

Prof. Dr. Merle Tränkner

Publications in refereed journals and refereed conference proceedings

2019

Hauer-Jákli, M. & **Tränkner, M.** (2019): Critical leaf magnesium thresholds and the impact of magnesium on plant growth and photo-oxidative defense: A systematic review and meta-analysis from 70 years of research. *Frontiers in Plant Science*, doi: 10.3389/fpls.2019.00766.

Hou, W.; **Tränkner, M.**; Lu, J.; Yan, J.; Huang, S.; Ren, T.; Cong, R. & Li, X. (2019): Interactive effects of nitrogen and potassium on photosynthesis and photosynthetic nitrogen allocation of rice leaves. *BMC Plant Biology*, doi: 10.1186/S12870-019-1894-8.

Tränkner, M. & Jamali Jaghdani, S. (2019) Minimum magnesium concentrations for photosynthetic efficiency in wheat and sunflower seedlings. *Journal of Plant Physiology and Biochemistry* 144, 234-243. doi: 10.1016/j.plaphy.2019.09.040.

2018

Tränkner, M.; Tavakol, E. & Jákli, B. (2018): Functioning of potassium and magnesium in photosynthesis, photosynthate translocation and photoprotection. *Physiol. Plantarum*, 163, 414-431.

2017

Jákli, B.; Tavakol, E.; **Tränkner, M.**; Senbayram, M. & Dittert, K. (2017) Quantitative limitations to photosynthesis in K deficient sunflower and their implications on water-use efficiency. *Journal of Plant Physiology* 209, 20-30.

2016

Jákli, B.; **Tränkner, M.**; Senbayram, M. & Dittert, K. (2016): Adequate supply of potassium improves plant water-use efficiency but not leaf water-use efficiency of spring wheat. *J. Plant Nutr. Soil Sci.* 179, 733-745.

Tränkner, M.; Jákli, B.; Tavakol, E.; Geilfus, C.M.; Cakmak, I.; Dittert, K. & Senbayram, M. (2016) Magnesium deficiency decreases biomass water-use efficiency and increases leaf water-use efficiency and oxidative stress in barley plants. *Plant Soil* 406, 409-423.

2015

Senbayram, M.; **Tränkner, M.**; Dittert, K. & Brück, H. (2015) Daytime leaf water use efficiency does not explain the relationship between plant N status and biomass water-use efficiency of tobacco under non-limiting water supply. *J. Plant Nutr. Soil Sci.* 178, 682-692.

2014

Cabeza, R.A.; Lingner, A.; Liese, R.; Sulieman, S.; Senbayram, M.; **Tränkner, M.**; Dittert, K. & Schulze, J. (2014) The activity of nodules of the supernodulating mutant Mt(sunn) is not limited by photosynthesis under optimal growth conditions, 5. *International Journal of Molecular Sciences* 15, 6031-6045.

2013

Senbayram, M.; **Tränkner, M.**; Dittert, K. & Brück, H. (2013) Nitrogen supply enhances intrinsic but not biomass water use efficiency. In XVII. International Plant Nutrition Colloquium and Boron Satellite Meeting Proceedings Book. pp. 477-479. Sabanci University, Istanbul.

Conference talks

Tränkner, M. (2019) Critical Leaf Magnesium Thresholds for Plant Growth: A systematic review and meta-analysis from 70 years of research. Annual Meeting of the German Society of Plant Nutrition (DGP), September 25th – 27th, Berlin, Germany.

Tränkner, M. (2018) *Keynote Speaker*: Magnesium nutrition and photoprotection in plants. The 3rd International Symposium on Magnesium, November 25th - 28th, Guangzhou, China.

Jákli, B.; Tavakol, E.; **Tränkner, M.** & Dittert, K. (2017) Restricted CO₂ diffusion through the leaf mesophyll and not stomatal regulation limits photosynthesis in K deficient sunflower. International Plant Nutrition Colloquium (IPNC), August 21st – 24th, Copenhagen, Denmark.

Jákli, B.; **Tränkner, M.**; Tavakol, E. & Dittert, K. (2017) Restricted CO₂ diffusion through the leaf mesophyll and not stomatal regulation limits photosynthesis in K deficient crop plants. *Frontiers of Potassium*, January 25th – 27th, Rome, Italy.

Tränkner, M.; Tavakol, E.; Jákli, B. & Dittert, K. (2017) Photoprotective responses and PSII functionality under Mg deficiency. XVIII. International Plant Nutrition Colloquium (IPNC), August 21st – 24th, Copenhagen, Denmark.

Jákli, B.; Senbayram, M.; **Tränkner, M.**; Tavakol, E. & Dittert, K. (2015) Der Einfluss von Kalium auf die Wassernutzungseffizienz von Weizen – vom einzelnen Blatt zur gesamten Pflanze. International Conference of the German Society of Plant Nutrition (DGP), September 17th – 18th, Göttingen, Germany.

Jákli, B.; Senbayram, M.; **Tränkner, M.**; Tavakol, E. & Dittert, K. (2015) The role of potassium in optimizing water-use efficiency and drought adaptation - from single leaves to whole plants. 45th Annual Meeting of the Ecological Society of Germany, Austria and Switzerland (GfÖ), August 31st – September 04th, Göttingen, Germany.

Tränkner, M.; Jákli, B.; Tavakol, E.; Dittert, K. & Senbayram, M. (2014) Magnesium deficient barley plants have lower biomass water-use efficiency and increased sensitivity to excess light energy. 2nd Magnesium Symposium, November 4th – 6th, São Paulo, Brazil.

Conference poster

Cabrita, P.; Elm, C.; Erasmi, S. & **Tränkner, M.** (2019): Study of Crop Response to Magnesium Fertilization through Remote Sensing Methods. Annual Meeting of the German Society of Plant Nutrition (DGP), September 25th – 27th, Berlin, Germany.

Jamali Jaghdani, S. & **Tränkner, M.** (2019): Influence of Magnesium on photosynthesis and photoprotection in *Hordeum vulgare* L. Annual Meeting of the German Society of Plant Nutrition (DGP), September 25th – 27th, Berlin, Germany.

Turcios, A. & **Tränkner, M.** (2019): Importance of potassium for quinoa (*Chenopodium quinoa* Willd.) cultivated under moderate saline conditions. Annual Meeting of the German Society of Plant Nutrition (DGP), September 25th – 27th, Berlin, Germany.

Hauer-Jákli, M. & **Tränkner, M.** (2018): A Meta-analysis Study on the Effects of Mg on Photosynthesis and Plant Growth. The 3rd International Symposium on Magnesium, November 25th -28th, Guangzhou, China.

Jamali Jaghdani, S. & **Tränkner, M.** (2018): Minimum magnesium supply and its effect on photosynthetic activities in *Triticum aestivum* and *Helianthus annuus*. International Conference of the German Society of Plant Nutrition (DGP), September 13th – 14th, Osnabrück, Germany.

Albers, J. & **Tränkner, M.** (2017) Is *Beta vulgaris* able to fully recover from Mg deficiency in young growth stages after resupply? XVIII. International Plant Nutrition Colloquium (IPNC), August 21st – 24th, Copenhagen, Denmark.

Tränkner, M.; Senbayram, M.; Jákli, B.; Halicki, S.; Dittert, K. & Zörb, C. (2017) Comparative Study on Proteome Changes in Response to Potassium Deficiency and Drought in *Triticum aestivum* Roots. Frontiers of Potassium Science Conference, January 25th – 27th, Rome, Italy.

Tränkner, M.; Tavakol, E.; Dittert, K. & Senbayram, M. (2015) Photoprotective reactions of Mg deficient barley plants. International Conference of the German Society of Plant Nutrition (DGP), September 17th – 18th, Göttingen, Germany.

Jákli, B.; **Tränkner, M.** & Senbayram, M. (2014) Effects of potassium deficiency on water use efficiency of *Triticum aestivum*. International Conference of the German Society of Plant Nutrition (DGP), September 10th – 12th, Halle (Saale), Germany.

Tavakol, E.; **Tränkner, M.**; Jákli, B.; Dittert, K. & Senbayram, M. (2014) Adequate K supply enhances tolerance to drought situations via optimized NPQ and antioxidant activity in spring wheat. International Conference of the German Society of Plant Nutrition (DGP), September 10th – 12th, Halle (Saale), Germany.

Tränkner, M.; Tavakol, E.; Dittert, K. & Senbayram, M. (2014) Adequate magnesium supply increases biomass water-use efficiency and mitigates effects of excess light energy in barley. International Conference of the German Society of Plant Nutrition (DGP), September 10th – 12th, Halle (Saale), Germany.

Senbayram, M.; **Tränkner, M.**; Dittert, K. & Brueck, H. (2013) Nitrogen supply enhances intrinsic but not biomass water use efficiency. XVII. International Plant Nutrition Colloquium (IPNC), August 19th – 22nd, Istanbul, Turkey.

Further publications

Tränkner, M. (2017) Magnesium, potassium and nitrogen deficiency-induced responses of crops and their impact on water-use efficiency. 1st ed. Cuvillier Verlag, Göttingen. ISBN 978-3-7369-9536-9. eISBN 978-3-7369-8536-0.