

Intisari

Busuk akar tomat merupakan penyakit yang disebabkan oleh *Fusarium solani* dan dapat menyebabkan kerugian ekonomi mencapai 80%. Pengendalian biologi lebih dianggap aman bagi kesehatan dan lingkungan. Larutan hasil fermentasi kulit buah (FKB), yang secara populer di kalangan masyarakat disebut *eco-enzyme* merupakan larutan organik hasil fermentasi kulit buah yang mengandung mikroorganisme antagonis dan berpotensi sebagai pengendali biologi. Penelitian ini bertujuan untuk mengetahui pengaruh larutan fermentasi kulit buah terhadap *F. solani* dan penyakit busuk akar tomat. Metode penelitian meliputi pembuatan larutan FKB dari kulit buah jeruk peras, pepaya, dan nanas, isolasi dan identifikasi bakteri pada larutan FKB, uji reaksi hipersensitif, uji antagonisme, uji daya hambat kecambah spora, uji inokulasi pada kecambah benih dan uji *in planta*. Hasil penelitian menunjukkan bahwa larutan FKB mengandung bakteri *Acetobacter ghanensis* (isolat A), *Stenotrophomonas* sp. (isolat B dan isolat C), dan *Acetobacter fabarum* (isolat D). Bakteri *Acetobacter ghanensis* (isolat A) pada larutan FKB tidak dapat menghambat *F. solani*, sementara bakteri *Stenotrophomonas* sp. (isolat B), dan *Acetobacter fabarum* (isolat D) dapat menghambat *F. solani* sebesar 44,85% dan 31,52%. Larutan FKB dapat menghambat perkecambahan spora dengan koefisien korelasi 87,75%. Uji inokulasi pada kecambah benih menunjukkan larutan FKB dapat menurunkan insidensi penyakit busuk akar tomat pada fase perkecambahan. Larutan FKB yang disemprotkan pada tanaman tidak menunjukkan beda nyata terhadap insidensi dan intensitas penyakit busuk akar. Penyemprotan larutan FKB pada tanaman tomat tidak berbeda nyata terhadap tinggi tanaman dan jumlah daun pada umur 70 HST.

Kata kunci: tomat, larutan fermentasi kulit buah, busuk akar, *Fusarium solani*

Abstract

Tomato root rot is a disease caused by *Fusarium solani* and can cause economic loss up to 80%. Biological control is considered safer for health and the environment. Fermented fruit peel (FFP), which is popularly called eco-enzyme in the community, is an organic liquid fermented fruit peel containing antagonistic microorganisms and has the potential as a biological control. This study aims to determine the effect of FFP against *F. solani* and tomato root rot disease. The research included several tests such as preparing fruit peel fermentation liquid from orange peel, papaya peel, pineapple peel, isolation and identification of bacteria in FFP, hypersensitivity reaction test, antagonism test, spore germination inhibition test, inoculation test on seed sprouts and in planta test. The results showed that the FFP liquid contained *Acetobacter ghanensis* (isolate A), *Stenotrophomonas* sp. (isolate B & isolate C), and *Acetobacter fabarum* (isolate D). *Acetobacter ghanensis* (isolate A) in FFP liquid could not inhibit *F. solani*. Otherwise, *Stenotrophomonas* sp. (isolate B), and *Acetobacter fabarum* (isolate D) inhibited *F. solani* by 44.85% and 31.52%. FFP liquid has a positive correlation of 87.75% to the percentage of spore inhibition. The results of seed treatment showed that FFP liquid could reduce the incidence of tomato root rot disease in the germination phase. FFP liquid sprayed on plants did not show a significant difference in the disease incidence and severity. FFP liquid sprayed on tomato plants was not significantly different on plant height and number of leaves at the age of 70 days after planting.

Keywords: tomato, fermented fruit peel liquid, root rot, *Fusarium solani*