

**KEMAMPUAN BAKTERI TANAH DALAM MENGHAMBAT
PERTUMBUHAN *Ganoderma boninense* DAN *Fusarium oxysporum* SECARA *In Vitro*
DAN UJI PENGHAMBATAN PENYAKIT LAYU *Fusarium* PADA
BENIH CABAI MERAH**

ABSTRAK

Penelitian tentang Kemampuan Bakteri Tanah dalam Menghambat Pertumbuhan *Ganoderma boninense* dan *Fusarium oxysporum* Secara *In Vitro* dan Uji Penghambatan Penyakit Layu *Fusarium* Pada Benih Cabai Merah telah dilakukan di Laboratorium Mikrobiologi, Departemen Biologi FMIPA USU, Medan dari bulan April 2011 sampai Juli 2011. Dua belas isolat bakteri hasil isolasi yang telah diujikan memiliki kemampuan bervariasi dalam menghambat pertumbuhan jamur *F. oxysporum* dan *G. boninense*. Efektivitas paling tinggi isolat kitinolitik dan antijamur dalam menghambat pertumbuhan *F. oxysporum* masing-masing adalah BK15 dan KM01 dan diameter zona hambat masing-masing 20,45 mm dan 10,2 mm sedangkan efektivitas terendah masing-masing ditunjukkan oleh BK14 dan KM02 dengan diameter zona hambat sebesar 3,98 mm dan 6,69 mm. Untuk penghambatan *G. boninense*, isolat yang menunjukkan efektivitas paling tinggi adalah BK17 dan KM04 dengan masing-masing diameter zona hambat sebesar 22,74 mm dan 14,19 mm, sedangkan efektivitas terendah ditunjukkan oleh isolat BK14 dan AW02 dengan diameter zona hambat masing-masing sebesar 11,08 mm dan 4,6 mm. Isolat bakteri kitinolitik dan isolat bakteri antijamur yang digunakan sebagai pelapis benih cabai merah melalui perendaman mampu mengurangi persentase rebah kecambah yang disebabkan oleh *F. oxysporum*. Kombinasi antara BK13 dan KM04 memiliki kemampuan penghambatan tertinggi yaitu 83,33% dan KM04 (33,33%) yang memiliki kemampuan terendah.

Kata kunci: Bakteri antijamur, bakteri kitinolitik, bakteri tanah *G. boninense* dan layu *Fusarium*

***In Vitro* ABILITY OF SOIL BACTERIA TO INHIBIT THE GROWTH OF
Ganoderma boninense AND *Fusarium oxysporum* AND INHIBITION ASSAY OF
Fusarium WILT DISEASE OF CHILI SEEDS**

ABSTRACT

A study on the *in vitro* ability of soil bacteria to inhibit the growth of *Fusarium oxysporum* and *Ganoderma boninense* and inhibition assay of *Fusarium* wilt disease of chili seeds has been done in the Laboratory of Microbiology, Department of Biology, Faculty of Mathematics and Natural Sciences, University of Sumatera Utara, Medan, started from April 2011 to July 2011. Twelve bacterial isolates showed ability to inhibit the growth of *F. oxysporum* and *G. boninense* to some extents. The most effective chitinolytic bacteria and antifungal bacteria to inhibit the growth of *F. oxysporum* was BK15 and KM01 with diameter of inhibition zone by 20.45 mm and 10.2 mm, respectively. Whereas, BK14 and KM04 showed relatively smaller diameter of inhibition by 3.98 mm and 6.69 mm, respectively. The growth of *G. boninense* was inhibited most effectively by BK17 and KM04 with diameter of inhibition of 22.74 mm and 14.19 mm, while the less effectiveness of the inhibition was showed by BK14 and AW02 with diameter of inhibition of 11.08 mm and 4.6 mm respectively. Chitinolytic bacterial isolates and antifungal bacterial isolates used to cover red pepper seed through soaking enabled to reduce seeds dumping off. The combination of BK13 and KM04 had the highest inhibition to reduce the dumping off by 83,33% and isolates KM04 (33,33%) had the lowest ability.

Keywords: Antifungal bacterial, chitinolytic bacteria, soil bacteria *G. boninense* and *Fusarium* wilt.