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## Concentrations of polyphenols from blueberry pomace extract using nanofiltration

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### Abstract

Polyphenols extracted from blueberry (*Vaccinium corymbosum*) pomace were concentrated using nanofiltration. Crossflow filtration was shown to be a feasible method for concentrating the polyphenols present in dilute aqueous solutions. High-performance liquid chromatography was employed for the determination of total anthocyanins, total flavonols and chlorogenic acid in the hot water extract. Both nanofiltration membranes (NF245 and NF270) showed complete rejection of phenolic compounds at good permeances, whereas crossflow mode of filtration was found to reduce membrane fouling considerably. Furthermore, a suitable protocol was developed for clean-in-place of the used membranes. After repeated filtrations followed by the cleaning protocol, the rejection performance was preserved unaltered and the relative permeance was recovered up to 73% for NF245 membrane and more than 99% for NF270 membrane.

Keywords: polyphenols, blueberry pomace, nanofiltration, crossflow, dead-end

### 1. Introduction

Blueberries (*Vaccinium corymbosum* L.) contain large amounts of polyphenols (Kraujalytė et al., 2015). It has been suggested that consumption of blueberries can help suppress inflammation (Torri et al., 2007; Youdim et al., 2002), display anti-cancer properties (Katsube et al., 2003), improve human gut microbiome (Vendrame et al., 2011), reduce the risk of coronary heart disease (de Lange et al., 2007; Opie and Lecour, 2007) and scavenge oxidative radicals (Giovanelli

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