PhD Opportunity (2024-2027)

***Project title*: Post-harvest management of Haskaps: rapid harvesting indexes, preservation methods, and sensory characterization.**

***Location*: Post-harvest physiology laboratory. Food Science Department. Faculty of agriculture and food sciences. Laval University. Quebec, QC, Canada.**

***Research focus*: Postharvest physiology, machine learning, sensory analysis, finite element analysis (modeling).**

***Coordinator*: Arturo Duarte Sierra** *arturo.duarte-sierra@fsaa.ulaval.ca*

Project description : Haskap cultivation (*Lonicera caerulea*) has gained momentum in Canada since the early 2000's. However, the determination of fast and accurate ripening indexes continues to negatively impact Haskap berry production and consumption.

Methodology : A combined maturity index will be developed for three haskap cultivars: Aurora, Boreal Beauty, and Boreal Blizzard, based on images, quality, and meteorology measurements. By determining the concentrations of endogenous and exogenous ethylene during development and storage of these cultivars, the climacteric behavior of the fruit will be determined. The balance between ethylene, auxins, and abscisic acid (ABA) will be quantified during development of dehiscent-sensitive and -insensitive fruits. The last step is to find the best MAP storage conditions for the fruit. It is also expected to characterize the flavor of the berries.

Analyses : Photographic, hyperspectral, and tomographic imagery will be used to assess maturity indexes. Volatile and ethylene composition will be performed by gas chromatography. The quantification of phytohormones will be assessed by liquid chromatography coupled to mass spectrometry (LC-MS).

Additional Notes/Comments : The candidate must have a background in postharvest technology, biology, or physiology. A background in machine learning and finite element analysis would be a great asset.

Desired qualifications : Autonomy, critical thinking, willingness to work, ability to communicate in French, English, or Spanish.

Budget : $22,000 CAD/three years, plus approximately $10,000 CAD from the faculty spread over the three years of the program.

Project start : September 2024

Required documents : **CV and Academic transcripts.**

LAB POST-RÉCOLTE