INTISARI

Nematoda puru akar (*Meloidigyne incognita*) merupakan nematoda parasit tanaman penting karena memiliki kisaran inang yang luas. Dampak penggunaan nematisida kimia untuk pengelolaan *M. incognita* mendorong pengembangan bionematisida yang lebih ramah lingkungan. *Bacillus* berpotensi untuk dikembangkan sebagai agen pengendali hayati *M. incognita* karena menurunkan kemampuan infeksi *M. incognita*. Penelitian ini bertujuan untuk melakukan skrining terhadap beberapa spesies *Bacillus* sebagai metode pengelolaan J2 *M. incognita*. Pengujian secara *in vitro* meliputi pengujian mortalitas dan repelensi. Hasil pengujian *in vitro* digunakan untuk memilih 4 isolat potensial kemudian dilanjutkan identifikasi secara molekular dan pengujian di greenhouse. Percobaan di greenhouse menggunakan Rancangan Acak Kelompok Lengkap (RAKL) yang terdiri dari 11 perlakuan dan 5 ulangan dengan 3 unit. Perlakuan terdiri dari kontrol, tanaman inokulasi *M. incognita*, tanaman isolat *Bacillus*, tanaman inokulasi *M. incognita* dan isolat *Bacillus*, dan tanaman inokulasi *M. incognita* dan nematisida kimia karbofuran. Hasil penelitian menunjukkan bahwa isolat *Bacillus* mampu menyebabkan mortalitas dan memiliki kemampuan repelensi terhadap J2 *M. incognita*. Identifikasi berbasis gen 16S rRNA menunjukkan bahwa isolat berkerabat dekat dengan *B. velezensis*, *B. tropicus*, dan *B. thuringiensis*. Pengujian di Greenhouse menunjukkan bahwa aplikasi *Bacillus* mampu menurunkan jumlah puru, jumlah *egg mass*, tingkat kerusakan akar dan jumlah populasi J2 *M. incognita* di akar pada tanaman terung dibandingkan kontrol. Akan tetapi aplikasi *Bacillus* belum mampu meningkatkan tinggi tanaman, panjang akar dan bobot basah akar.

Key words: *Bacillus*; biocontrol; mortalitas; populasi; repelensi

ABSTRACT

Root-knot nematode (*Meloidigyne incognita*) is an important plant parasitic nematode because it has a wide host range. The impact of using chemical nematicides for the management of *M. incognita* encourages the development of bionematicides that are more environmentally friendly. *Bacillus* has the potential to be developed as a biological control agent of *M. incognita* because it reduces the ability of *M. incognita* infection. This study aims to screen several *Bacillus* species as a method of managing J2 *M. incognita*. In vitro testing included mortality and repellency. The results of in vitro testing were used to select 4 potential isolates, followed by molecular identification and greenhouse testing. The greenhouse experiment used a completely randomised design consisting of 11 treatments and 5 replicates with 3 units. Treatments consisted of control, plants inoculated with *M. incognita*, plants with *Bacillus*, plants inoculated with *M. incognita* and *Bacillus*, and plants inoculated with *M. incognita* and carbofuran chemical nematicide. The results showed that *Bacillus* isolates were able to cause mortality and had repellency ability against *J2 M. incognita*. 16S rRNA gene-based identification showed that the isolates were closely related to B. *velezensis, B. tropicus,* and *B. thuringiensis*. Greenhouse tests showed that *Bacillus* application was able to reduce the number of bullets, the number of egg masses, the level of root damage and the number of J2 *M. incognita* populations in the roots of eggplant plants compared to the control. However, *Bacillus* application has not been able to increase plant height, root length and root wet weight.

Key words: *Bacillus*; biocontrol; mortality; population; repellency