

3<sup>rd</sup> International Conference on

# FOOD CHEMISTRY & NUTRITION

May 16-18, 2018 | Montreal, Canada

## Potential impact of pollutants in potatoes, grown with wastewater, on human health

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Wastewater is increasingly becoming an alternate source of irrigation in parts of the world with declining freshwater sources. However, wastewater irrigation can also lead to accumulation of various inorganic (heavy metals) and organic (hormones and pharmaceuticals) pollutants in soil. Plants might uptake these pollutants and make their way into human body through food consumption, causing adverse health effects. This study is a part of a wastewater use project. The aim of this paper was to study the impact of heavy metal pollutants, taken up by potato tubers, on potato polyphenols and *in-vitro* digestion of potato meals in a simulated batch culture fermentation reactor. The antioxidant capacity of boiled, freeze-dried potato tubers was measured using ABTS, DPPH and Folin-Ciocalteu antioxidant assays. The average daily intake meals of potatoes were exposed to *in-vitro* enzyme digestion, followed by batch culture fermentation with inoculated fecal microbes. The samples were taken from the reactors after 0, 6, 12 and 24 hours of fermentation of the samples by the microbes. The samples were then analyzed for increase in short chain fatty acids (SCFA), antioxidant capacity and *Lactobacillus* spp. cfu under the combined toxic and protective effects of heavy metals and potato polyphenols, respectively. The bioaccessibility of heavy metals (Cr, Cd, Pb, Fe, Zn and Cu) was also measured using an ICP-MS. This study will provide an insight into the toxic effects of pollutants in food.

### Biography

Harmanjot Kaur is passionate about Environmental protection and improvement. She is interested in working on interactive study of food, environment and toxicology. She is currently enrolled as Graduate student in Bioresource Engineering at McGill University, Quebec, Canada. She has undergraduate her degree in Agricultural Engineering from India.

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