

Intisari

Penyakit busuk lunak merupakan salah satu penyakit penting pada berbagai komoditas yang disebabkan oleh bakteri patogen *Pectobacterium carotovorum* dan *Dickeya* sp. Kedua bakteri tersebut termasuk anggota famili *Enterobacteriaceae*. Bakteri busuk lunak memiliki kemampuan membentuk biofilm yang termasuk dalam faktor patogenisitas. Peran biofilm sangat penting untuk melindungi bakteri dari pertahanan inang dan kondisi lingkungan yang ekstrim. Madu merupakan salah satu bahan alam yang dapat digunakan sebagai antibakteri. Kandungan gula yang tinggi dan senyawa antibakteri yang ada pada madu dapat menghambat pertumbuhan bakteri. Penelitian ini bertujuan untuk mengetahui aktivitas antibakteri madu, pengaruhnya terhadap pembentukan biofilm dan gejala busuk lunak oleh *P. carotovorum* dan *Dickeya* sp. Uji aktivitas antibakteri madu dilakukan dengan metode sumur difusi agar, sedangkan uji pembentukan biofilm dilakukan dengan metode pewarnaan menggunakan kristal violet 1%, serta uji patogenisitas dilakukan pada umbi kentang. Hasil penelitian menunjukkan madu manuka memiliki nilai konsentrasi hambat minimum (KHM) 5% (v/v) terhadap bakteri *P. carotovorum*, dan 10% (v/v) pada bakteri *Dickeya* sp., sedangkan nilai KHM madu hutan 25% (v/v) terhadap bakteri *P. carotovorum* dan 75% (v/v) pada bakteri *Dickeya* sp. Madu manuka dan madu hutan berpengaruh menghambat pembentukan biofilm, namun penghambatan oleh madu hutan lebih sedikit dibanding madu manuka. Hasil penelitian juga menunjukkan madu manuka berpengaruh terhadap penurunan patogenisitas *P. carotovorum* dan *Dickeya* sp.

Kata kunci: antibakteri, bakteri busuk lunak, biofilm, madu, patogenisitas

Abstract

Soft rot is one of the most important diseases on many crops caused by *Pectobacterium carotovorum* and *Dickeya* sp. These bacteria belong to *Enterobacteriaceae* family. Soft rot bacteria have ability to form biofilm that considered to be pathogenicity factor. The biofilm function are important for protection against recognition by plant defense mechanism and extreme environmental conditions. Honey is one of the natural product that could be used as antibacterial. The high sugar concentration and antibacterial compounds in honey could inhibit bacterial growth. The aim of this study was to investigate the antibacterial activity of manuka honey and forest honey, also the effect of honey on biofilm formation and soft rot symptoms *P. carotovorum* and *Dickeya* sp. Agar well diffusion method was used to investigate antibacterial activities of manuka honey and forest honey, while biofilm formation activity was determined by 1% crystal violet staining, also pathogenicity was tested in potato tubers. The result showed that manuka honey has minimum inhibitory concentration (MIC) value against *P. carotovorum* with 5% (v/v) and *Dickeya* sp. with 10% (v/v), then forest honey has MIC value against *P. carotovorum* with 25% (v/v) and *Dickeya* sp. with 75% (v/v). Manuka honey and forest honey inhibit biofilm formation, but the influence of forest honey less than manuka honey's influence. Manuka honey also can reduce pathogenicity of *P. carotovorum* and *Dickeya* sp. The pathogenicity reduction in those kind of bacteria may result mainly from the reduction in biofilm formation.

Key words: antibacterial activity, biofilm, honey, pathogenicity, soft rot bacteria