ABSTRACT

Chili peppers are one of the most widely cultivated horticultural crops in Indonesia. Consumer demand for chili peppers is high, but various obstacles in the cultivation process often result in production failing to meet this demand. The main obstacles in chili pepper cultivation include diseases caused by fungi, bacteria, and viruses. The main diseases found in the field during the study included anthracnose (*Colletotrichum* sp.), yellow curl, and leaf spot (*Cercospora* sp.). One effective biological control alternative used is PGPF (Plant Growth Promoting Fungi). PGPF fungi are fungi that associate with plant roots and play a role in supporting growth, maintaining soil fertility, and increasing resistance to pathogens. In this study, *Aspergillus oryzae* isolate PTH1 and *Penicillium daleae* isolate A2SP were applied in vivo. The experimental design used in this study was a Completely Randomized Design (CRD) with 4 treatments and 6 replicates. The treatments given were K (Control), A (*Aspergillus oryzae* isolate PTH1), P (*Penicillium daleae* isolate A2SP), and AP (*Aspergillus oryzae* isolate PTH1 and *Penicillium daleae* isolate A2SP). The results of the DMRT test at a 5% confidence level showed that the PGPF treatment had no significant effect on the incidence or intensity of anthracnose disease, while for yellow curling and leaf spot diseases, it only had a significant effect at certain observation ages. In addition, the application of PGPF had no significant effect on the growth and productivity of chili plants.

Keywords: *Aspergillus oryzae* isolate PTH1, Chili pepper, *Penicillium daleae* isolate A2SP, PGPF

INTISARI

Cabai merupakan salah satu tanaman hortikultura yang banyak dibudidayakan di Indonesia. Kebutuhan konsumen terhadap cabai tergolong tinggi, namun berbagai kendala dalam proses budidaya sering mengakibatkan produksi tidak mampu memenuhi kebutuhan tersebut. Kendala utama dalam budidaya tanaman cabai antara lain penyakit yang disebabkan oleh jamur, bakteri, dan virus. Penyakit utama yang ditemukan di lapang selama penelitian antara lain antraknosa (*Colletotrichum* sp.), keriting kuning, dan bercak daun (*Cercospora* sp.). Salah satu alternatif pengendalian hayati yang efektif digunakan yaitu PGPF *(Plant Growth Promoting Fungi).* Jamur PGPF adalah jamur yang berasosiasi dengan akar tanaman dan berperan mendukung pertumbuhan, menjaga kesuburan tanah, serta meningkatkan ketahanan terhadap patogen. Pada penelitian ini, dilakukan pengaplikasian *Aspergillus oryzae* isolat PTH1 dan *Penicillium daleae* isolat A2SP secara *in vivo*. Rancangan percobaan yang digunakan pada penelitian ini yaitu Rancangan Acak Lengkap (RAL) dengan 4 perlakuan dan 6 ulangan. Perlakuan yang diberikan yaitu K (Kontrol), A (*Aspergillus oryzae* isolat PTH1), P (*Penicillium daleae* isolat A2SP), dan AP (*Aspergillus oryzae* isolat PTH1 dan *Penicillium* daleae isolat A2SP). Hasil uji analisis DMRT pada taraf kepercayaan 5% menunjukkan perlakuan PGPF tidak berpengaruh nyata terhadap insidensi maupun intensitas penyakit antraknosa, sedangkan pada penyakit keriting kuning dan bercak daun hanya memberikan pengaruh nyata pada umur pengamatan tertentu. Selain itu, aplikasi PGPF belum berpengaruh nyata terhadap pertumbuhan dan produktivitas tanaman cabai.

Kata kunci: *Aspergillus oryzae* isolat PTH1, Cabai, *Penicillium daleae* isolat A2SP, PGPF