

INTISARI

IDENTIFIKASI DAN UJI KEMAMPUAN JAMUR TANAH DARI RIZOSFER TEH KEBUN ANDONGSILI PT. PAGILARAN YANG BERPOTENSI SEBAGAI *PLANT GROWTH PROMOTING FUNGI* (PGPF)

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Penelitian mengenai identifikasi dan uji kemampuan jamur tanah dari rizosfer teh (*Camellia sinensis*) dari Kebun Andongsili PT. Pagilaran yang berpotensi sebagai *plant growth promoting fungi* (PGPF) dilakukan pada bulan November 2011 hingga Juli 2012 di Laboratorium Ilmu Penyakit Tumbuhan Klinik, Laboratorium Mikologi Pertanian, dan Rumah Kaca Jurusan Hama and Penyakit Tumbuhan Fakultas Pertanian UGM. Penelitian ini bertujuan untuk menginventarisasi dan mengidentifikasi jamur tanah yang diisolasi dari rizosfer teh dan mengetahui potensi jamur tanah sebagai *plant growth promoting fungi* (PGPF). Penelitian yang dilakukan meliputi pengambilan sampel tanah dari rizosfer teh yang kemudian dianalisis kimia tanah. Selanjutnya dilakukan isolasi dan identifikasi jamur tanah yang kemudian diuji hipovirulensinya dengan *scoring Disease Severity Index* (DSI) untuk mengetahui isolat jamur yang hipovirulen dengan indikator nilai $DSI < 2,0$. Setelah didapatkan isolat jamur hipovirulen, kemudian dilakukan uji di rumah kaca untuk menentukan isolat yang berpotensi sebagai PGPF. Uji hipovirulen dilakukan selama 14 hari dan uji PGPF selama 21 hari dan setiap perlakuan dilakukan sebanyak lima ulangan. Rancangan percobaan yang digunakan adalah Rancangan Acak Lengkap (RAL) dengan analisis data menggunakan analisis sidik ragam (*analysis of variance*) dan uji jarak berganda duncan atau *Duncan's Multiple Range Test* (DMRT) pada derajat kepercayaan 95% jika terjadi beda nyata. Hasil penelitian menunjukkan bahwa isolat jamur tanah yang diperoleh dari isolasi tanah sebanyak 13 isolat yaitu isolat SA1, SA6, dan RG4 dari genus *Penicillium*, isolat SA2, RG2, RG5, dan RG7 dari genus *Fusarium*, isolat RG3 dari genus *Rhizopus*, isolat SA3 dan SA4 dari genus *Trichoderma*, dan isolat SA5, RG1, RG6 merupakan *unidentified fungi*. Setelah dilakukan uji hipovirulen diperoleh isolat hipovirulen sebanyak tiga isolat, meliputi genus *Penicillium* isolat SA1 dan genus *Trichoderma* isolat SA3 dan SA4. Ketiga isolat jamur tanah yang hipovirulen tersebut kemudian diuji potensinya sebagai PGPF pada bibit mentimun dan diperoleh hasil genus *Trichoderma* isolat SA3 mampu memacu pertumbuhan bibit mentimun dengan rerata nilai tinggi bibit, jumlah daun, berat segar, dan berat kering brangkasan dan akar lebih tinggi daripada perlakuan lain.

Kata Kunci: hipovirulen, PGPF, potensial, rizosfer teh, *Trichoderma*.

ABSTRACT

IDENTIFICATION AND ABILITY TEST OF SOIL FUNGI FROM ANDONGSILI PLANTATION OF PT. PAGILARAN TEA RHIZOSPHERE AS POTENTIAL PLANT GROWTH PROMOTING FUNGI (PGPF)

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Research on identification and ability test of soil fungi from Andongsili Plantation of PT. Pagilaran tea rhizosphere as potential plant growth promoting fungi (PGPF) had been carried out from November 2011 to July 2012 at the Laboratory of Clinical Plant Disease, Laboratory of Agricultural Mycology, and glass house of Plant Protection Department, Agriculture Faculty, Gadjah Mada University. This research aimed to collect and identify soil fungi isolated from tea rhizosphere and to study the potential of soil fungi as plant growth promoting fungi (PGPF). Soil was sampled from tea rhizosphere and soil chemistry was analyzed. Fungi were isolated, identified, and tested their hypovirulent by scoring of their disease severity index (DSI). The fungi with DSI indicator value < 2.0 was categorized as hypovirulents. The hypovirulent fungi was tested in the glass house to determine as potential PGPF isolates. Hypovirulent test conducted for 14 days and 21 days for PGPF. Experimental design used was completely randomized design (CRD) with 5 replications. Data analysis was using analysis of variance (ANOVA) and Duncan's Multiple Range Test (DMRT) at significant level of 95%. The results showed that there was 13 soil fungal isolates obtained, i.e. SA1, SA6, and RG4 isolates from the genera *Penicillium*, SA2, RG2, RG5, and RG7 isolates from the genera *Fusarium*, RG3 isolate from the genera *Rhizopus*, SA3 and SA4 isolates from the genera *Trichoderma*, and SA5, RG1, RG6 isolates that was grouped as unidentified fungi. The hypovirulent test resulted 3 hypovirulent isolates, i.e. SA1 isolate from the genera *Penicillium*, then SA3 and SA4 isolates from the genera *Trichoderma*. Three hypovirulent fungi isolates were then tested as potential PGPF on cucumber seedlings and SA3 isolates from the genera *Trichoderma* showed to promote the growth of cucumber seedlings with a mean value of seedlings height, number of leaves, fresh weight and dry weight of shoots and roots were higher than other treatments.

Key words: hypovirulent, PGPF, potential, tea rhizosphere, *Trichoderma*.