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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-amyrin synthases from *Barbarea vulgaris* shift α/β-amyrin 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 16aα-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