

Abstract

A survey to determine the strawberry (*Fragaria×ananassa* Duch.) cv. Pharachatan 80 diseases were reached epidemic of anthracnose disease and gray mold disease on area of highland in Chiangmai, Thailand in 2014. The surveys of the strawberry were isolated from field at Nonghoi Royal Project, Maehae Royal Project, Samoengs district and Suthap Royal Project Marketing store. This study 10 isolates of *Colletotrichum* spp. (CN1, CN2, CS1, CS2, CK11, CK12, CK21, CK22, CM1 and CM2) and 8 isolates of *Botrytis* spp. (BN1, BN2, BS1, BS2, BK1, BK2, BM1 and BM2) were isolated from strawberry disease. Inoculation of pathogens into fresh strawberry fruits in laboratory found that isolate CK21 and BK2 can cause most severity symptom. A total of 105 isolates of antagonist microbial were isolated from leaves and fruits of fresh strawberry from production area. When screening tested their abilities to inhibit growth of *Colletotrichum* sp. isolate CK21 by dual culture technique on PDA. It was found five antagonistic microbial (K18, K27, S15, S16 and S17) were found that inhibited *Colletotrichum* sp. isolate CK21 growth efficacies of 33.75%, 66.25%, 31.25%, 37.50% and 33.75% respectively. While, eight antagonistic microbial (K1, K18, K27, S15, S16, S17, N7 and N23) were found that inhibited *Botrytis* sp. isolate BK2 growth efficacies of 43.75%, 36.88%, 64.38%, 26.88%, 25.63%, 33.75%, 25.00% and 47.50% respectively. Furthermore, this study selected organic compounds including ascorbic acid, citric acid, calcium-D-gluconate monohydrate, palmitic acid, glycerol and chitosan, the proper inhibitory concentration of the organic compounds against *Colletotrichum* sp. isolate CK21 were determined and inhibited the fungal growth more 50 percentage on PDA. It was found that 2% ascorbic acid, 1% citric acid and 10% glycerol inhibited the fungal growth efficacies of 61.30%, 78.89% and 61.80%, respectively. However, 2% ascorbic acid, 1% citric acid, 1% calcium-D-gluconate monohydrate and 10% glycerol against *Botrytis* sp. isolate BK2 inhibited the fungal growth efficacies of 55.19%, 52.22%, 56.30% and 60.83%, respectively.