9th Euro-Global Summit & Expo on

Food & Beverages

July 11-13, 2016 Cologne, Germany

Contribution of pasting and extract viscosities to cooking quality of pulses

El-Sayed M Abdel-Aal¹, Sanaa Ragaee², Tom Warkentin³ and Albert Vandenberg³

¹Agriculture and Agri-Food Canada, Guelph Research and Development Centre, Guelph, Ontario, Canada, N1G 5C9

²University of Guelph, Department of Food Science, Guelph, Ontario, Canada, N1G 2W1

³University of Saskatchewan, Crop Development Centre, 51 Campus Dr., Saskatoon, SK, Canada, S7N 5A8

Pulses are staple foods in many parts of the world as recognized sources of non-gluten proteins, slowly digestible starch and dietary fiber. In addition to the basic nutrients, they also contain several bioactive compounds such as polyphenols, carotenoids and anthocyanins subject to pulse type. Pulses can be processed into a variety of food items, e.g. canned, boiled, roasted, baked, etc. Several factors contribute to the quality of pulse products including physical, chemical and functional properties. In the current study, viscosity of pulse flours measured by rapid visco analyzer, acid and alkaline extract viscosity determined by cone-plate viscometer, and firmness of cooked pulses measured by texture analyzer were evaluated to understand their contribution to pulse quality. Three pulse crops including fava bean, pea and lentil with four varieties each were included in the study. Pea had the lowest protein (18.7-22.3%) and highest starch (43.0-46.6.3%) concentrations followed by lentil with protein (25.1-26.7%) and starch (38.4-45.5%), and fava bean having protein (26.5-29.2%) and starch (38.4-41.8%). Hydration capacity ranged from 79-95%, 86-100% and 87-106% for lentil, fava bean and peas, respectively. Firmness of cooked peas was 12.2-17.2 Kg, fava bean 19.3-29.8 Kg and lentil 17.2-35.2 Kg. Significant differences (p < 0.05) were observed among varieties within each pulse crops in hydration capacity and firmness. Pasting peak viscosity of pulse flours also showed significant differences (p < 0.05) among pulse crops and varieties. Peak viscosity was in the order lentil > peas > fava bean. Statistical analysis is underway to identify relationships among parameters and their contribution to pulse quality.

Biography

El-Sayed M Abdel-Aal (E-S. M. Abdel-Aal) is a Senior Research Scientist with Guelph Research and Development Centre at Agriculture and Agri-Food Canada where he specialized in grain-based functional foods and natural health products. His about 200 publications and presentations encompass chemistry, functionality, nutritional and antioxidant properties of a diverse array of primitive, modern and newly-developed grains. Currently he is the chair of the Bioactive Compounds Technical Committee and vice chair for the Nutrition Division at the American Association of Cereal Chemists International. He has been Associate Faculty member at the University of Guelph and Adjunct Professor at the University of Toronto.

elsayed.abdelaal@agr.gc.ca

Notes: