

#KSUTitan

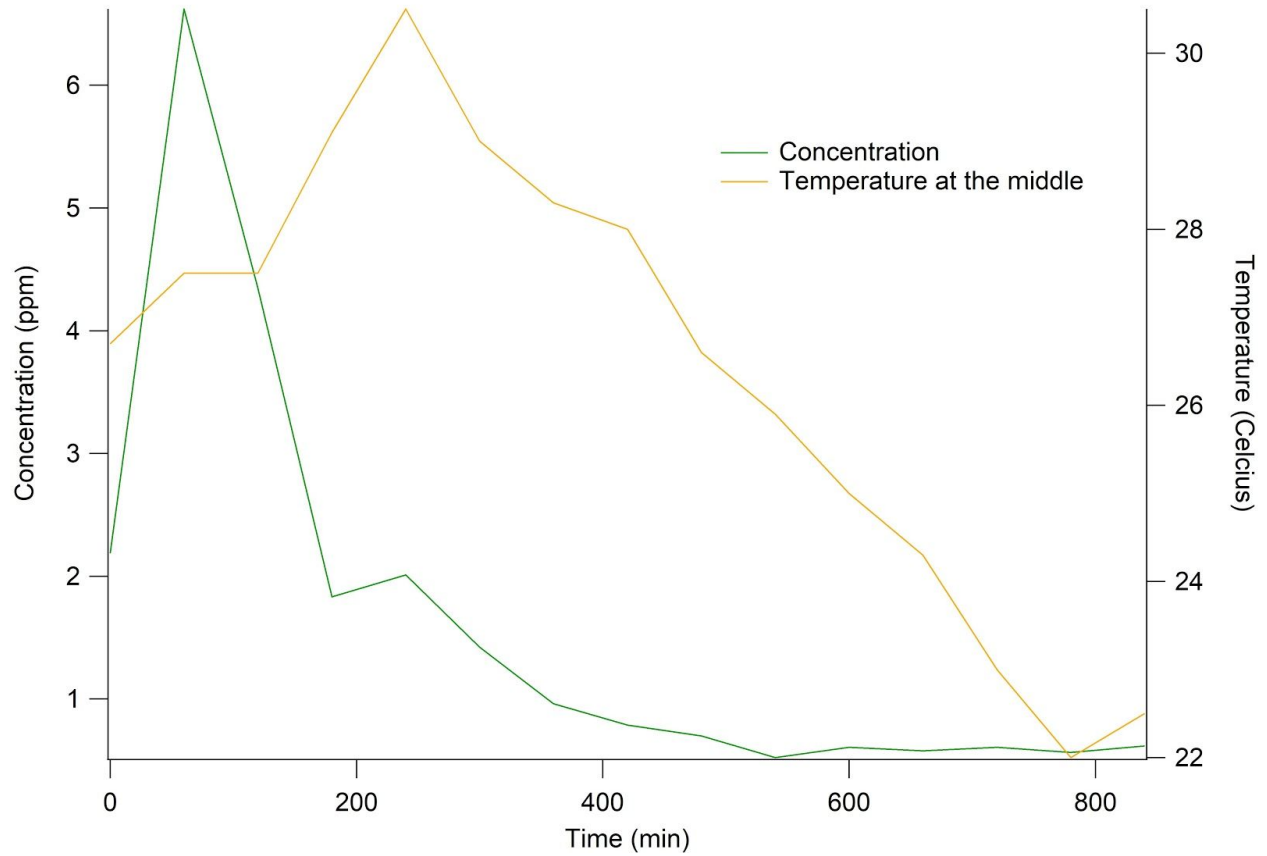
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(Background/objective) The Titan Arum, also known as the corpse flower, only blooms every 7 to 10 years for a very short period of time, and it has a very distinct scent of rotting flesh during its blooming period that allows it to attract carrion beetles to pollinate it. A serendipitous opportunity arose to collect data on the volatile chemicals released from the flower at Kansas State University's greenhouses on May 18, 2018.

(Materials/methods) During a 24 hour period, volatile compounds and temperature readings were collected every hour in order to observe any correlation between temperatures and concentrations of known compounds that create the distinct scent. Using sorbent tubes and a vacuum pump, an active method of collecting the air around the plant was used to capture the volatile compounds present. The compounds of interest were then eluted from the tubes using hexane and run through a Gas Chromatograph-Mass Spectrometer to identify the compounds and determine their concentrations. Simultaneous with each sample collection an IR thermal camera was used to determine the temperature at multiple locations on the spadix. (Results). One of the main compounds of interest, dimethyl trisulfide, was found in the highest concentration and changes in its concentration over the blooming period was compared against the average spadix temperature readings. This data showed that the concentration of dimethyl trisulfide was measured soon after the temperature peaked. This observation may indicate that the synthesis and release of the volatile compounds and the process of blooming itself is sufficiently exothermic to cause the spadix temperature to rise.



This graph compares the concentration of dimethyl disulfide and subsequent temperature readings from the middle of the spadix found from 6:30 pm (time 0) on May 18 to 8:30 am on May 19.