Name	Counterpart	Title
Nisa Rachmania Mubarik	**B02**	Biodiversity inventory, collection and preservation (in-situ and ex-situ): prokaryotes and leaf blight pathogenic fungi on oil palm

Chitin is a major component of fungi cell wall, mycelia, stalks and spore. It is hydrolysed by chitinase. This study was conducted to measure the ability of chitinase-producing bacteria to degrade chitin of fungal pathogens such as *Curvularia affinis* and *Colletotrichum gloeosporioides*. Chitinase and β-glucanase serve as a biological control agent of fungi pathogenic for oil palms. The fungi *C. affinis* and *C. gloeosporioides* cause anthracnose, leaf blight, and rotting on oil palm leaves. For this study, two *Bacillus* strains isolated from soil of an oil palm plantation in Jambi were selected as chitinase and β-glucanase producers. The optimum of chitinase production of *B. thuringiensis* strain SAHA 12.08 was at 60 h of incubation. Maximum temperature and pH of chitinase activity were 35° C and 7.0, respectively. The precipitation of chitinase with 30 % ammonium sulphate yielded a 2.35-fold activity increase. The chitinase was stable at the optimum temperature for 180 minutes. The zymogram analysis revealed that the chitinase had a molecular mass of 82 kDa (see Fig. 1). The optimal β-glucanase production of the other strain *B. subtilis* SAHA 32.6 was reached after 12 h of incubation. Maximum temperature and pH of β-glucanase activity were 45° C and 7.0, respectively. The β-glucanase was precipitated with 60 % ammonium sulphate. This treatment resulted in a 1.43-fold activity increase. Both, the precipitated chitinase of *B. thuringiensis* SAHA 12.08 and the β-glucanase of *B. subtilis* SAHA 32.6, could inhibit the growth of *C. affinis* and *C. gloeosporioides* by using *in vitro* tests. In conclusion, both isolates and also the analysed enzymes derived from the isolates showed potential for an application as a biocontrol agent for fungal pathogens of oil palm plants.

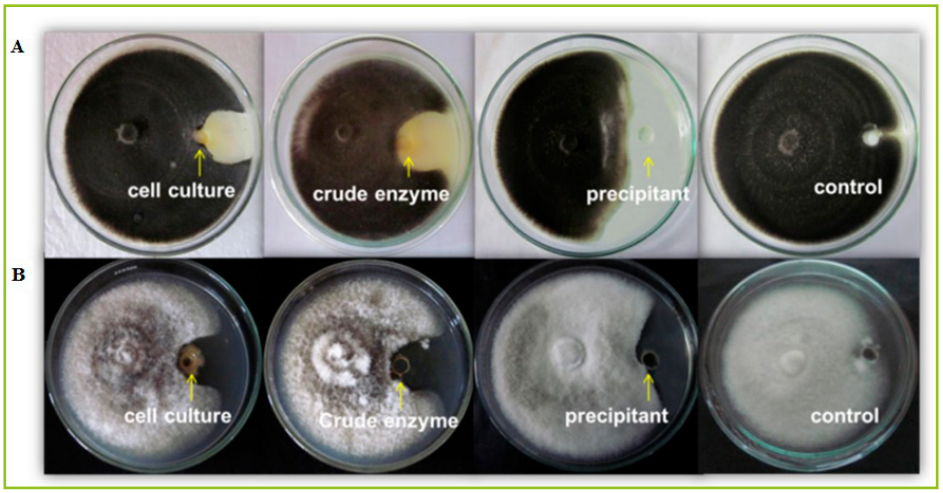

Figure 1. The antagonistic activity of chitinolytic *B. thuringiensis* SAHA 12.08 against *C. affinis* (A) and *C. gloeosporioides* (B) after 7 days incubation on PDA medium. Aquadest used as negative control. Precipitated enzyme by using 30% ammonium sulphate.