

INTISARI

Busuk pangkal batang yang disebabkan oleh patogen *Phytophthora capsici* merupakan salah satu penyakit penting pada perkebunan lada. Mekanisme ketahanan tanaman secara biokimia terhadap infeksi patogen dapat dievaluasi melalui pengukuran aktivitas enzim peroksidase, kitinase dan glukanase. Penelitian ini bertujuan untuk menguji tingkat ketahanan lada berdasarkan respon akar terhadap isolat *P. capsici* dan mendapatkan informasi mengenai mekanisme ketahanan tanaman lada secara biokimia ketika terinfeksi *P. capsici*. Inokulasi *P. capsici* dilakukan dengan cara kultur air di dalam gelas plastik terhadap 16 nomor tanaman lada yang terdiri dari 8 tetua sebagai pembanding (*P. colubrinum*, N1, N2, P1, P2, LDK, LDL, dan BKY) dan 8 kombinasi lada hibrida (N2BK, 44-9, 4-5, 6-2, 4-5-5, 4-5-5 x N2-97, N2BK x LDL, dan N2BK x N2-98). Pengamatan tingkat ketahanan dan akumulasi aktivitas enzim diukur 2, 4, dan 6 hari setelah inokulasi (HSI). Hasil penelitian menunjukkan bahwa ketahanan tanaman lada berdasarkan respon akar tergolong agak tahan untuk LH 4-5-5xN2-97 dan agak rentan untuk LH N2BKxN2-98, sedangkan kode tanaman lada lainnya tergolong rentan. Akumulasi enzim peroksidase, kitinase, dan glukanase mengalami perubahan yang tidak stabil (peningkatan dan penurunan) dibanding kontrol. Tidak terdapat hubungan yang kuat antara aktivitas enzim dan intensitas penyakit, akan tetapi enzim yang cenderung memiliki peran pada ketahanan lada terhadap *P. capsici* adalah enzim peroksidase.

Kata kunci: glukanase, ketahanan, kitinase, peroksidase, *Phytophthora capsici*

ABSTRACT

Stem rot caused by pathogen *Phytophthora capsici* is one of the important diseases in pepper plantations. The biochemical mechanism of plant resistance to pathogenic infections can be evaluated by measuring the activity of peroxidase enzymes, chitinase and glucanase. This study aimed to examine the level of pepper resistance based on root response to *P. capsici* isolates and obtain information about the mechanism of resistance of pepper plants biochemically when infected with *P. capsici*. *P. capsici* inoculation was carried out by means of water culture in plastic cups on 16 numbers of pepper plants consisting of 8 parents as a comparison (*P. colubrinum*, N1, N2, P1, P2, LDK, LDL, and BKY) and 8 hybrid combination pepper (N2BK, 44-9, 4-5, 6-2, 4-5-5, 4-5-5 x N2-97, N2BK x LDL, and N2BK x N2-98). Observation of the level of resistance and accumulation of enzyme activity was measured 2, 4, and 6 days after inoculation (HSI). The results showed that plant resistance based on root responses was classified as rather resistant to 4-5-5xN2-97 hybrid and rather susceptible to N2BKxN2-98 hybrid, while other pepper crop codes were classified as susceptible. The accumulation of peroxidase, chitinase and glucanase enzymes improves unstable changes (increases and decreases) compared to controls. There is no strong relationship between enzyme activity and disease intensity, but enzymes that tend to play a role in pepper resistance to *P. capsici* are peroxidase enzymes.

Keywords: chitinase, endurance, glucanase, peroxidase, *Phytophthora capsici*