

Proof

ABSTRACT SYMPOSIUM NAME: Bioactives & Neurodegenerative Diseases-Oral**ABSTRACT SYMPOSIUM PROGRAM AREA NAME:** AGFD**CONTROL ID:** 2419160**PRESENTATION TYPE:** Oral Only : Do not consider for Sci-Mix**TITLE:** Phenolic-enriched maple syrup extract shows neuroprotective effects in murine microglial cells and delays β -amyloid aggregation induced neurotoxicity and paralysis of *Caenorhabditis elegans***AUTHORS (FIRST NAME, LAST NAME):** [Hang Ma](#)¹, Weixi Liu², Pragati P. Nahar¹, Nicholas DaSilva¹, Zhengxi Wei¹, Priscilla P. Pharm³, Dhiraj A. Vattem³, Navindra P. Seeram¹**INSTITUTIONS (ALL):** 1. Biomedical and Pharmaceutical Sciences, College of Pharmacy, University of Rhode Island, Kingston, RI, United States.

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ABSTRACT BODY:

Abstract: Published data supports the neuroprotective effects of several phenolic-containing plant foods, including certain fruits, berries, spices, and nuts, but there is limited data on phenolic-containing natural sweeteners such as maple syrup. Our group has previously reported on the chemical characterization and in vitro anti-inflammatory effects (against RAW 264.2 macrophages) of a phenolic-enriched maple syrup extract (MSX). Herein, we sought to investigate the neuroprotective effects of MSX against Alzheimer's disease using a combination of in vitro and in vivo studies. Based on biophysical data (circular dichroism and zeta sizer), MSX reduced β_{1-42} amyloid fibrillation similar to the neuroprotective polyphenol, resveratrol (66.7 vs. 69.5%, respectively; both at 200 $\mu\text{g}/\text{mL}$). MSX also showed neuroprotective effects against oxidative and inflammatory stress in BV-2 murine microglial cells. MSX (100 $\mu\text{g}/\text{mL}$) decreased the level of reactive oxygen species in BV-2 cells by 16% compared to control, and downregulated the production of inflammatory markers, nitric oxide and prostaglandin E₂, by 24 and 75%, respectively, compared to lipopolysaccharide-stimulated control cells. MSX (10 $\mu\text{g}/\text{mL}$) imparted in vivo protective effects on β_{1-42} amyloid aggregation induced neurotoxicity and paralysis in *Caenorhabditis elegans*. The current study adds to the growing body of data supporting the neuroprotective effects of certain phenolic-containing plant foods including maple syrup. Further studies to evaluate the neuroprotective effects of MSX in animal models of Alzheimer's disease are warranted.

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