

## Application of *Bacillus subtilis* KHY8 bioagent to control mango anthracnose and bacterial black spot diseases

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Anthracnose and bacterial black spot diseases cause by *Colletotrichum gloeosporioides* and *Xanthomonas campestris* pv. *maniferaeindicae*, respectively, are the important diseases on mango. Those two pathogens usually infect leaves and fruits of mango. Due to the latent infection of mango anthracnose, it usually causes the severe spots after harvest and reduces the value of mango. Farmers are used to controlling these diseases by chemical pesticides. However, some pathogens have produced resistances caused by incorrect and excessive abuse. Excessive abuse of pesticides also leads to pesticide residues affecting people's food safety. For keeping people's food safe and reducing chemical pesticide residues, the government is promoting the policies of chemical pesticide reduction. Hence, the project aims to applying *Bacillus subtilis* KHY8 bioagent to control mango anthracnose and bacterial black spot diseases in field, evaluates the efficacy of controlling mango anthracnose and bacterial black spot diseases, and reduces the anthracnose and bacterial black spot diseases on mango. This project process mango disease control trials in Pingtung areas (Fangshan and Fangliao township) and Tainan area (Yujing district) which are import mango production areas. Mango trees are sprayed *B. subtilis* KHY8 bioagent ten times with different concentrations. The spray time course was from flowering stage to bagging stage once every week for evaluating the control efficacy of mango diseases. When mangoes become mature, fruits will be sampled for investigation. According to results, applying *B. subtilis* KHY8 bioagent with different concentrations can significantly reduce the disease severity of anthracnose and bacterial black spot diseases on mango. The control rate of anthracnose is above 52% and the control rate of bacterial black spot disease is above 62% on mango. In conclusion, applying *B. subtilis* KHY8 bioagent with five hundred times of dilution from flowering stage to bagging stage can significantly reduce the disease severity of anthracnose and bacterial black spot diseases on mango. *B. subtilis* KHY8 bioagent would be developed as microbial pesticide for farmers in the future.

Keywords: *Bacillus subtilis* KHY8, Anthracnose, Bacterial black spot disease, Biocontrol.

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