

Carbohydrate Quality And Utilization SAF Endowed Chair

March 6, 2014

Introduction

Saskatchewan has a major cereal, pulse, oilseed, and special crops industry, producing high quality grains mainly for export as primary commodities. In recent years, the focus has shifted to add more value prior to shipping. Significant potential exists for developing and supporting a value-added processing industry utilizing plant carbohydrates and their derivatives for food (including functional foods and nutraceuticals), feed and industrial bioproducts. Research and development in carbohydrate quality and utilization will make a significant contribution to this effort.

The Chair in Carbohydrate Quality and Utilization will be appointed in the Department of Food and Bioproduct Sciences in the College of Agriculture and Bioresources.

Goal

To enhance value-added processing of crops grown in Saskatchewan by developing innovative knowledge and technologies in carbohydrate quality assessment, fractionation, and utilization that lead to new and expanded market opportunities for food, feed, industrial and bio-based products.

Research and Program Activities

- Conduct research on the isolation, purification, characterization and material properties of plant carbohydrates, including starch, fiber and other complex carbohydrates.
- Conduct research on the chemical/enzymatic modifications of plant carbohydrates as functional food ingredients for humans or animals.
- Conduct research on the structure, dynamics and functional relationship of starches and/or other complex carbohydrates.
- Conduct research on the utilization of plant carbohydrates in food, feed, industrial and bioproduct applications.
- Conduct research in response to needs as identified by the Saskatchewan Ministry of Agriculture, other researchers and the Saskatchewan food processing industry.
- Collaborate with other researchers and disciplines to explore opportunities in carbohydrate utilization and bioproduct synthesis.
- Teach graduate and undergraduate courses.
- Supervise graduate students.
- Interact with the industry to further advance carbohydrate utilization.

Program Outputs

- Novel carbohydrates such as resistant starch with application in the food, feed, industrial and bioproduct industries.
- New methods for plant carbohydrate extraction, fractionation and/or modification.
- Scientific knowledge and understanding of factors affecting plant carbohydrate quality, functionality and utilization.

- Scientific and peer-reviewed manuscripts on carbohydrate quality and utilization.
- Undergraduate and graduate level carbohydrate quality and utilization courses.

Desired outcomes

- Proprietary technology and knowledge in novel applications for plant carbohydrates derived from Saskatchewan crops.
- More diverse and targeted utilization of plant based carbohydrates derived from Saskatchewan commodities in the food, feed, industrial and bioproduct industries.
- Increased value of the Saskatchewan food, feed, industrial and bioproduct industries.
- Increased attraction of value-added processing business to the province utilizing Chair technology and expertise.
- Highly qualified people (HQP) in carbohydrate quality and utilization.