

Fariha Sya'bania. (180311100055). Pengaruh Biofungisida Jenis Formula Cair Berbahan Aktif *Serratia* sp. Dan Waktu Aplikasi Terhadap Penyakit Bulai (*Peronosclerospora maydis*) Pada Tanaman Jagung (*Zea Mays*). Dibimbing Oleh: Dr. Ir. Gita Pawana , dan Dr. Ir. H. Ahmad Arsyadmunir, M.Si

ABSTRAK

Kebutuhan jagung di Indonesia saat ini cukup besar, salah satu kendala dalam budidaya yaitu penyakit penyakit bulai yang disebabkan oleh perenosclerospora maydis. Tanaman jagung yang terserang p maydis akan mengalami penurunan sebesar 90-100%. Pengendalian secara kimia menyebabkan resistensi pada penyakit bulai, dilaporkan mikroorganisme dapat berperan sebagai pengendali agen hayati salah satunya bakteri serratia sp. bakteri serratia merupakan bakteri yang dapat menghasilkan enzim kitinase. Biofungisida perlu di formulasikan untuk pengaplikasian secara luas. Formulasi cair memiliki keunggulan salah satunya efisien dalam pengaplikasiannya. Tujuan penelitian ini yaitu untuk mengetahui formula cair serratia seperti apa yang dapat mengendalikan serangan bulai dan waktu aplikasi seperti apa yang lebih efektif menendalkan bulai sehingga diketahui pengendalian aghenayati dan informasi tersebut dapat digunakan oleh petani jagung dalam mengendalikan penyakit bulai. Penelitian ini dilaksanakan di laboratorium proteksi tanaman dan greenhouse Agroekoteknologi Universitas Trunojoyo Madura pada bulan november 2021 sampai april 2022. Rancangan penelitian yang digunakan yaitu Rancangan Acak Lengkap (RAL) Faktorial. Faktor pertama yaitu Formulasi *Serratia* meliputi 7 taraf yaitu 1 (F0) F0 tanpa perlakuan, 2. (F1) Formula *Serratia marcescens* sebanyak 2%, 3. (F2) Formula *Serratia marcescens* sebanyak 4%, 4. (F3) Formula *Serratia marcescens* sebanyak 6%, 5. (F4) Formula *Serratia nematodiphila* sebanyak 2%, 6. (F5) Formula *serratia nematodiphila* sebanyak 4%, 7. (F6) Formula *Serratia nematodiphila* sebanyak 6%. Faktor kedua yaitu waktu pengaplikasian meliputi 2 taraf yaitu 1. (P1) Penyemprotan dilakukan sebelum bulai di tularkan yaitu umur 7 HST dan bulai ditularkan umur 8 HST , 2. (P2) Penyemprotan dilakukan sesudah bulai ditularkan yaitu umur 8 HST dan bulai disemprotkan 7 HST. Analisis data yang digunakan yaitu menggunakan analisis variansi (ANOVA) tarar 5% dan apabila terdapat pengaruh nyata maka dilakukan uji lanjut dengan DMRT pada taraf 5%. Hasil penelitian menunjukan Biofungisida formula cair berbahan aktif *Serratia* sp. berpengaruh untuk menekan keterjadian penyakit, keparahan penyakit dan laju infeksi. Berdasarkan penelitian jenis *Serratia marcescens* dan *Serratia nematodhipila* tidak berbeda nyata dan konsentrasi 6% menunjukan nilai paling rendah terserang pemyakit pada parameter keterjadian dan keparahan dibandingkan konsentrasi lain, Waktu pengaplikasian 1 hari sebelum inokulasi patogen berpengaruh nyata terhadap keterjadian penyakit, keparahan penyakit dan laju infeksi dibandingkan perlakuan pengaplikasian sesudah inokulasi, Terjadi nteraksi antara pemberian fungisida formula cair berbahan aktif *serratia* sp dengan waktu pengaplikasian pada umur 2 hinnga 5 minggu pengamatan terhadap keterjadian penyakit, kparahan penyakit dan laju infeksi

Kata kunci : *Serratia* sp., Bulai, waktu pengaplikasian, daun jagung

Fariha Sya'bania. (180311100055). The Effect Of Biofungicide Type Liquid Formula With Active Ingredient Serratia Sp. And Time Of Application To Downy Mildew (*Peronosclerospora Maydis*) On Maize (*Zea Mays*). Guided by: Dr. Ir. Gita Pawana and Dr. Ir. H. Ahmad Arsyadmunir, M.Si

ABSTRACT

The demand for corn in Indonesia is currently quite large, one of the obstacles in cultivation is downy mildew caused by *Peronosclerospora maydis*. Corn plants that are attacked by *P. maydis* will decrease by 90-100%. Chemical control causes resistance to downy mildew, it is reported that microorganisms can act as controllers of biological agents, one of which is *Serratia* sp. *Serratia* bacteria are bacteria that can produce chitinase enzymes. Biofungicides need to be formulated for wide application. The liquid formulation has advantages, one of which is efficient in its application. The purpose of this study was to find out what kind of liquid formula for downy mildew could control downy mildew and what application time was more effective in controlling downy mildew so that the control of biological agents was known and this information could be used by maize farmers in controlling downy mildew. This research was carried out at the plant protection laboratory and agro-ecotechnology greenhouse, Trunojoyo University, Madura, from November 2021 to April 2022. The research design used was a Factorial Completely Randomized Design (CRD). The first factor is the *Serratia* formulation covering 7 levels, namely 1. (F0) F0 without treatment, 2. (F1) *Serratia marcescens* formula as much as 2%, 3. (F2) *Serratia marcescens* formula as much as 4%, 4. (F3) *Serratia marcescens* formula 6 %, 5. (F4) 2% *Serratia nematodiphila* formula, 6. (F5) 4% *Serratia nematodiphila* formula, 7. (F6) 6% *Serratia nematodiphila* formula. The second factor was the time of application covering 2 levels, namely 1. (P1) Spraying was carried out before the downy mildew was transmitted, namely at the age of 7 DAP and the downy mildew was transmitted at the age of 8 DAP, 2. (P2) Spraying was carried out after the downy mildew was transmitted, namely the age of 8 DAP and the downy mildew was sprayed at 7 DAP. . Analysis of the data used is using analysis of variance (ANOVA) at a rate of 5% and if there is a significant effect, further testing is carried out with DMRT at a level of 5%. The results showed that the liquid formula biofungicide with the active ingredient *Serratia* sp. effect to suppress disease occurrence, disease severity and infection rate. Based on the research, the types of *Serratia marcescens* and *Serratia nematodiphila* were not significantly different and a concentration of 6% showed the lowest value of disease occurrence on the parameters of occurrence and severity compared to other concentrations. The time of application 1 day before inoculation of the pathogen had a significant effect on disease occurrence, disease severity and infection rate compared to treatment. application after inoculation, there was an interaction between the administration of a liquid formula fungicide with the active ingredient *Serratia* sp with the time of application at the age of 2 to 5 weeks observing the occurrence of disease, disease severity and infection rate

Key words : *Serratia* sp., Downy mildew, time of application, corn leaves