

**PENGENDALIAN PENYAKIT LAYU FUSARIUM PADA PISANG ABAKA  
DENGAN RIZOSFER BAMBU, PUPUK SILIKA, BAKTERI PELARUT SILIKA DAN  
MIKORIZA**

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**INTISARI**

Pisang abaka (*Musa textilis* Nee) merupakan tanaman penghasil serat alam berkualitas tinggi. Salah satu permasalahan utamanya adalah penyakit layu fusarium yang disebabkan *Fusarium oxysporum* f.sp *cubense* (Foc) TR4. Penelitian ini bertujuan untuk mengetahui peranan bakteri pelarut silika (BPS), mikoriza, pupuk silika, rizosfer bambu terhadap pengendalian Foc TR4 dan pertumbuhan pisang abaka. Penelitian menggunakan pisang Abaka kultivar Tangongon, Foc TR4 BNT-2, mikoriza dari Temanggung, BPS dan rizosfer bambu dari Pakem serta pupuk silika ( $\text{Na}_2\text{SiO}_3$ ). BPS di isolasi dengan metode pengenceran dari rizosfer pisang abaka di Pakem, Yogyakarta. Bakteri selanjutnya diuji kemampuannya melarutkan silika, hipersensitif, dan antagonis. Percobaan menggunakan RAL 1 faktor dengan perlakuan BPS, mikoriza, pupuk silika, rizosfer bambu dengan 6 kombinasi percobaan terhadap Foc TR4. Uji ketahanan Foc TR4 dilakukan setelah tanaman diberi perlakuan, kemudian diamati perkembangan penyakit (intensitas penyakit (IP), gejala internal (RDI), gejala eksternal (LSI)) dan pertumbuhan tanaman. Hasil penelitian memperoleh 6 isolat bakteri pelarut silika (PAK 1, PAK 2, PAK 3, PAK 4, PAK 5 dan PAK 6) mampu melarutkan silika. Bakteri yang dikonsorsiumkan bersinergi dan dapat menghambat pertumbuhan Foc TR4 70,29% secara in vitro. Perkembangan penyakit di semua percobaan tidak terdapat beda nyata terhadap kontrol. Percobaan 1 meningkatkan berat basah, tinggi tanaman, percobaan 2 meningkatkan berat basah, diameter batang, tinggi tanaman, percobaan 3 meningkatkan berat basah, percobaan 4 meningkatkan diameter batang, percobaan 5 meningkatkan berat basah, diameter batang, percobaan 6 meningkatkan diameter batang tanaman. Kesimpulannya semua percobaan tidak dapat menekan Foc TR4 tapi mampu meningkatkan pertumbuhan pisang abaka.

**Kata kunci:** Foc TR4, perkembangan penyakit, pertumbuhan.

**CONTROL OF FUSARIUM WILT DISEASE OF ABAKA BANANA BY  
APPLICATION OF BAMBOO RHIZOSPHERE, SILICA FERTILIZER, SILICA  
SOLUBILIZING BACTERIA AND MYCORRHIZA**

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**ABSTRACT**

Abaca banana (*Musa textilis* Nee) is high quality natural fiber producing plant. One of the main problems is fusarium wilt disease caused by *Fusarium oxysporum* f.sp *cubense* (Foc) TR4. This study aims to determine the role of silica solubilizing bacteria (SSB), mycorrhiza, silica fertilizer, bamboo rhizosphere on FocTR4 control and abaca growth. The study used abaca cultivar Tangongon, FocTR4 BNT2, mycorrhiza from Temanggung, SSB and bamboo rhizosphere from Pakem and silica fertilizer ( $\text{Na}_2\text{SiO}_3$ ). SSB was isolated by dilution method from the rhizosphere of abaca in Pakem, Yogyakarta. The bacteria were tested for ability to dissolve silica, hypersensitivity, and antagonism. The experiment used factor RAL1 with SSB treatment, mycorrhiza, silica fertilizer, bamboo rhizosphere with 6 experimental combinations against FocTR4. FocTR4 resistance test was conducted after the plants were treated, then observed disease development (disease intensity (DI), internal symptoms (RDI), external symptoms (LSI)) and plant growth. The results obtained 6 isolates of SSB (PAK 1, PAK 2, PAK 3, PAK 4, PAK 5, PAK 6) capable dissolving silica. The consortium bacteria synergized and inhibit FocTR4 70.29% growth in vitro. Disease development all trials was not significantly different from the control. Experiment 1 increased wet weight, plant height, experiment 2 increased wet weight, pseudostem diameter, plant height, experiment 3 increased wet weight, experiment 4 increased pseudostem diameter, experiment 5 increased wet weight, pseudostem diameter, experiment 6 increased plant pseudostem diameter. In conclusion, all experiments could not suppress FocTR4 but were able increasing abaca growth.

Keywords: FocTR4, disease development, growth.