric acid treatment and stimulated by 4-nitrobenzoic acid (0.71 g/lot and 30.6 mg/plantlet in the case of picric acid; 2.15 g/lot and 60.8 mg/plantlet in the case of 4-nitro-benzoic acid).