CANADIAN ASSOCIATION FOR PLANT BIOTECHNOLOGY NEWSLETTER

MAY 2022

President's Message

Dear CAPB members,

A full year living with COVID-19 started with widespread restrictions, lab closures and working from home. Then vaccinations became a reality, by summer most were vaccinated, labs re-opened, and we ramped up our research activities. Then omicron hit us, and we went back to living with restrictions. Some of us are still (or back) working from home, dealing with the difficulties of virtual meetings, communications and supervision. But we made it work! We took advantage of virtual platforms to host six seminars from across the country with two more to come. The CAPB executive committee held regular meetings (one every about six months) via Zoom conferencing to discuss CAPB issues, and we are planning our next conference, entitled "Adaptation to Climate Change" as an in-person meeting in August 2022 in Quebec City. Please see the below and check our website at https://www.canadianplantbiotech.ca/ for the program, registration, abstract submission and keynote speaker information and updates.

In January 2021, CAPB, CSPB and Plant Canada contributed to a joint statement from eleven of Canada's Scientific Societies and Organizations expressing confidence in the COVID-19 vaccination program. We highlighted "Canada's main contributions to the development of a COVID-19 vaccine through the Canadian biotech company Medicago, who are working to develop a vaccine using *Nicotiana benthamiana* for synthesis and packaging of the SARS CoV-2 spike protein." We further emphasized "the critical importance for supporting fundamental research in plant biology that goes well beyond agriculture, nutrition, food, and the environment, but also has tremendous potential in the field of medicine." (Ref: Canadian Science Societies)

The Global Plant Council, of which Plant Canada, and hence CAPB, are members, prepared a statement submitted to COP26, the UN Climate Change Conference that was held in Glasgow UK in November 2021. A list of suggestions is provided with the statement. They include articles highlighting ways that plant scientists can contribute to tackling climate change:

- Horton P, Long SP, Smith P, Banwart SA, Beerling DJ. Technologies to deliver food and climate security through agriculture. ***Nature plants***. 2021 Mar;7(3):250-5. https://doi.org/10.1038/s41477-021-00877-2

- South PF, Cavanagh AP, Liu HW, Ort DR. Synthetic glycolate metabolism pathways stimulate crop growth and productivity in the field. ***Science***. 2019 Jan 4;363(6422). https://doi.org/10.1126/science.aat9077

- Kromdijk J, Głowacka K, Leonelli L, Gabilly ST, Iwai M, Niyogi KK, Long SP. Improving photosynthesis and crop productivity by accelerating recovery from photoprotection. ***Science***. 2016 Nov 18;354(6314):857-61. https://doi.org/10.1126/science.aai8878

- Willett W, Rockström J, Loken B, Springmann M, Lang T, Vermeulen S, Garnett T, Tilman D, DeClerck F, Wood A, Jonell M. Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. ***The Lancet***. 2019 Feb 2;393(10170):447-92. https://doi.org/10.1016/S0140-6736(18)31788-4

- Henkhaus N, Bartlett M, Gang D, et al. Plant Science Decadal Vision 2020–2030: Reimagining the potential of plants for a healthy and sustainable future. ***Plant Direct***. 2020; 00:1–24. https://doi.org/10.1002/pld3.252

Last but not least, we have witnessed an amazing global effort from the biotech industry to come up with vaccines in a record time, and they delivered. Canadians who want to be vaccinated have now received three doses of COVID-19 vaccines. What's more, the leading Canadian COVID-19 vaccine candidate is made in plants! The company Medicago has received approval from Health Canada for its COVID-19 vaccine and is poised to be the first plant biotechnology company to commercialize a plant-made vaccine, all this in record time. Unfortunately, the Medicago vaccine was not approved by the WHO for emergency use due to Medicago's links to the Philip Morris International tobacco company which owns 21% of Medicago shares.

While the world is still struggling with COVID-19 variants, I do hope that 2022 will see the end of this pandemic and a return to our normal lives. I wish you all a successful 2022, and I hope to meet in person at our next conference in Quebec City.

Best wishes,
Dr. Rima Menassa
CAPB President

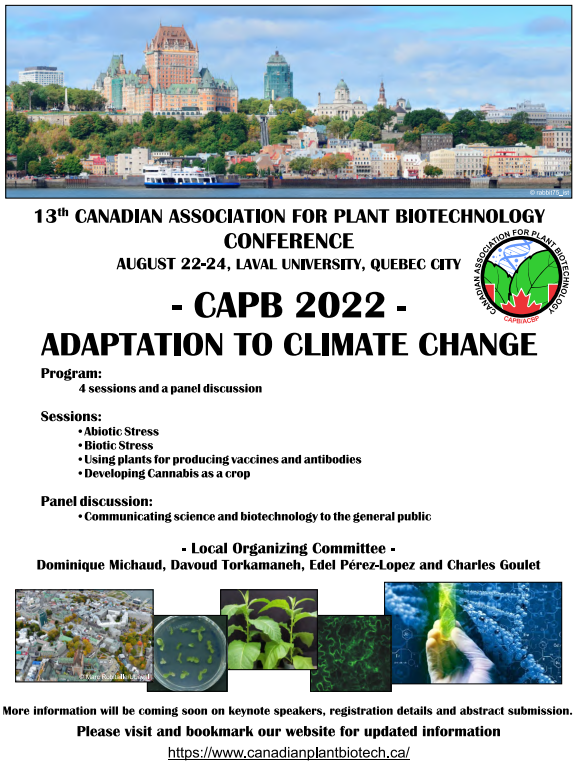
Canadian Association for Plant Biotechnology

The Canadian Association for Plant Biotechnology (CAPB) is a registered non-profit organization in Canada. It is part of the International Association for Plant Biotechnology (IAPB), which was formed in 1970-1971 with the name of the International Association for Plant Tissue Culture (IAPTC) when the plant in vitro regeneration was a major research area in plant sciences. CAPB goals are to:

a) Promote interaction among plant biotechnology researchers in Canada.
b) Liaison with the International Association of Plant Biotechnology.
c) Advocate for plant biotechnology research
d) Bridge the gap between academia/basic research and industry
e) Serve as a contact point for plant biotechnology-related information in Canada.

CAPB Conference Summer 2022

CAPB is hosting its 13th biennual meeting in August 2022 in Quebec City. The main theme for the conference is Adaptation to Climate Change.



For further updates, please visit https://www.canadianplantbiotech.ca/meetings-and-conferences.

CAPB Undergraduate Research Award

We have introduced CAPB Research Paper Competition and encourage all eligible students to apply for the award.

(Category Undergraduate)

Awards: **$750** for first place, **$500** for second place

Process

This award is presented to two outstanding research papers at the CAPB conference. All eligible papers will be evaluated by three experts following the criteria mentioned below. Winners of the award will be announced via email at least 4 months prior to the conference. Winners will be invited to attend the conference and present the data in an oral/poster format.

Eligibility

- Must be current undergraduate students or recent graduates who graduated on or After March 31, 2021
- Must be CAPB member
- Participants must be from Canada

Submission Requirements

Submission Deadline: All submission forms and manuscripts must be received by **12:00 a.m. (midnight) PST on June 15, 2022**.
Further details: https://www.canadianplantbiotech.ca/capb-research-paper-competition/

CAPB Seminars via Zoom

CAPB is hosting a regular virtual seminar series by CAPB members and invited speakers in the area of plant biotechnology.

a) When Less is More: Natural loss-of-function mutation as an engine of plant domestication. Dr. Davoud Torkamaneh, Department of Plant Agriculture, University of Guelph, (now at Laval University) March 17, 2021.

b) Understanding the Clubroot Pathogen to Achieve Stable Resistance. Dr. Edel PÉREZ-LOPEZ. Centre de recherche en innovation des végétaux (*CRIV*). Phytologie, Université Laval, April 21, 2021

c) Utilizing live-cell imaging techniques to elucidate the cellular mechanisms controlling cellulose deposition in plant secondary cell walls. Dr. Yoichiro Watanabe, Summerland R&D Centre Agriculture and Agri-Food Canada, Thursday, May 19, 2021.

d) Dr. Mehran Dastmalchi, McGill University. Lost in translation – auxiliary features in plant biosynthetic pathways. Wednesday, February 23, 2022 at 3 PM EST

e) Dr. Allyson MacLean, University of Ottawa. It isn't easy, going green: Unlocking the potential of plant-based vaccines. Thursday, March 24, 2022 at 3 PM EST

f) Dr. Jacqueline Monaghan, Queen's University. Exploring the prospect of deploying phospho-alleles to engineer stress resilience in plants. Wednesday, April 20, 2022 at 3 PM EST

g) Dr. Stacy Singer, AAFC—Lethbridge. CRISPR/Cas9-mediated gene editing of alfalfa for enhanced resilience to climate change. Wednesday, May 18, 2022 at 3 PM EST

h) Jennifer Hubert, CropLife Canada. New Canadian policy for novel breeding technologies. Wednesday, June 22, at 3 PM EST 2022

Note: Please CONFIRM your interest at criv-depot@ulaval.ca. A Zoom weblink will be provided shortly before the talk

CAPB Member: Researcher Highlight

Lead: Dr. Jaswinder Singh, McGill University, Canada

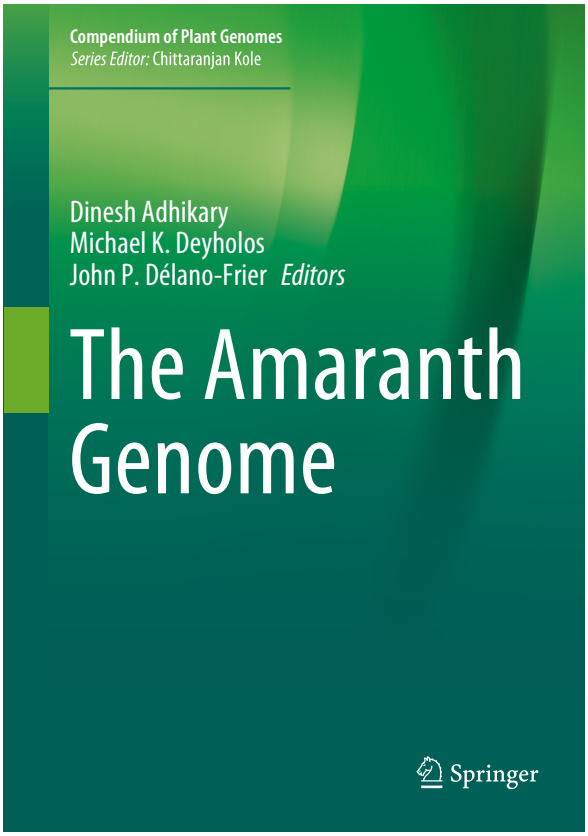
Dr. Jaswinder Singh is an Associate Professor in the Department of Plant Science, McGill University, Canada. Based on conventional plant breeding, genomics, biotechnology and proteomics, Dr. Singh's team is developing research programs aimed at creating a future generation of crop plants by coupling plant breeding, genomics, gene-editing, epigenetics and molecular biology tools. His team has made a significant contribution to barley research, discovered several novel barley genes associated with Pre-Harvest Sprouting (PHS) and β-glucan activity. His research team was the first to demonstrate the reversal of epigenetic silencing. Some of his active projects include CRISPR/Cas mediated genome editing in small grain cereals, investigation of RdDM pathway, SQUAMOSA-promoter binding like (SPL) transcription factors, and thaumatin-like sweet proteins (TLPs) in cereals, along with the exploration of transposon-mediated gene regulation in barley and other cereals and improving oil content in field pea using state-of-the-art molecular breeding and genetic transformation tools.

Dr. Singh has a strong record of research contributions and scientific communications, published over 65 research articles in peer-reviewed journals, books, and conference proceedings. He has delivered about 60 invited talks and keynote lectures internationally. He is a much-admired researcher in his field and received several honours, such as the prestigious C. D. Nelson award in

2018 for his outstanding contribution to plant biology research. In 2020, he was recognized as one of the top 50 McGill Professors for envisioning the future over the coming. He was also recognized as a fellow Award from the Canadian Society of Agronomy (CSA) in July 2021.
Apart from his research activities, he is also an excellent teacher and mentor, actively involved in working with students, and training graduate students and postdocs.

Dr. Jaswinder Singh
Associate Professor,
Faculty of Agricultural
and Environmental Sciences
McGill University

Book Overview: The Amaranth Genome



Edited by Drs. Dinesh Adhikary, Michael K. Deyholos, and John P. Delano-Frier

ISBN 978-3-030-72364-4

Published: June 2021

The book presents a basic overview of contemporary knowledge on amaranth genetics research. This book is composed of 10 excellent topics that summarize recent developments in the field. All the chapters were prepared by amaranth researchers and they provide complete information on various areas explaining amaranth diversity, evolution, abiotic, and biotic stress response, and aspects of grain and weedy amaranth that could potentially address global food security.

Current CAPB Executive Committee

Dr. Rima Menassa, President
Dr. Abdelali Hannoufa, Vice-President
Dr. Sangeeta Dhaubhadel, Secretary and Academic and Industry Liaison
Dr. Pankaj Bhowmik, Treasurer
Dr. Dominique Michaud, Communication Director
Dr. Dinesh Adhikary, PostDoc and Student Affairs
Dr. Susanne Kohalmi, Membership Director
Dr. Gary Tian, Webmaster
Dr. Yafan Huang, Immediate past president

For further details (https://www.canadianplantbiotech.ca/iapb-canada-executive-committe/)

CAPB Memberships

Please visit the CAPB website (www.canadianplantbiotech.ca) for information on how to become a member

CAPB members enjoy many benefits, including

- Reduced registration fees at CAPB and Plant Canada Conference
- Eligibility for student awards for oral and poster presentation
- Eligibility for student travel awards to CAPB and Plant Canada conferences
- Easy networking with the plant biotechnology involving academia, government and private industry

Access to job and career opportunities on the CAPB website, Twitter account(@CAPBCanada)

New Job Openings

Performance Plants, Inc
1287 Gardiners Rd, Kingston, ON K7P 3J6

Permanent Research Position
Available in Immediately,
For detail information, please visit the company website
https://www.performanceplants.com/careers

Edited by: Dinesh Adhikary, University of Alberta, Edmonton AB (dadhika1@ualberta.ca)