INTISARI

Penyakit layu bakteri yang disebabkan oleh *R. solanacearum* merupakan hambatan dalam usaha budidaya tanaman Solanaceae. Bakteri ini menginfeksi jaringan vaskuler tanaman sehingga daun menjadi layu karena sel kehilangan turgor akibat terhambatnya pasokan air dan nutrisi. Pengendalian kimia sangat cepat memberikan efek tetapi kurang dianjurkan mengingat dampak buruknya terhadap lingkungan. Salah satu pengendalian *R. solanacearum* yang sedang dikembangkan adalah penggunaan bakteriofag. Bakteriofag merupakan virus yang spesifik menginfeksi bakteri. Keberhasilan pengendalian *R. solanacearum* menggunakan bakteriofag dipengaruhi oleh 3 faktor, yaitu pemilihan jenis bakteriofag, lingkungan, dan waktu aplikasi. Dalam penelitian ini dilakukan karakterisasi bakteriofag yang diperoleh dari sentra produksi sayuran di jawa, yang meliputi Provinsi Jawa Barat, Jawa Tengah, Daerah Istimewa Yogyakarta, dan Jawa Timur. Karakterisasi meliputi uji kisaran inang terhadap *R. solanacearum* yang diperoleh dari lokasi berbeda, pengamatan morfologi plak, dan uji stabilitas terhadap cekaman lingkungan. Hasilnya setelah proses isolasi diperoleh 18 bakteriofag dan 13 *R. solanacearum* dari lokasi berbeda. Bakteriofag kode NW 2 mampu menginfeksi dan melisiskan 3 *R. solanacearum* (Rs 1, Rs 2, dan Rs 3) dengan cara membentuk plak. Plak bening disebabkan bakteriofag melakukan siklus litik sedangkan plak keruh disebabkan bakteriofag mengalami siklus lisogenik. Uji stabilitas dilakukan dengan memberikan perlakuan pH, suhu, kadar garam, dan sinar UV dengan nilai yang berbeda. Rata-rata bakteriofag stabil pada pH 7, suhu 15-28°C, dan kadar garam kurang dari 1 M. Dalam penelitian ini bakteriofag dengan kode MK 1 dan MR 2 mampu bertahan dibawah paparan sinar UV 254 nm selama 5 dan 10 menit.

Kata kunci : penyakit layu bakteri, *Ralstonia solanacearum*, bakteriofag, plak, lisis

ABSTRACT

The bacterial wilt caused by *Ralstonia solanacearum* is an obstacle in the cultivation of Solanaceaeous plants. This bacterium infects the vascular tissue of the plant so that the leaves wither because cells lose turgor due to obstruction of water supply and nutrients. Chemical control is very fast to give effect but is not recommended considering the adverse effects on the environment. One control of *R. solanacearum* that is being developed is the use of bacteriophages. Bacteriophages are viruses that specifically infect bacteria. The success of controlling *R. solanacearum* using bacteriophages is influenced by 3 factors, namely the selection of the type of bacteriophage, the environment, and the time of application. In this study bacteriophage characterization was obtained from vegetable production centers in Java, which included the Provinces of West Java, Central Java, Special Region of Yogyakarta, and East Java. Characterization includes a range of host tests on *R. solanacearum* obtained from different locations, plaque morphological observations, and stability tests on environmental stress. The results after the isolation process obtained 18 bacteriophages and 13 *R. solanacearum* from different locations. NW 2 code bacteria are able to infect and lyse 3 *R. solanacearum* (Rs 1, Rs 2, and Rs 3) by forming plaque. Clear plaques are caused by bacteriophages to carry out a lytic cycle while turbid plaques are caused by bacteriophages undergoing a lysogenic cycle. The stability test is carried out by giving different values of pH, temperature, salinity, and UV light. The average bacteriophage was stable at pH 7, temperature 15-28 ° C, and salt content less than 1 M. In this study bacteriophages with MK 1 and MR 2 codes were able to survive under UV exposure of 254 nm for 5 and 10 minutes.

Keywords : bacterial wilt disease, *Ralstonia solanacearum*, bacteriophage, plaque, lysis