UVic Forest Biology Update

Fall 2021

Update from the Constabel Lab

We are using the new growth chamber to stimulate light stress in CRISPR knockout poplars which we hope will show reduced levels of condensed tannins. Light stress amplifies the production of products of the phenylpropanoid pathway, which produces the precursors of condensed tannins. By stimulating this pathway, we hope to amplify the levels of condensed tannins, so we can see a more pronounced contrast between wild type controls and CRISPR knockouts. The red pigmentation visible on the close-up is due to anthocyanins, another product of the phenylpropanoid pathway, giving us a preliminary confirmation that the pathway is being stimulated.

Photos by Simon Petley

International Collaboration on Sexual Fluids of Cycads

The von Aderkas lab along with their longstanding collaborators Tokushiro Takaso in Japan, Massimo Nepi in Siena, & Stefan Little, conducted a study of the composition of sexual fluids involved in pollination & fertilization in sago palm, Cycas revoluta. Sex in cycads involves one set of liquids adapted to pollen capture & another set that allows their huge sperm to swim towards the egg. It's a weird & ancient reproductive system shared only with other ancient gymnosperms, e.g. ginkgo trees. Coordinating pollen ovule interactions comes down to the timing of release of these liquids, as well as their composition. The proteomes, carbohydrate & amino acids were analyzed, & physico-chemical properties such as pH & osmolarity were measured. We have discovered that ovules produce these liquids in unique & novel ways, which reveals new aspects of seed plant evolution. Included among the co-authors was a UVic undergraduate, Madeline Antony. The paper appeared October 2021 in The Botanical Review.
https://doi.org/10.1007/s12229-021-09271-1

Some of the cycads sampled in this study shown here on Iriomote Island in the East China Sea

CBA Lawson Medal Congratulations!

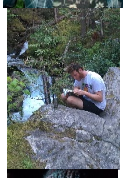
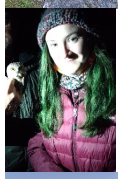
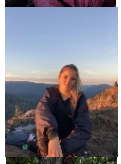
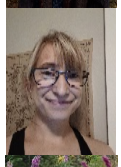
Congratulations to FORB faculty member, Dr. P. von Aderkas on receiving the 2021 Canadian Botanical Association Lawson Medal in recognition of lifetime contributions to Canadian Botany! More details available at: https://www.cba-abc.ca/.../2021/09/CBA2021AwardWinners.pdf

Recent Publications

Sformo, T.L., P.Y. de la Bastide, J. LeBlanc, G.H. Givens, B. Adams, S.C. Kunaknana, J.C. Seigle, L.L. Moulton, and W.E. Hintz. 2021. Temperature response and salt tolerance of the opportunistic pathogen Saprolegnia parasitica: implications for the broad whitefish subsistence fishery. Arctic, Antarctic, and Alpine Research (Accepted) https://doi.org/10.1080/15230430.2021.1970340

R. Lepage, S. V. Glass, P. Y. de la Bastide, and P. Mukhopadhyaya, 2021. A Non destructive Longitudinal Laboratory Test Method for Detection of Incipient Ultrastructural Changes in Wood. Journal of Testing and Evaluation 49(6): 3914–3925.

New FORB Members

Katie Wiese	Dr. Terri Lacourse	PhD Student	
Simon Petley	Dr. C. Peter Constabel	Honours Student	
Eve Kenny	Dr. C. Peter Constabel	Research Assistant	
Megan Loland	Dr. C. Peter Constabel	Honours Student	
Claire McPolin	Dr. Barbara Hawkins	MSc Student	
Bethany Robson	Dr. Jürgen Ehlting	Research Assistant	
Julianne Anderson	Dr. Jürgen Ehlting	Honours Student	
Hannah Bentsen	Dr. Will Hintz/Dr. Paul de la Bastide	Research Assistant	
Celeste Ramsey	Dr. Will Hintz/Dr. Paul de la Bastide	Research Assistant	
Devin Hentschel	Dr. D. Punzalan/Dr. Patrick von Aderkas	Honours	
Rebecca Runions	Dr. Will Hintz/Dr. Paul de la Bastide	Research Assistant	
Rachel Witt	Dr. Will Hintz/Dr. Paul de la Bastide	Research Assistant	
Spencer Quayle	Dr. Will Hintz/Dr. Paul de la Bastide	Directed Study Student	

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

COP26 Endorsements

Sitka spruce weevil resistance trial at the Centre for Forest Biology's Cedar Hill Compound. (Photo credit, Patrick von Aderkas)

Ending deforestation has been endorsed at COP (https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/) and Canada wants to plant 2 billion additional trees (https://www.canada.ca/en/campaign/2-billion-trees.html). Research on seed biology, tree adaptation and resilience to stress, pests, and pathogens is crucial to plant the right trees in the right spots.

FORB's new Environmental Simulation Chamber

The new Environmental Simulation Chamber in FORB is cool (down to 4°C) and bright (up to 1200 µmoles/m2/s)!

Unloading the Chamber from the truck

Hauling the Chamber from the truck to the Greenhouse

The Chamber is in place in the Greenhouse

Dr. Ehlting with the newly installed Chamber