POTENSI *Bacillus subtilis* RJ09, *Bacillus cereus* RC76, DAN *Rhizophagus intraradices* SEBAGAI AGENS PENGENDALI HAYATI PENYAKIT BERCAK DAUN CENGKIH

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Intisari

Cengkih (*Syzygium aromaticum* (L.) Merr. & Perr) merupakan tanaman asli Indonesia yang menjadi salah satu komoditi utama disektor perkebunan. Penyakit bercak daun meruakan salah satu penyakit yang sring ditemukan pada tanaman cengkeh dan akan mengakibatkan terjadinya pengguguran daun. Penelitian ini bertujuan untuk menguji kemampuan *Bacillus subtilis*. RJ09, *Bacillus cereus* RC76, dan *Rhizophagus intraradices* dalam meningkatkan pertumbuhan dan menekan perkembangan penyakit bercak daun tanaman cengkih. Pengujian kemampuan *Bacillus subtilis* RJ09 dan *Bacillus* cereus RC76 terhadap patogen penyebab bercak daun dilakukan dengan metode *dual culture* (*in vitro*) dan aplikasi pada tanaman cengkih di lahan percobaan. Hasil pengujian *in vitro* menunjukkan *Bacillus subtilis* RJ09 dan *Bacillus cereus* RC76 dapat menghambat *Pestalotiopsis* sp. dan *Colletotrichum* sp. Pengujian *in planta* menujukan *Bacillus subtilis* RJ09 dan *Bacillus cereus* RC76 mampu menekan kejadian penyakit, dan intensitas penyakit bercak daun cengkih, sedangkan pengujian *in planta* menunjukkan aplikasi *Rhizophagus intraradices* belum mampu menghambat perkembangan penyakit bercak daun pada tanaman cengkih. Perlakuan *Bacillus subtilis* RJ09, *Bacillus cereus* RC76, dan *Rhizophagus intraradices* mampu meningkatkan jumlah daun, volume kanopi, bobot basah akar dan volume akar, namun belum mampu meningkatkan pertumbuhan tinggi tanaman cengkih.

Kata kunci: Cengkih, *Bacillus subtilis*, *Bacillus cereus, Rhizophagus intraradices*, bercak daun.

BIOCONTROL POTENTIAL OF *Bacillus subtilis* RJ09, *Bacillus cereus* RC76, AND *Rhizophagus intraradices* AGAINST LEAVES SPOT DISEASE ON CLOVE

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Abstract

Clove (*Syzygium aromaticum* (L.) Merr. & Perr) is a native Indonesian plant which is one of the main commodities in the plantation sector. Leaf spot disease is one of the most common diseases found in cloves and will result in leaf dropping. This study aims to test the ability of *Bacillus subtilis*. RJ09, *Bacillus cereus* RC76, and *Rhizophagus intraradices* in increasing growth and suppressing the development of clove leaf spot disease. Testing the ability of *Bacillus subtilis* RJ09 and *Bacillus cereus* RC76 against pathogens that cause leaf spot was carried out using the dual culture method (*in vitro*) and application on cloves in the experimental field. The results of *in vitro* testing showed that *Bacillus subtilis* RJ09 and *Bacillus cereus* RC76 could inhibit *Pestalotiopsis* sp. and *Colletotrichum* sp. In planta testing showed that *Bacillus subtilis* RJ09 and *Bacillus cereus* RC76 were able to suppress disease incidence and intensity of clove leaf spot disease, while in planta testing showed that the application of *Rhizophagus intraradices* was not able to inhibit the development of leaf spot disease in clove plants. The treatment of *Bacillus subtilis* RJ09, *Bacillus cereus* RC76, and *Rhizophagus intraradices* was able to increase the number of leaves, canopy volume, root wet weight and root volume, but had not been able to increase the height growth of clove plants.

Keywords: Clove, *Bacillus subtilis*, *Bacillus cereus, Rhizophagus intraradices*, Leaf spot disease.