

Various pH Media Influence Production of *Pseudomonas fluorescens* P20 Raw Secondary Metabolites for Controlling Damping-off (*Pythium* sp.) in Cucumber Seedlings

Title	Various pH Media Influence Production of <i>Pseudomonas fluorescens</i> P20 Raw Secondary Metabolites for Controlling Damping-off (<i>Pythium</i> sp.) in Cucumber Seedlings
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Abstract	<p> This research aims to determine the best pH media for the production of <i>Pseudomonas fluorescens</i> P20 raw secondary metabolites, its effect on controlling damping-off, and on cucumber seedling growth. In vitro test uses completely randomized design with four replicates and seven treatments consisted of pH 5.0; 5.5; 6.0; 6.5; 7.0; 7.5; and 8.0. In planta test uses a randomized block design with three replicates and ten treatments consisting of control, mancozeb 80%, and raw secondary metabolites with pH 7.0 and 7.5, and 4 concentration levels, i.e., 5, 10, 15, and 20%. Variables observe population density, inhibition ability, protease and chitinase qualitatively, germination ability, incubation period, disease incidence, the area under disease progress curve (AUDPC), crop height, number of leaves, root length, and crop fresh weight. The result shows that the best pH for the production of raw secondary metabolites is 7.0, indicated by population density as 5.68 × 10²⁴ cfu/ml, inhibition ability as 50.8%, and the best protease and chitinase qualitatively. Application of the secondary metabolites on pH 7.0 could suppress disease intensity, incubation period, and AUDPC as 66.67, 77%, and 0%-day, respectively, and increase crop height, the number of leaves, root length, and crop fresh weight as 57.65, 37.19, 63, and 74%, respectively. </p>
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