EFEKTIVITAS PENGHAMBATAN *Trichoderma* spp. TERHADAP *Sclerotium rolfsii* Sacc. PADA SEMAI TUSAM (*Pinus merkusii* Jungh. *et de* Vriese)

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INTISARI

Semai tusam merupakan jenis yang rentan terhadap *damping off* pada masa sukulen. Jamur *Sclerotium rolfsii* telah dilaporkan merupakan salah satu patogen penyebab *damping off*. Metode pengendalian kimiawi untuk mengendalikan penyakit dianggap kurang aman bagi lingkungan. Pengendalian hayati telah dikembangkan sebagai alternatif metode pengendalian terhadap penyakit jamur tanah untuk mengurangi kerusakan pada lingkungan. Salah satu agen pengendali hayati yang memiliki potensi antagonistik tinggi terhadap patogen tular tanah adalah *Trichoderma* sp. *Trichoderma* spp. telah diuji potensi antagonistiknya terhadap beberapa penyakit akar tanaman kehutanan.

Penelitian ini menggunakan tiga isolat *Trichoderma* terpilih yaitu *Trichoderma koningii* (T_1), *T. reesei* (T_{13}) dan *T. harzianum* (T_{27}). Tujuan penelitian adalah mengidentifikasi (1) kemampuan isolat T_1, T_{13}, dan T_{27} sebagai jasad antagonis/penghambat patogen tular tanah *S. rolfsii* secara *in vitro*, (2) kapasitas ketiga isolat *Trichoderma* spp. sebagai jasad pengendali hayati patogen tular tanah *S. rolfsii* secara *in vivo* dan (3) interaksi secara mikroskopis antara ketiga *Trichoderma* spp. dengan *S. rolfsii* secara *in vitro*. Untuk memenuhi tujuan tersebut dilakukan beberapa pendekatan, meliputi: (1) uji patogenisitas *S. rolfsii* terhadap semai tusam, (2) uji antagonistik *Trichoderma* spp. secara *in vitro*, (3) uji aktivitas fungisida secara *in vitro* dan (4) uji efektivitas *Trichoderma* spp. secara *in vivo*.

Hasil pengujian menunjukkan bahwa *S. rolfsii* merupakan penyebab *damping off*. Tiga isolat *Trichoderma* yang diuji memiliki variasi kemampuan penghambatan terhadap jamur patogen *S. rolfsii*. *T. koningii* memiliki daya hambat 49,86% dari total luas koloni *S. rolfsii* sedangkan *T. reesei* dan *T. harzianum* memiliki daya hambat 100% dan 98,32%. Hasil uji *in vivo* menunjukkan bahwa pada hari kesembilan setelah pemberian *Trichoderma* spp. bersama-sama dengan *S. rolfsii* memberikan pengaruh yang tidak berbeda pada semai tusam. Hasil penelitian juga menunjukkan bahwa mekanisme yang dominan pada penghambatan *Trichoderma* terhadap patogen adalah mikoparasit.

Kata kunci: *Trichoderma* spp., *S. rolfsii*, penghambatan.

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THE INHIBITION EFECTIVENESS OF *Trichoderma* spp. AGAINST *Sclerotium rolfsii* Sacc. OF PINE SEEDLING (*Pinus merkusii* Jungh. *et de* Vriese)

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ABSTRAC

Pine seedling is known susceptible species of *damping off* during its succulent stage. *Sclerotium rolfsii* has been reported as one of potential pathogen causing *damping off*. Chemical control method to control the disease was believed unsafe for the environment. Biological control has been developed as alternate method against soil born diseases to eliminate damage on the environment. One of the biological agents having high antagonistic potential against soil born pathogen is *Trichoderma* sp. *Trichoderma* spp. has been tested antagonistic potential against several forest tree root diseases.

The experiment used three isolates of *Trichoderma*: *T. koningii* (T_1), *T. reesei* (T_{13}) and *T. harzianum* (T_{27}). The aimed of experiment were to evaluate (1) the capacity of three isolates of *Trichoderma* spp. as biocontrol agent against soil-born pathogen *S. rolfsii in vitro*, (2) the capacity of three isolates of *Trichoderma* spp. as biocontrol agent against soil-born pathogen *S. rolfsii in vivo* and (3) microscopic antagonistic interaction between the isolates of *Trichoderma* spp. with *S. rolfsii in vitro*. The objectives were achieved by several approaches, involving: (1) patogenicity test of *S. rolfsii* on pine seedling, (2) antagonistic *in vitro* test of *Trichoderma* spp., (3) inhibitory growth *in vitro* test of fungicide and (4) efectiveness test of *Trichoderma* spp. *in vivo*.

The result showed that *S. rolfsii* had high pathogenicity of causing *damping off*. The three isolates of *Trichoderma* tested had inhibitory capacity variation against *S. rolfsii*. *T. koningii* inhibited 49,86% of the total colony area of *S. rolfsii*, whereas *T. reesei* and *T. harzianum* inhibited 100% and 98,32% of the same fungi respectively. The result of *in vivo* test showed that on the 9th day after *Trichoderma* spp. application together which *S. rolfsii* gived no significant inhibitory effect on pine seedling. The result also showed that the major mechanism by which *Trichoderma* inhibit pathogen was micoparacite.

Key word: *Trichoderma* spp., *S. rolfsii*, inhibitory.

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