Title Mycobiota of apple fruits: their effects on bitter rot caused by *Colletorichum acutatum*

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Abstract

Colletotrichum acutatum is a pathogenic fungus causing bitter rot on fruits, among others apple. Biological control of postharvest diseases of fruits has emerged as a promising alternative. The objective of this study was to test the antagonistic potential of mycobiota of apple against C. acutatum. This pathogenic fungus was isolated from two varieties of apples (Malang and Manalagi) collected from several traditional markets and supermarkets in Bogor and Jakarta, using direct plating method. Test fungi were also isolated from several traditional markets and supermarkets in Bogor and Jakarta, and an orchard in Batu (Malang), using dilution method, followed by pour plate method on Malt Extract Agar (MEA) containing chloramphenicol; test of antagonism was conducted using direct oppositin method on MEA; the pathogenicity of C. acutatum and test fungi was carried out by inoculating the fungal isolates on the two varieties of apples. The application of one potential antagonistic fungus was conducted by inoculating 0.1 ml conidial suspension with different concentrations (1 x 10^6; 2 x 10^6; 4 x 10^6; 6 x 10^6; 8 x 10^6; 1 x 10^7 conidia/ml) on the two varieties of apples. Nineteen isolates of C. acutatum were obtained from the two varieties of apples. Colletotrichum acutatum AUD 20 showed the highest pathogenicity on apple var. Malang (55.9%) and Manalagi (52.2%). Fourty-nine isolates of test fungi were isolated from the two varieties of apples: Eight out of 49 test fungal isolates inhibited the growth of C. acutatum more than 50%. Nevertheless, only 6 out of 8 fungal isolates did not cause any disease of the two varieties of apples. One of the antagonistic fungus, i.e. Pestalotiopsis guepinii with different concentrations of conidial suspensions were not able to control bitter rot effectively. Nevertheless, P. guepinii (4 x 10^6conidia/ml) inoculated together with 0.1 ml conidial suspension of C. aClitatum (1 x 10^6 conidia/ml) could inhibit bitter rot with the highest percentage of inhibition (39.47%).