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Short presentation

I am curious about all aspects of plants, plant biochemistry, and plant defense. Currently, I am working on triterpenoid plant defense compounds called saponins. The focus here is on the structure elucidation and purification of saponins from plant sources to evaluate their biological activity.

EcoSap: triterpenoid saponins as green solutions for future sustainable food production. EcoSap will evaluate the efficacy and environmental safety of saponins as a novel green solution for sustainable food production. Saponins are a natural defense compound in plants that exhibit detergent-like properties that can disrupt the cell membranes of herbivore pests, causing cell death.

Short presentation

Research outputs

Site-directed genotype screening for elimination of antinutritional saponins in quinoa seeds identifies TSARL1 as a master controller of saponin biosynthesis selectively in seeds

Trinh, Mai Duy Luu, Visintainer, Davide, Günther, Jan, Østerberg, J. T., Rodrigues da Fonseca, Rute Andreia, Fondevilla, S., Moog, Max William, Luo, Guangbin, Nørrevang, Anton Frisgaard, Crocoll, C., Nielsen, P. V., Jacobsen, S., Wendt, T., Bak, Søren, Lopez Marques, Rosa Laura & Palmgren, Michael, 2024, (E-pub ahead of print) In: Plant Biotechnology Journal. 19 p.

Heterologous expression of PtAAS1 reveals the metabolic potential of the common plant metabolite phenylacetaldehyde for auxin synthesis in planta

Günther, Jan, Halitschke, R., Gershenzon, J. & Burow, Meike, 2023, In: Physiologia Plantarum. 175, 6, 10 p., e14078.

Novel transformation strategies improve efficiency up to 10-fold in stramenopile algae

Poveda Huertes, Daniel, Patwari, P., Günther, Jan, Fabris, M. & Andersen-Ranberg, Johan, 2023, In: Algal Research. 74, 11 p., 103165.

Heterologous expression of PtAAS1 reveals the metabolic potential of the common plant metabolite phenylacetaldehyde for auxin synthesis in planta

Günther, Jan, Halitschke, R., Gershenzon, J. & Burow, Meike, 2022, bioRxiv.

Reciprocal mutations of two multifunctional β -amyryn synthases from *Barbarea vulgaris* shift α/β -amyryn ratios

Günther, Jan, Erthmann, P. O., Khakimov, Bekzod & Bak, Søren, 2022, In: Plant Physiology. 188, 3, p. 1483-1495

Imine chemistry in plant metabolism

Torrens-Spence, M. P., Glinkerman, C. M., Günther, Jan & Weng, J., 2021, In: Current Opinion in Plant Biology. 60, 101999.

Phylogeny and abiotic conditions shape the diel floral emission patterns of desert Brassicaceae species

Cna'ani, A., Dener, E., Ben-zeev, E., Günther, Jan, Köllner, T. G., Tzin, V. & Seifan, M., 2021, In: Plant, Cell and Environment. 44, 8, p. 2656-2671

Phenylacetaldehyde synthase 2 does not contribute to the constitutive formation of 2-phenylethyl-β-D-glucopyranoside in poplar

Günther, Jan, Schmidt, A., Gershenzon, J. & Köllner, T. G., 2019, In: Plant Signaling & Behavior. 14, 11

Separate Pathways Contribute to the Herbivore-Induced Formation of 2-Phenylethanol in Poplar

Günther, Jan, 2019, In: Plant Physiology. 180, 2, p. 767-782

The nitrilase PtNIT1 catabolizes herbivore-induced nitriles in Populus trichocarpa

Günther, Jan, Irmisch, S., Lackus, N. D., Reichelt, M., Gershenzon, J. & Köllner, T. G., 2018, In: BMC Plant Biology. 18

One amino acid makes the difference: The formation of ent-kaurene and 16α-hydroxy-ent-kaurane by diterpene synthases in poplar

Irmisch, S., Müller, A. T., Schmidt, L., Günther, Jan, Gershenzon, J. & Köllner, T. G., 2015, In: BMC Plant Biology. 15, 262.

Herbivore-induced poplar cytochrome P450 enzymes of the CYP71 family convert aldoximes to nitriles which repel a generalist caterpillar

Irmisch, S., Clavijo McCormick, A., Günther, Jan, Schmidt, A., Boeckler, G. A., Gershenzon, J., Unsicker, S. B. & Köllner, T. G., 2014, In: Plant Journal. 80, 6, p. 1095-1107