Identifying Environmental and Physical Plant Stresses using Vapor Analysis

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Head space vapor samples were collected over several hops varieties using prepared hops pellets ground with a mortar and pestle to release more of their aromas. A gas chromatograph mass spectrometer (GCMS) was used to analyze the collected samples. Different hops varieties were found to have different but reproducible levels of individual components.

The field portable GCMS was taken into the field where the live hop plants are growing to take vapor samples directly from the growing hop flowers. These samples from live growing plants provide real-time concentrations of the hops different volatile compounds. It is hypothesized that these real-time concentrations will be able to determine if the individual plants are experiencing physical stresses like pest herbivory or lack of water.