Sansanee Sinlapasunthorn 2013: Biological Control of Anthracnose on Postharvest Mango by Field Application of *Bacillus megaterium* Isolate 3103. Master of Science (Agriculture), Major Field: Plant Pathology, Department of Plant Pathology. Thesis Advisor: Associate Professor Sasitorn Vudhivanich, M.S. 70 pages.

Anthracnose, caused by *Colletotrichum gloeosporioides*, is one of the most serious postharvest diseases of mango (*Mangifera indica*) resulting from the quiescent phase of infection established in the field. This research determined biological control capability under commercial field condition of *Bacillus megaterium* isolate 3103 (BM-3103) on quiescent infection caused by *C. gloeosporioides*. BM-3103 cell culture was sprayed onto mango canopies every 14 days starting from flowering stage until harvesting of mature green fruit. The application was done at 5 experimental sites with 'Nam-dok-mai' and 'Nam-dok-mai-seethong' mango. Mature green mangoes were harvested and incubated in condition favouring anthracnose disease development. The disease incidence was recorded and assessed in terms of diseased areas on the fruit surface, and total numbers of diseased fruit. Incidence of anthracnose indicated antagonistic efficacy of BM-3103 by the reduction in disease severity on postharvest mangoes of both cultivars. Determination on population survival of BM-3103 in the canopies conducted on 'Nam-dok-mai' mango demonstrated sharp decline of the antagonist population during 9 days after the first application. Prolonged and stabilized antagonist population in mango canopies was improved by supplementation of 0.05% xanthan gum in the multiplying culture broth. However, population maintenance was supported by repeated application of the antagonist, that accumulation and survival of BM-3103 population in mango canopies could be prolonged from 12 to 21 days after the third applications.

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