conferenceseries.com

Adebimpe Oyeneye et al., J Exp Food Chem 2017, 3:2 (Suppl)
DOI: 10.4172/2472-0542-C1-008

2nd International Conference on

FOOD CHEMISTRY & NUTRITION

July 24-26, 2017 Vancouver, Canada

Genotype effects on flaxseed gum composition and functional properties: Making a consistent hair-gel

Adebimpe Oyeneye[1], **Youn Young Shim**[1,2], **Jun Liu**[1] and **Martin JT Reaney**[1,2]
[1]University of Saskatchewan, Canada
[2]Prairie Tide Chemicals Inc., Canada

A search of the words flaxseed gum (FG) on YouTube will provide links for over 200 videos. A large portion of these videos describe successes and failures in the utilization of home preparations of flaxseed. We wished to determine if genotype was a contributing factor to the use of FG preparations. Gum extracts were prepared from six prominent Canadian flaxseed (*Linum usitatissimum* L.) cultivars. Yield, neutral sugar content, acidic sugar content, and protein content varied significantly among cultivar FG extracts. Solution zeta potential from −16.4 to −27.4 mV and rheological properties were cultivar dependent. Solutions prepared with CDC Glas FG had the highest viscosity (2.984 Pa•s), while CDC Sorrel produced the lowest (0.048 Pa•s). FG solutions exhibited pseudo-plastic shear thinning behavior. FG solution viscosity increased with concentration while viscosity and pseudo-plasticity decreased with increased temperature. Sodium chloride (NaCl) addition decreased solution viscosity while adding sucrose-increased viscosity. FG solutions prepared from Flanders and CDC Sorrel had the highest and lowest emulsion activity index respectively, while solutions of CDC Arras FG and CDC Bethune had the lowest and highest emulsion stability respectively. Findings presented here could explain the inconsistencies in FG preparations reported by lay persons. The purpose of this study is to describe the physicochemical and functional characterization of FG prepared from six Canadian flaxseed cultivars, including CDC Bethune, CDC Sorrel, CDC Arras, CDC Glas, Vimy, and Flanders. FG yield, neutral sugar content, acidic sugar content, and protein content of FG from these cultivars. The knowledge of the effects of genotype on FG properties could allow the users of flaxseed to produce more consistent products. FG solutions prepared from all cultivars exhibited shear-thinning behavior. Apparent viscosity was cultivar dependent and positively correlated with neutral sugar content but negatively with acidic sugar and protein content. Cultivar dependent FG solution rheological properties were also observed with changes in solution temperature (15-45°C), solution pH (3.0–9.0), NaCl concentration (0–200 mM), and sucrose concentration (0–20%, w/v). FG solution emulsification properties (emulsion activity index and emulsion stability) were also determined by flaxseed cultivar. Findings from this study provide useful information regarding FG properties as a gel for use in hair products, food additives, cosmetic ingredients or pharmaceutical ingredients. The differences in FG properties are so large between genotypes it is likely that attempts to utilize an FG product would be impossible without preselecting and appropriate source cultivar. Conversely, FG products made from identity preserved seed have greater utility. These findings will be discussed with respect to the use of FG in preparing hair gel.

Biography

Adebimpe Oyeneye is a masters' student at the University of Saskatchewan from Nigeria with special interest in the utilization of plants to meet the needs of a targeted population. She has worked with an ethanobotanical research center that is focused on the use of different methods of extraction of different plant products to treat several medical conditions. Her current research is on the use of the flax gum for hair gel and improvement of its holding property

ado517@mail.usask.ca

Notes: