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Portable Chemical Sensors for Monitoring Infection-Specific Volatiles in Asymptomatic Citrus

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Volatile organic compounds (VOCs) are emitted from all plants, and there is mounting evidence these VOCs reflect internal health status and change in response to pathogen infection and other cues. Our group has developed a portable chemical sensing platform that can monitor for VOC emission changes that result from citrus bacterial and viral infections. To date, our VOC library includes putative signal fingerprints for Huanglongbing (HLB), citrus tristeza virus (CTV) and citrus variegated chlorosis (CVC). Our mobile platform is robust and capable of operating in field conditions. We have also developed customized data analysis methods to compare data from unknown samples to our database and to determine the probability of infection for a newly sampled tree.