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Characterization of Volatiles Botrytis cinerea in Blueberry Using Solid Phase Micro Extraction, Gas Chromatography Mass Spectrometry

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Abstract : Botrytis cinerea is a major pest for many plants. It can attack a wide range of plant parts. It can attack buds, flowers, and leaves, stems, and fruit. However, B. cinerea can be mixed with other diseases that cause the same damage. There are many species of botrytis and more than one different strains of each. Botrytis might infect the foliage of nursery stock stored through winter in damp conditions. There are no known resistant plants. Botrytis must have nutrients or food source before it infests the plant. Nutrients leaking from wounded plant parts or dying tissue like old flower petals give the required nutrients. From this food, the fungus becomes more attackers and invades healthy tissue. Dark to light brown rot forms in the ill tissue. High humidity conditions support the growth of this fungus. However, we suppose that selection pressure can act on the morphological and neurophysiologic filter properties of the receiver and on both the biochemical and the physiological regulation of the signal. Communication is implied when signal and receiver evolves toward more and more specific matching, culminating. In other hand, receivers respond to portions of a body odor bouquet which is released to the environment not as an (intentional) signal but as an unavoidable consequence of metabolic activity or tissue damage. Each year Botrytis species can cause considerable economic losses to plant crops. Even with the application of strict quarantine and control measures, these fungi can still find their way into crops and cause the imposition of onerous restrictions on exports. Blueberry fruit mould caused by a fungal infection usually results in major losses during post-harvest storage. Therefore, the management of infection in early stages of disease development is necessary to minimize losses. The overall purpose of this study will develop sensitive, cheap, quick and robust diagnostic techniques for the detection of B. cinerea in blueberry. The specific aim was designed to investigate the performance of volatile organic compounds (VOCs) in the detection and discrimination of blueberry fruits infected by fungal pathogens with an emphasis on Botrytis in the early storage stage of post-harvest.

Keywords : botrytis cinerea, blueberry, GC/MS, VOCs
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