UVic Forest Biology Update

Spring 2021

Transfer of Leadership

Transfer of FORB Leadership from Dr. Peter Constabel to Dr. Jürgen Ehlting

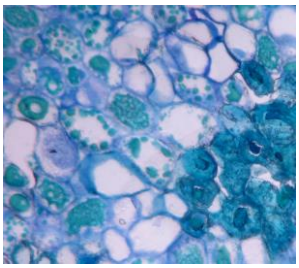
Recent Defenses

Lise van der Merwe (MSc)

Cold hardiness and carotenoid variation in western redcedar (*Thuja plicata*): Implications for assisted migration for future climates

December 14, 2020

Online teaching during COVID: Dr. Patrick von Aderkas is recording another podcast for Plants & People



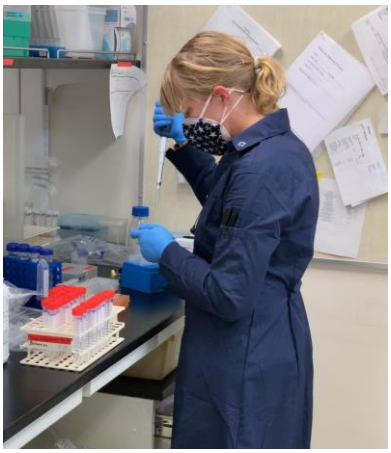
Plastic section of Sitka spruce stem stained with Toluidine Blue featuring many thick-walled stone cells (T. Holt, E. Creasy, P. von Aderkas)

Harley Gordon wins the CSPB President's Award

At the November 7th, 2020 CSPB Virtual Meeting, Grad Student Harley Gordon won the CSPB President's Award for best student talk. It was titled "CRISPR/Cas9 knockout of salicinoid biosynthetic gene UGT71L1 in poplar reveals dramatic effects on metabolism and growth." Congratulations Harley!

http://www.cspb-scbv.ca/documents/CSPB-SCBV_2020_VirtualAwardWinners.pdf

Health Research at the Centre for Forest Biology



Forest biology and health research go hand in hand in The Centre for Forest Biology. Dr. Peter Constabel together with Dr. Alisdair Boraston and Dr. Michelle Zaharik obtained a Research Accelerator Fund from UVic to further develop plant-based production of SARS-CoV-2 spike proteins for serological testing of COVID-19. Dr. Jürgen Ehlting together with Dr. Stephanie Willerth and Dr. Patrick Walter obtained a UVic Collaborative Health Grant to screen plant roots for iron chelators as therapeutics in 3D model of Parkinson's disease. Congratulations to both groups.

FORB 5-Year Review

The Centre's Five-Year Review was completed late in 2020 and we thank our reviewers for providing a positive review and for strongly and unreservedly recommending renewed support of the Centre by the University of Victoria. The panel's feedback is very helpful for developing strategies for the upcoming years to further enhance our excellent facilities and research opportunities.

Recent Publications

Lea C, Bradbury S, and Constabel CP. 2021. **Anti-Herbivore Activity of Oregonin, a Diarylheptanoid Found in Leaves and Bark of Red Alder (Alnus rubra).** *Journal of Chemical Ecology*. https://link.springer.com/article/10.1007/s10886-021-01244-3

Loisel, J., with 69 co-authors including Lacourse, T. 2021. **Expert assessment of future vulnerability of the global peatland carbon sink.** *Nature Climate Change 11: 70-77*. https://doi.org/10.1038/s41558-020-00944-0

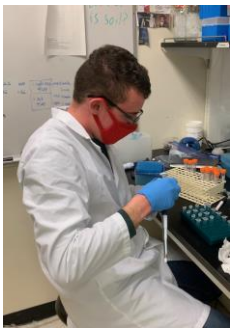
Chevalier, M., Davis, B., Heiri, O., Seppä, H., Chase, B., Gajewski, K., Lacourse, T., et al. 2020. **Pollen-based climate reconstruction techniques for late Quaternary studies.** *Earth-Science Reviews 210: 103384*. https://doi.org/10.1016/j.earscirev.2020.103384

Gupta R., Sharma N.R., Valeo C., Garg M., Sharma A., Aneja S., Prasher S.O., and Constabel C.P. (2020). **Novel integration of geopolymer pavers, silva cells and poplar trees for in-situ treatment of car-wash wastewater.** *Sustainability 12: 8472*. https://doi.org/10.3390/su12208472

Dawei Ma, Hao Tang, Michael Reichelt, Eerik-Mikael Piirtola, Juha-Pekka Salminen, Jonathan Gershenzon, and C. Peter Constabel (2021) **Poplar MYB117 promotes anthocyanin synthesis and enhances flavonoid B-ring hydroxylation by upregulating the flavonoid 3',5'-hydroxylase gene**. *Journal of Experimental Botany, in press.*

David Montwé, Bryan Elder, Peter Socha, Jessica Wyatt, David Noshad, Nicolas Feau, Richard Hamelin, Michael Stoehr, Jürgen Ehlting, (2021) **Swiss needle cast tolerance in British Columbia's coastal Douglas-fir breeding population,** *Forestry: An International Journal of Forest Research, Volume 94,* https://doi.org/10.1093/forestry/cpaa024

Canadian Botanical Award Winners



Parker Volk and Taylor Holt, FORB Honours students, won Canadian Botanical Award prizes for their presentation and poster at this year's Honours Fest.

Update from the Ehlting Lab

Research in the Ehlting lab points to the possibility that lignin biosynthesis evolved through convergent evolution multiple times in land plants. Lignin is a crucial wood component in seed plants giving it mechanical strength. While ferns also make plenty of lignin, they appear to make it using a distinct biochemical pathway. To test this hypothesis, the Bev Glover greenhouse filled up with ferns (Pteris vittata).

New FORB Student:

Frida Vick

I am a visiting student from the University of Copenhagen, doing my undergraduate thesis with Dr. Barbara Hawkins. For the thesis we study the cold hardiness of 16 species within the Cupressaceae family. All the samples are collected at the Cowichan Lake Research Station.

Compiled by Andrea Roszmann, Administrative Assistant, Centre for Forest Biology