

Kira Tiedge, PhD  
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Tiedge lab  
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## Research interests

### ***Improving Crop Stress Tolerance via (Terpenoid) Specialized Metabolism***

The research of our group focuses on specialized metabolism in plants and the many ways we can utilize those metabolites. Currently we investigate the mechanisms that govern environmental stress tolerance in different crops by integrating functional genomics, metabolomics, as well as protein biochemical and genetic approaches with a focus on terpene metabolic networks. Additional interests of ours are the interactions of plants with their environment and the advancement of regenerative farming.

## Qualifications

University Teaching Qualification (UTQ), University of Groningen  
Award Date: 13-Mar-2023

Plant biochemistry / Molecular Biology, Dr. rer. nat., Nectar regulation in Nicotiana  
Award Date: 27-Mar-2018

## Employment

### **Assistant Professor**

Tiedge lab  
University of Groningen  
1-Feb-2022 → present

## Research outputs

### **Stacked scattering: The key to bright flowers lies in the mesophyll**

De Paola, L., Veldhuis, T. A., Kraaij, M., Stavenga, D. G., Tiedge, K. J. & van der Kooij, C. J., 25-Sept-2025, (E-pub ahead of print) In: American Journal of Botany. 10 p., e70104.

### **Characterization of switchgrass (*Panicum virgatum* L.) PvKSL1 as a levopimaradiene/abietadiene-type diterpene synthase**

Wyatt, G., Zerbe, P. & Tiedge, K., Aug-2025, In: Plant Biology. 27, 5, p. 698-709 12 p.

### **Advances in analyzing and engineering plant metabolic diversity**

Tiedge, K. J., Roda, F., Smith, S. D. & Moghe, G. D., 11-Jul-2025, In: Applications in Plant Sciences.

### **Thriving in a salty future: morpho-anatomical, physiological and molecular adaptations to salt stress in alfalfa (*Medicago sativa* L.) and other crops**

Liu, X., Elzenga, T., Venema, J. H. & Tiedge, K., 16-Dec-2024, In: Annals of Botany. 134, 7, p. 1113-1129 17 p.

### **Untangling the rhizosphere specialized metabolome**

Genesiska, Salles, J. F. & Tiedge, K. J., 20-Nov-2024, In: Phytochemistry reviews. 11 p.

### **Piece by piece: Making plant natural products accessible via heterologous biosynthesis**

Tiedge, K., 26-Nov-2022, In: Synthetic Biology. 7, 1, p. 1-2 2 p.

### **Comparative transcriptomics and metabolomics reveal specialized metabolite drought stress responses in switchgrass (*Panicum virgatum* L.)**

Tiedge, K. J., Li, X., Merrill, A., Davisson, D., Chen, Y., Yu, P., Tantillo, D., Last, R. L. & Zerbe, P., Nov-2022, In: New Phytologist. 236, 4, p. 1393-1408 43 p.

### **Foxtail mosaic virus-induced gene silencing (VIGS) in switchgrass (*Panicum virgatum* L.)**

Tiedge, K., Destremps, J., Solano-Sanchez, J., Arce-Rodriguez, M. L. & Zerbe, P., 30-May-2022, In: Plant Methods. 18, 11 p., 71.

### **Cytochrome P450-catalyzed biosynthesis of furanoditerpenoids in the bioenergy crop switchgrass (*Panicum virgatum* L.)**

Muchlinski, A., Jia, M., Tiedge, K., Fell, J. S., Pelot, K. A., Chew, L., Davisson, D., Chen, Y., Siegel, J., Lovell, J. T. & Zerbe, P., Nov-2021, In: Plant Journal. 108, 4, p. 1053-1068 16 p.

### **Furanoditerpenoid biosynthesis in the bioenergy crop switchgrass is catalyzed by an alternate metabolic pathway**

Muchlinski, A., Jia, M., Tiedge, K., Fell, J. S., Pelot, K. A., Chew, L., Davisson, D., Chen, Y., Siegel, J., Lovell, J. T. & Zerbe, P., 31-Mar-2021, (Submitted) BioRxiv.

### **Genomics-enabled analysis of specialized metabolism in bioenergy crops: Current progress and challenges**

Tiedge, K., Muchlinski, A. & Zerbe, P., 2020, In: Synthetic biology (Oxford, England). 5, 1, 12 p., ysaa005.

### **What do nectarivorous bats like? Nectar composition in Bromeliaceae with special emphasis on bat-pollinated species**

Göttlinger, T., Schwerdtfeger, M., Tiedge, K. & Lohaus, G., 2019, In: Frontiers in Plant Science . 10, 205.

### **Nectar sugar modulation and cell wall invertases in the nectaries of day- and night-flowering *Nicotiana***

Tiedge, K. & Lohaus, G., 2018, In: Frontiers in Plant Science . 9, 12 p., 622.

### **Nectar sugars and amino acids in day- and night-flowering *Nicotiana* species are more strongly shaped by pollinators' preferences than organic acids and inorganic ions**

Tiedge, K. & Lohaus, G., 2017, In: PLoS ONE. 12, 5, e0176865.

## **Activities**

### **Color & chemistry: How flowers signal reward quality to pollinators**

Tiedge, K. (Speaker) & van der Kooi, C. (Contributor)  
26-Jul-2025

### **Unearthing novel diterpenes for abiotic stress tolerance**

Tiedge, K. (Speaker)  
23-Nov-2024

### **Unearthing specialized metabolites for crop protection**

Tiedge, K. (Invited speaker)  
8-Apr-2024

### **What, that comes from a plant?**

Tiedge, K. (Contributor) & Sura-de Jong, M. (Contributor)  
30-Sept-2023

### **Exploring (di)terpenoid diversity for sustainable crop production**

Tiedge, K. (Invited speaker)  
4-Aug-2023

### **Botany 2023**

Tiedge, K. (Organiser)  
27-Jul-2023

### **Discovery and ecological relevance of specialized metabolites for crop protection**

Tiedge, K. (Invited speaker)

27-Jul-2023

### **Identification of novel diterpenoids for sustainable agriculture and increased drought tolerance of switchgrass (*Panicum virgatum*)**

Tiedge, K. (Invited speaker)

27-Jul-2022

### **Discovery and pathway elucidation of terpenoids and other specialized metabolites involved in abiotic stress responses**

Tiedge, K. (Speaker)

14-Jan-2022

### **Botanical Society of America (External organisation)**

Tiedge, K. (Member of board)

2022 → 2024

### **Women in Science and Engineering (WISE) (External organisation)**

Tiedge, K. (Member of board)

2022 → ...

### **Retaining mothers in the academic pipeline**

Tiedge, K. (Organiser)

9-Apr-2021

## **Prizes**

### **Arthur C. Neish Young Investigator Award**

Tiedge, K. (Recipient), 30-Jul-2022

### **ERASMUS Grant**

Tiedge, K. (Recipient), 2012

### **Full Doctoral Fellowship**

Tiedge, K. (Recipient), 2014

### **NWO Veni Research Fellowship**

Tiedge, K. (Recipient), 17-Jul-2024

### **Postdoctoral Research Fellowship**

Tiedge, K. (Recipient), 2019

### **Professors for the Future Fellowship**

Tiedge, K. (Recipient), 2020

## **Press/Media**

### **2024年第五届植物代谢国际会议 第一轮通知**

Tiedge, K.

13/10/2024

1 item of Media coverage

**From algorithmic criminal justice to depressive gut bacteria: 174 researchers receive Veni grant**

Gayout, A. & Tiedge, K.

17/07/2024

2 items of Media coverage

**Goed nieuws deze week: onderzoek moet zelfredzaamheid van planten vergroten**

Tiedge, K.

15/06/2025

1 item of Media coverage

**Onderzoek naar stoffen die planten weerbaarder maken tegen verzilting**

Tiedge, K.

17/07/2024

1 item of Media coverage

**Two Open Competition Science-M grants for FSE researchers**

Tiedge, K.

26/09/2023

1 item of Media coverage

**Waddenfonds steekt ruim € 2 miljoen in vier Groninger projecten**

Venema, J. H., Tiedge, K., Vink, S. & Meijles, E.

26/04/2022

1 item of Media coverage

**Workshop fosters solidarity among student parents, strives to retain women with children in the academic pipeline**

Tiedge, K.

16/04/2021

1 item of Media coverage

**Zebravinken, alfalfa en atomen? Wetenschappers Kira, Sanne en Marcos uit Groningen geven een kijkje in de kenniskeuken**

Tiedge, K. & Moorman, S.

12/03/2025

1 item of Media coverage