

Abstract submission for poster presentation  
**18TH NATIONAL SYMPOSIUM ON APPLIED BIOLOGICAL SCIENCES**  
Ghent University, 8<sup>th</sup> February, 2013

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**Evaluation of the volatile emission changes from *Arabidopsis thaliana* Col-0 in response to temperature stress and *Myzus persicae* infestation interaction by HS-SPME-GC/MS**

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Volatile organic compounds (VOCs) are considered to be priming agents in plant responsive defense to protect themselves against abiotic or/and biotic stresses. Such stresses often influence on plant photosynthesis and defense responses, resulting in a variety of volatile profiles. We investigated how different temperature regimes affect the VOCs emission capacity of *Arabidopsis thaliana* Col-0 (*A.t* Col-0) in the presence and absence of a sucking insect – *Myzus persicae* (green peach aphid). VOCs analyses were made with solid-phase micro-extraction coupled with gas chromatography - mass spectrometry (SPME-GC/MS) under controlled and various stress treatments. In response to temperature stresses, alcohols, ketones, aldehydes and terpenes were the most emitted VOCs. Moreover, the compared results showed that the percent emission of several compounds changed significantly. The interaction between temperature stresses and aphids released some new volatile components; like isothiocyanates, esters, sulfur compound and nitrile. Besides, the qualitative and overall proportion of volatile blends differed significantly from plants subjected to the stress treatments within different time intervals (0-24h; 24-48h and 48-72h). Overall, both stress treatments correlated with increased or decreased levels of VOCs classes from *Arabidopsis* shoot organs. Knowledge of how the temperature – aphids interaction influences on VOCs emission in this study also provides interesting information for evaluating the responsive resistance in plants under natural environments.

**Key words:** *A.thaliana*, *M.persicae*, temperature stress, aphid – temperature stress interaction, volatile compounds.

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