

## Potential of Biological Agents for Controlling Basal Rot Disease and Promoting Plant Growth in Shallot

<b>Title</b>	Potential of Biological Agents for Controlling Basal Rot Disease and Promoting Plant Growth in Shallot
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<b>Abstract</b>	<p>Potential of Biological Agents for Controlling Basal Rot Disease and Promoting Plant Growth in Shallot The use of biocontrol agents has been known as one component in integrated disease management for shallot. This study aimed to examine the effectiveness of three biocontrol agents (<i>Bacillus subtilis</i> strains B1 and B298, and nonpathogenic <i>Fusarium oxysporum</i> T14a) in suppressing the incidence of basal rot disease and promoting the growth of two shallot varieties (<i>Ã¢Ã¢Ã¢Bima BrebesÃ¢Ã¢Ã¢<sup>TM</sup></i> and <i>Ã¢Ã¢Ã¢TajukÃ¢Ã¢Ã¢<sup>TM</sup></i>) in the field. The experimental research was arranged in a factorial randomized block design consisting of two factors, i.e. type of biocontrol agent and shallotÃ¢Ã¢Ã¢<sup>TM</sup>s variety. It was shown that application of biocontrol agents prolongs the incubation period of the disease. All biocontrol agents increase plant resistance and reduce the incidence of basal rot disease. <i>B. subtilis</i> B1 and nonpathogenic <i>F. oxysporum</i> T14a had high efficacy, i.e 81.53% and 58.02%. Based on the observation of disease incidence and the area under the disease progression curve, it is known that var. <i>Ã¢Ã¢Ã¢TajukÃ¢Ã¢Ã¢<sup>TM</sup></i> is more susceptible to basal rot disease than var. <i>Ã¢Ã¢Ã¢Bima BrebesÃ¢Ã¢Ã¢<sup>TM</sup></i>. Furthermore, the analysis showed that all biocontrol agents were able to increase the percentage of germination, leaf area index, plant growth rate, total chlorophyll in leaves and productivity. The highest percent increase over control in productivity was obtained by <i>B. subtilis</i> B1 (45.45%) followed by nonpathogenic <i>F. oxysporum</i> T14a (37.88%) and <i>B. subtilis</i> B298 (28.79%). Two of the three biocontrol agents tested, i.e. <i>B. subtilis</i> B1 and nonpathogenic <i>F. oxysporum</i> T14a are potential agents for controlling basal rot disease in shallots because they have good ability to increase plant growth and productivity.</p>
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