

## **Food Science 2021: Underutilized Canadian novel crops as potential functional food for humans and animals - Champa Wijekoon - Agriculture and Agri-Food Canada / Government of Canada**

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### Abstract

In Sainfoin (*Onobrychis viciifolia* Scop.) and fenugreek (*Trigonella foenum-graecum* L.) are two nitrogen fixing legumes that are being developed as forage crops in Canada with potential benefits to animal and human health. Sainfoin, a perennial crop containing condensed tannins, is gaining popularity in western Canada because of its benefits to cattle. Condensed tannins reported in sainfoin are involved in reduction of blood pressure, detoxification, and providing anti-cancer properties in humans. Fenugreek is an annual forage legume that was developed to serve in short-term crop rotations in western Canada. Fenugreek is known to provide health benefits to cattle with their high protein fiber, 4-hydroxyisoleucine, steroid saponins and galactomannan contents. Both sainfoin and fenugreek are considered as bloat-free legumes for cattle. Recent research often suggests legumes as a healthy substitute for meat. This presentation will describe the nutritional quality attributes of sainfoin and fenugreek and their potential as functional foods and nutraceuticals to animal and human health based on the studies conducted by our group and the available scientific evidence. In addition, berries grown in Canada such as Saskatoon berries (*Amelanchier alnifolia* L), chokecherries (*Prunus virginiana* L), wild grapes (*Vitis riparia* L), gooseberries (*Ribes oxycanthoides* L) and black currants (*Ribes nigrum* L) are rich source of bioactive molecules including phenolic acids, flavonoids, anthocyanins, stilbenes, and lipids. Berry consumption is linked to reduced incidence of cardiovascular disease and its major risk factors including hypertension; a clinical condition associated with high mortality worldwide. Our lab also focusses on the analysis of bioactive phytochemicals of underutilized Canadian berries and the potential of them as a functional food in reducing hypertension. These studies will help facilitate further research by identifying the gaps in science-based information knowledge that potentially can harness the benefits of various metabolites within these crops. Improving functional food and nutraceutical properties of the Canadian cultivars of these crops would help enhance their commercial production, and provide additional nutraceutical options for humans and animals.

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